

FINAL REPORT

ROAD USE TAX FUND DISTRIBUTION STUDY STEERING COMMITTEE

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AVAILABILITY OF MINUTES

Copies of the minutes of the meetings of the Task Force
are available from the Legislative Service Bureau.

F I N A L R E P O R T

ROAD USE TAX FUND DISTRIBUTION STUDY STEERING COMMITTEE

January 1989

APPOINTMENT AND CHARGE OF THE STEERING COMMITTEE

The Road Use Tax Fund Distribution Study Steering Committee was established pursuant to 1988 Iowa Acts, chapter 1019, section 17 (S.F. 2196). The Steering Committee consisted of six nonlegislative individuals. The members of the Steering Committee are as follows:

Royce Fichtner, Chairman
Richard C. Ransom, Vice Chairman
Shirley Andre
Bob Humphrey
Sandra Huston
Beth McFarlane

Chairman Fichtner, the Marshall County Engineer, and Ms. Huston, a Muscatine County Supervisor, were appointed by the Iowa State Association of Counties; Vice Chairman Ransom, the Cedar Rapids City Engineer, and the Honorable Beth McFarlane, the Mayor of Oelwein, were appointed by the League of Iowa Municipalities; and Ms. Andre and Mr. Humphrey of the State Department of Transportation, were appointed by the State Transportation Commission.

The charge of the Steering Committee was to administer an independently conducted study of the "needs for the total road network and the mechanisms for the distribution of the revenues derived from fuel taxes, vehicle registration fees, license fees, the use tax on vehicles, and other sources of the road use tax fund". There was appropriated \$300,000 for purposes of the study.

MEETINGS OF THE STEERING COMMITTEE

The Steering Committee held a total of sixteen meetings from July 8, 1988, through January 20, 1989. The first seven meetings involved the development of a "Request For Proposal" to be provided to interested consultants, and the selection process. The consultant chosen was De Leuw, Cather & Co. of Gaithersburg, Maryland, and a contract with the consultant was entered into by the Steering Committee. De Leuw, Cather & Co. did the study in association with Price Waterhouse, Barton-Aschman Associates, Inc. and Kirkham, Michael and Associates.

After the selection of the consultant, the Steering Committee and the consultant began generally meeting at two-week intervals, the first beginning on October 5, 1988. At the meetings the consultant would inform the Steering Committee of what the consultant has done since the last meeting and what tasks it will perform prior to the next. The Steering Committee used these meetings to provide the oversight and guidance the consultant needed to ensure the study would produce a worthwhile product.

FINAL REPORT OF THE CONSULTANT

The final two meetings were devoted to putting together the final report of the consultant. The consultant arranged to have printed an executive summary which was based upon, but separate from, the final report. A copy of this executive summary is attached to this final report of the Steering Committee. The consultant's final report and the minutes of all of the meetings are available at the Legislative Service Bureau.

A P P E N D I X

- Executive Summary of the Final Report of the Consultant

THE NEEDS AND FINANCES OF IOWA'S ROADS

EXECUTIVE SUMMARY

De Leuw, Cather & Company

in association with

Price Waterhouse

Barton-Aschman Associates, Inc.

Kirkham, Michael and Associates

January 1989

EXECUTIVE SUMMARY
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ACKNOWLEDGEMENTS

De Lauw, Cather & Company expresses their appreciation to the many citizens of Iowa and the people of Iowa's state, county, municipal governments who provided information and assistance during the conduct of this study.

The Steering Committee for the Road Use Tax Fund Distribution Study met with the project staff every two weeks to review progress on the study, work to be performed, and preliminary data findings on the needs and finances. These meetings and timely reviews of preliminary data contributed significantly to the successful completion of this study within the very short time period allocated. Members of the Steering Committee were:

Sandra Huston
Muscatine County Supervisor
Muscatine

Beth McFarlane
Mayor of Oelwein
Oelwein

Shirley Andre
Director, Bureau of Policy & Information
Iowa Department of Transportation
Ames

Royce Fichtner, Chairman
Marshall County Engineer
Marshalltown

Richard Ransom
City Engineer
Cedar Rapids

Robert L. Humphrey
Director, Highway Division
Iowa Department of Transportation
Ames

Liaison for the Steering Committee was provided by Michael J. Goedert, Legal Division, Legislative Service Bureau.

Members of the Steering Committee also participated in the six public meetings held throughout the state to solicit input from Iowa residents and local road and street officials. Additionally, over 240 citizens and local officials returned a questionnaire containing information related to road needs, finance and related data.

Special acknowledgement is given to the Iowa Department of Transportation, Highway Division and Planning and Research Division, especially the Office of Advance Planning, Office of Local Systems, Office of Economic Analysis and all Department personnel who provided data, reports and other information used to this study.

Appreciation is also expressed to personnel of the following associations, organizations and universities who provided information through meetings, reports and other data sources:

- Iowa Department of Economic Development
- League of Iowa Municipalities
- Iowa State Association of Counties
- Des Moines Area Chamber of Commerce
- Iowa Business Council
- Iowa Farm Bureau Federation
- Iowa Good Roads Association
- University of Iowa, Policy Center
- Iowa State University

The interpretation of data, opinions, findings, conclusions and recommendations are those of the consultants and may not reflect the opinions of personnel from the public and private agencies who provided assistance to this study.

Chapter 1
INTRODUCTION

This Executive Summary contains a chapter by chapter synopsis of a final report of the same name complete with appendices.

The report contains a realistic and optimistic assessment of Iowa's road needs and finances. Optimism is founded in the following observations:

- The years marked by intense economic restructuring appear to be ending and some positive economic signs are emerging.
- Iowa has good roads and generally ranks high in the midwest in terms of road performance.
- Iowa has room to grow, its cities are not characterized by traffic congestion and air pollution. If other support infrastructure is as favorable as roads, Iowa's cities make attractive growth centers for business and industry.
- People in the nation are recognizing the advantages of living in the midwest, particularly baby boomers who see the overall environmental, social and educational benefits for their children.
- Iowans are among the most productive workers in the nation.
- Iowa's government is sound and its state, county and municipal road institutions are exemplary of its good government.

On the side of realism and economic efficiency, road funds in Iowa are critically short. An active road policy which considers the institutional responsibilities for roads as well as road finances is required to ensure that

Iowa's roads enhance economic performance and development within the state. The facts and information in the report are organized for decision makers to realistically address the future of Iowa's roads and their place in Iowa's economy.

The 1988 Iowa General Assembly authorized this independent study of the current and future needs of Iowa's road network and how the needs compare with available finances including allocations from the Road Use Tax Fund.

The study was independently conducted by the Consultant and administered by a Steering Committee comprised of six members, two appointed by each of the State Transportation Commission; Iowa State Association of Counties; and League of Iowa Municipalities.

The Steering Committee was tasked with presenting study findings to the Governor, the Chief Clerk of the House of Representatives and the Secretary of the Senate not later than January 31, 1989.

STUDY OBJECTIVES

The study objectives specified a study and evaluation in the following four areas:

1. existing road systems of the state, county and municipal governments,
2. road needs for the future,
3. current road finances, and
4. future finances.

These evaluations provided the bases for recommendations in the areas of legislation, jurisdictional responsibilities, Road Use Tax fund allocations, funding levels and alternative sources of revenues for roads

APPROACH

The approach to the study included:

1. Obtaining public perceptions of need through six regional public meetings, questionnaires, surveys and interviews.
2. Collecting statistics, trends and data on Iowa's roads, economy and demographics, and
3. Organizing information and recommendations for decisions-makers.

Reaching consensus on the independent recommendations was not practicable in the available study time. Nevertheless, the information in this report is presented to permit assessment from other perspectives and points of view, as well as, provide Iowa's leadership a better basis for reaching decisions on the future of Iowa's roads.

Chapter 2

A PERSPECTIVE ON ROADS AND FINANCES

Many factors affect road needs and finances in Iowa. Trends in population, economics, current road performance, institutional considerations and public perceptions.

DEMOGRAPHICS AND ROADS

Population and its distribution within the State affects road programs and road finances. Iowa has lost population since the 1980 census and current projections to the year 2010 are either flat or declining. Additionally, Iowa population is shifting from the rural areas to the larger urban metropolitan areas. This shift from rural to urban impacts future road investments.

Changes in the major areas of employment are accompanying the shifts in population. In the future significantly less Iowans will be employed in farming and the largest increases are expected in the service industry employment. Impacts from these changes in demographics include the following:

- If population decreases, the overall financial burden on the population for generating road revenues will obviously increase.
- Shifts in population away from the rural areas will have little impact on reducing the road requirements in the counties and rural areas. Road requirements in these areas are largely related to low volume secondary roads and farm-to-market roads, which have minimum maintenance and preservation thresholds that will change very little as population shifts to metropolitan areas.
- Likewise, population shifts toward metropolitan centers will generate new access requirements within metropolitan areas and increased road capacity requirements both within and between urban areas.

Consequently, Iowa's total population could remain constant or decrease, and shifts in the population will increase total road requirements.

ROAD ECONOMICS

State and local governments have key roles in the use of available resources for road transportation. Effective road investment impacts economic development and strong market performance. Some economic theory indicates the most productive use of government resources is the investment in roads and other transportation systems that promote the production and distribution of goods and services.

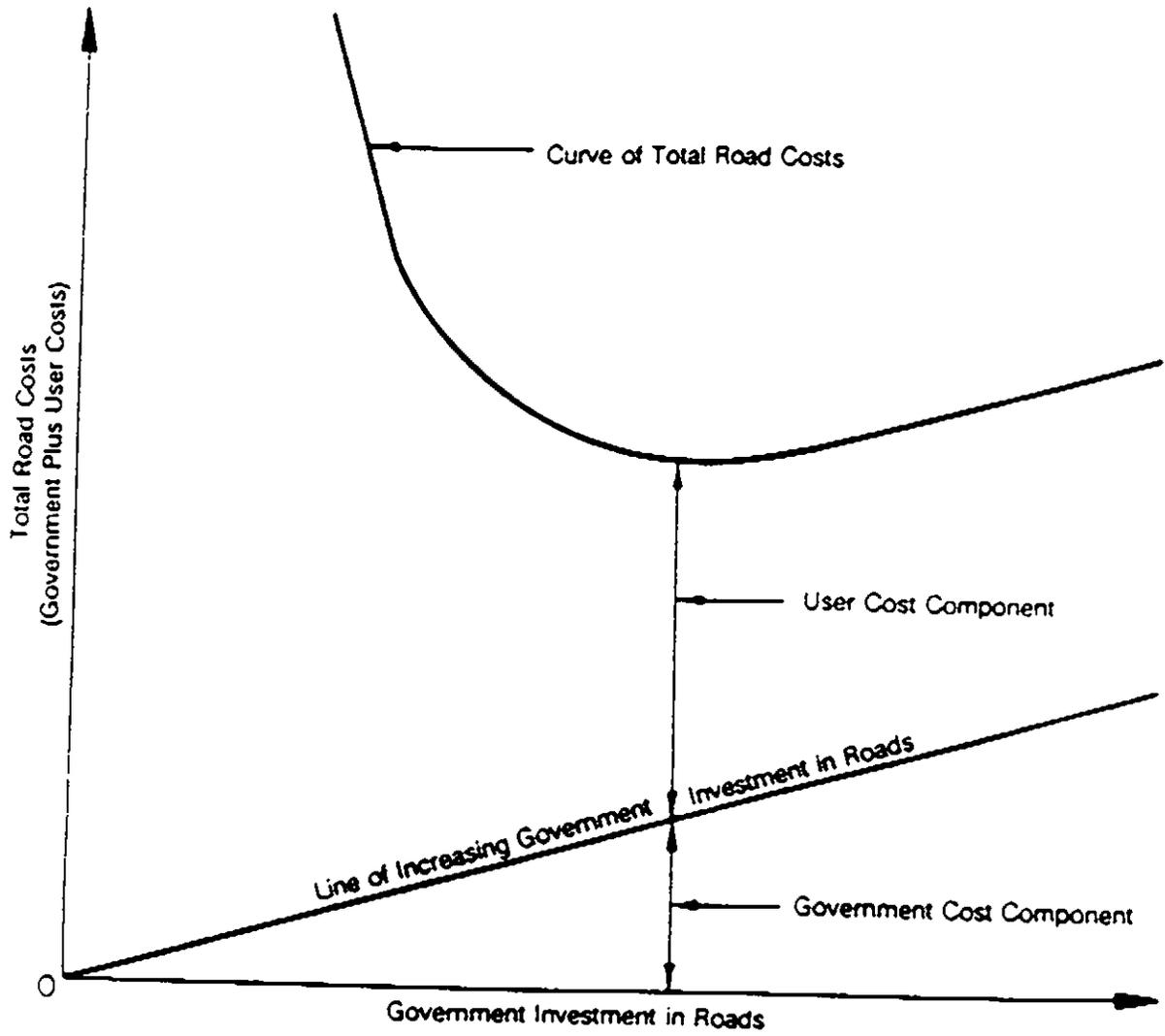
Minimizing the cost of government investment for roads is not good economic or transportation policy if funding levels are already less than optimum. In fact, lower government road investment can increase the total cost of road transportation. This occurs because government road investment is an important interdependent part of the total road economic equation. Direct economic costs for road transportation are comprised of the sum of the governments investment costs in construction and maintenance and the costs road user's incur. In general, the user's costs are greater than the government costs and greatly influenced by the type and magnitude of road investment the government makes. Figure 2-1 illustrates these economic relationships. This figure also illustrates the following:

1. total costs for road transportation rise rapidly when road investment is less than optimum, and
2. under investing in roads has more economic risk than over investing (considering the shape of the curve of total road costs in Figure 2-1.)

Generally, investing first in improvements exhibiting higher rates of return, tends to minimize total costs and promotes efficiency in existing road systems with established traffic flows. Typically, higher rates of return

Figure 2-1

RELATIONSHIP OF GOVERNMENT ROAD INVESTMENT TO TOTAL ROAD COSTS



are realized on roads carrying substantial commercial traffic, although the cost of the improvement also influences the rate of return. The rate of return on investment was used as one criterion in setting priorities for road needs in Iowa.

Effective government investment in roads also includes the development of new highways to provide access to new markets. These new development highways require specific corridor planning studies to determine their economic feasibility as well as special financial packaging which is not a component of general financial policy. Coordination with local governments and developers is also a requisite to establishing viability and mitigating the risks of these development ventures. An assessment of the adequacy of funding to support new development roads was included in this study.

EQUITY AND BURDEN

An assessment of the cost responsibilities between users and non-users for the entire State road program indicates there is reasonable equity in the proportionate contribution of user and non-user revenues for roads in Iowa. However, there is inequity between the counties and municipalities considering their level of local non-user revenue support for their respective local access systems. Municipalities currently contribute 100 percent of the revenues for local streets, whereas the counties contribute 73 percent of the revenues for local access roads.

The financial burden per person for roads and streets shows a different picture. The devaluation of farm land, municipal debt financing for streets and current user rates for fuel, registrations, etc. indicate that all Iowans are under a considerable financial burden for road and street financing. Based on 1980 population the local financial burden in 1987 for the counties and municipalities was \$120 per person for the counties and \$78 per person for the municipalities. On this basis, the county's financial support per capita is approximately 50 percent greater than that of the municipal support. The estimated shifts in population between 1980 and 1987 would increase the difference between the two jurisdictions.

IOWA IN THE MIDWEST

Iowa's road transportation systems were compared with eleven other states in the Midwest¹ to assess Iowa's position with respect to: (1) performance; (2) infrastructure burden; (3) use of road capacity; (4) taxation and (5) spending. Generally, Iowa ranks very favorably to its adjacent and neighboring states.

1 Performance measures road safety and condition.

- Iowa has good paved roads. A review of the surface condition of paved urban and rural collectors, arterials and Interstate systems indicates that 97 percent are in fair or better condition. Iowa ranks second in this category among the midwestern states.
- Although regional statistics are not kept on the condition of unpaved roads, it is widely recognized that Iowa's unpaved roads are among the best-maintained in the region and the nation.
- Iowa's rural primary roads rank lower than its collector roads.

2 Infrastructure burden compares magnitude and density of road networks.

- Among the twelve midwestern states Iowa has the seventh largest network of road miles and second largest number of bridges.
- Secondary rural access is often perceived as very excessive and proposals to abandon a number of secondary roads have been put forth, when in fact among the twelve midwestern states Iowa ranks fifth in rural access to total land area.

¹Iowa's road system was compared to the Plains states -- Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota and the Great Lakes states -- Illinois, Indiana, Michigan, Ohio and Wisconsin.

3. Use of road capacity correlates to vehicle miles of travel.
- Iowa ranks low (eighth statewide) among the twelve midwestern states in road utilization.
 - Travel on Iowa roads and streets is not hampered by slower moving congested traffic as are several of the other eleven Midwestern states.
4. Taxation for roads and streets in Iowa.
- Iowa's total road tax burden is average in the Midwest.
 - User taxes comprise a significant part of Iowa's road receipts. Iowa's gas tax and license fees are among the nation's highest.
 - Property taxes and receipts from debt are both relatively high, while total non-user taxes for roads are average for the Midwest.
 - Support from state and local general funds is the lowest in the Midwest.
5. Spending for road maintenance and construction.
- Iowa's total capital and maintenance expenditures per lane-mile are consistently ranked eighth among the twelve midwestern states, with a slightly greater than average emphasis on maintenance.
 - The percent of total expenditure used for capital and maintenance work (on-the-road expenditure) is approximately average for the Midwest.

JURISDICTIONAL NETWORKS

Jurisdictional responsibility for the public roads and streets in Iowa is distributed among the state, 99 counties and 956 municipalities. The distribution of the total state 112,000 miles and vehicle miles is as follows:

<u>Jurisdiction</u>	<u>1987 Miles</u>	<u>Percent of Total</u>	<u>1987 Vehicle Miles (Millions)</u>	<u>Percent of Total</u>
State	9,831	8.78	12,043	59.29
Counties	89,558	79.95	3,632	17.88
Municipalities	<u>12,624</u>	<u>11.27</u>	<u>4,636</u>	<u>22.83</u>
TOTAL	112,013	100.00	20,311	100.00

The state mileage does not include state park and institutional road miles. State primary mileage is only nine percent of the total public road and street miles, however, it carries 60 percent of the motor vehicle travel in the state. While the county roads represent 80 percent of the total miles, they only carry 18 percent of the vehicle miles. Vehicle miles of travel increased by 5.5 percent on a statewide basis during the period 1978 - 1987 which is significantly less than the 20 percent increase experienced nationwide. Iowa municipalities had the largest increase at 9.8 percent with the counties following with 9.1 percent.

Iowa counties and municipalities have continued to pave roads during the past ten years. During this period, paved road mileage in the counties has increased by approximately 1,830 miles and the municipalities have approximately 1,640 additional paved miles. The municipal mileage also includes an increase of 610 miles to the total municipal system.

JURISDICTIONAL RESPONSIBILITIES

The Iowa DOT, counties and municipalities have maintenance and construction responsibility for their respective road and street systems. However, there are several miles of these systems that are the joint responsibility of two different jurisdictions. Specific areas of joint responsibility and areas for potential modification in jurisdictional responsibilities identified during this study include the following:

- Municipal primary extensions are the joint responsibility of the State and the municipalities. The State has responsibility for construction and right-of-way costs to the primary design criteria adopted by the Iowa DOT. Costs for additional widths and features not included in these criteria are the responsibility of the municipality. State maintenance responsibility on primary extensions includes the surface, curb and curb features (excluding parking lanes and parking signs), traffic signs, pavement markings, bridges and snow removal from the traffic lanes. Other primary extension maintenance, including the removal of windrowed snow, parking lanes and signs, traffic signals, sidewalks and other features between the curb and the right-of-way line, is municipal responsibility.
- Farm-to-market roads are those roads outside of municipalities that are classified as trunk and trunk collector under Section 306.1, Code of Iowa. Local secondary roads are roads outside of municipalities classified as area service. Currently, there are a few miles of arterials not on the primary system that "by default" are on the local secondary. These should be reclassified to trunk or trunk collector and included in the farm-to-market system. The farm-to-market system totals 29,400 miles which includes some federal aid secondary miles which are eligible for federal aid secondary funds received by the Iowa DOT. These federal funds, as well as RUTF allocations to the farm-to-market system, may only be used for construction and improvement of the farm-to-market system.
- Extensions of the rural secondary system into and through municipalities, including the farm-to-market system, are the responsibility of the respective municipalities. Farm-to-market roads located along the corporate line of a city may be included in the farm-to-market system and may be reconstructed

repaired, improved and maintained as part of the system. Other secondary roads located on corporate lines are the joint responsibility of the county and the municipality. Typically, county roads located on corporate lines are jointly maintained by the respective jurisdictions. Designated segments of the road may be assigned to each jurisdiction or one may maintain the entire section with reimbursement from the other.

- Section 314.5 of the Code of Iowa authorizes the counties to construct, reconstruct, repair and maintain secondary road extensions in municipalities of 2,500 and less population. During the public meetings held throughout the State and interviews with public officials, the lack of maintenance capability of small municipalities was frequently discussed, as well as, the burden of having them maintain county secondary extensions. Although Chapter 28E of the Code authorizes the counties and municipalities to enter into agreements whereby the county maintains the secondary extensions and is reimbursed by the municipality, this option is not widely exercised. Designating secondary road extensions into small municipalities as county responsibility would be comparable to the Iowa DOT's responsibility for primary road extensions.
- Primary extensions in municipalities are the combined responsibility of the Iowa DOT and the municipality. Extensions of county secondary roads in municipalities are the sole responsibility of the municipalities. Streets located on the corporate lines are the joint responsibility of the municipality and either the county or Iowa DOT. Specific maintenance responsibilities of the respective jurisdictions are defined through formal maintenance agreements.

TORT LIABILITY

Tort liability represents a major concern to the state, counties and municipalities. Since the loss of sovereign immunity by the Iowa Tort Claims Act in 1965, the number of claims filed and the costs for settlements and judgments has steadily increased. For the Iowa DOT alone, the number of tort claims filed increased from

150 in 1980 to 363 in 1988. The cost for settlements and judgments paid during this period totaled \$15.6 million.

Iowa is one of the few states that does not have a ceiling limitation on tort liability. Of 22 states responding to a survey by the American Association of State Highway and Transportation Officials, 17 states have a ceiling on tort liability. These included the neighboring states of Illinois, Indiana, Minnesota and Missouri. States not having ceiling limitations included Michigan and Ohio. These limitations on tort liability ranged from \$100,000 to \$300,000 per person and \$250,000 to \$1,000,000 per incident.

Monies paid by the Iowa DOT for tort claims come from the Primary Road Fund and thus reduce the limited revenues available for primary road improvements and maintenance. In the interest of preserving revenues of the Primary Road Fund and minimizing tort liability costs it would be beneficial if a ceiling limit was applied to tort liability claims. The ceiling should include a limit per individual and a limit per incident.

TRANSPORTATION ABANDONMENTS

The abandonment of segments of alternative transportation systems, such as rail, bus, air and barge, places additional demands on the other transportation systems, primarily highways, roads and streets. Since 1975 railroad companies have abandoned 4,564 miles of low revenue producing track in Iowa. Other rail companies have acquired 1,544 miles of this track and returned it to service for a net loss of 3,020 miles of track in Iowa. Rail abandonments result in the loss of freight services which are transferred at least partially to Iowa's road and street systems.

The Iowa DOT, Planning and Research, and Rail and Water Divisions, performs benefit-cost analyses on proposed rail abandonments to assess economically the impacts of the abandonment versus benefits from a rail improvement. The major component of public benefits is highway cost savings if the line is upgraded and additional trucking (increased travel and weight on public roads) is avoided. Highway cost savings in the analysis are defined as the additional construction and maintenance costs that state and local agencies

would be required to bear due to increased truck trips and axle loadings over a given route if rail service is abandoned. Cost savings are estimated by multiplying the quantity shipped by rail, expressed as truckload trip equivalents, by highway construction and maintenance cost factors.

Data from these analyses, including traffic and axle load assignments, should be made available to the jurisdictions having responsibility for the impacted roads and streets whenever rail abandonments are authorized. These data should be incorporated into the road and street needs data bases to reflect the additional traffic and vehicle loadings. While the impact on total road needs may be minimal, the impact on isolated roads in a county or municipality could be very significant in terms of increased maintenance and construction costs.

HIGHWAY RESEARCH PROGRAMS

Engineering research is funded from the Primary Road Research Fund and the Secondary Road Research Fund. The Iowa DOT, Highway Division, is guided in this research by the Iowa Highway Research Board, an advisory group established in 1949 by the Iowa State Highway Commission. This advisory group consists of three DOT Highway Division engineers, six county engineers, two engineers from Iowa municipalities, and one engineer each from Iowa State University and the University of Iowa. The Iowa Highway Research Board reviews proposals for highway research and development and makes recommendations for expenditures of funds for the proposed research. Either the Primary Road Research Fund or the Secondary Road Fund is charged for these expenditures depending on which road system benefits from the projects. When both the primary and secondary systems share in the benefits, the costs are shared in proportion to the respective benefits.

The municipalities are represented on the Highway Research Board but there is no municipal funding for research that will benefit the municipal street systems. Although research has been conducted, and funded, through the Iowa Highway Research Board that has been beneficial to the municipal street system, the municipalities have been restricted in their ability to promote and sponsor research specifically for municipal

streets. Designated municipal street research funds, similar to the Primary and Secondary Research Funds would provide Iowa municipalities the opportunity to promote research directed toward improving maintenance and reconstruction operations for municipal streets. The influx of additional research funds would benefit not only Iowa municipalities but also the entire research program of the Iowa Highway Research Board.

LEVELS OF SERVICE

The needs analysis used rural and urban design guides to establish design elements necessary to provide an adequate level of service for each functional class of road or street. These guides were applied uniformly without regard to jurisdiction. These guides were developed cooperatively by the Iowa DOT and the Iowa County Engineers' Association.

Jurisdictions need to adhere to these design guides when making road improvements in order to maintain equity in levels of service. Currently, there are some deviations in the paving of rural roads with traffic of less than 200 vehicles per day. This results in unequal levels of service within the jurisdictions and can result in significant economic loss to the State when extensive mileage of low volume roads are paved prematurely. In previous years the paving of low volume roads was common practice in some jurisdictions, however there has been a downward trend in this practice. Adherence to current design guides should be practiced by all jurisdictions.

Levels of maintenance service are established by the respective jurisdictions. The Iowa DOT utilizes a maintenance management system together with performance and service level guidelines to plan, accomplish and monitor maintenance of the State primary system. These guidelines consider existing pavement condition and extent of deterioration, traffic volumes, vehicle characteristics and climatic conditions. The use of uniform maintenance guidelines results in more effective maintenance operations, increased uniformity in the level of maintenance service provided and more effective resource utilization.

The individual County Board of Supervisors and the municipal governing bodies define maintenance policy and levels of service through the adoption of annual maintenance budgets. The levels of maintenance service varies from jurisdiction to jurisdiction due to availability of revenues and resources. Most of the municipalities, even the smallest, have an organization for street maintenance. There may be merit in transferring the responsibility for streets in the smaller municipalities to the counties, or at least permitting it as an option.

The counties are authorized by the Code of Iowa to designate a lower level of maintenance on area service roads classified for maintenance purposes as "Level B Roads." As long as the Level B roads are maintained to the designated lower maintenance level, the county is not liable for damages occurring due to use of these roads. To date, only a few counties have adopted this Level B service level due to a variety of reasons. The potential exists to define a uniform service level for Level B Roads and to maximize the benefits in maintenance expenditures.

The counties and municipalities have limited liability for damages due to snow and ice conditions if they have adopted a formal snow and ice control policy and have complied with the policy. There has been a favorable response to this provision in the Code and several counties and cities have adopted formal policies for snow and ice control. This is sound maintenance policy and is a step in the right direction in the promulgation of uniform levels of maintenance service.

PERCEPTIONS OF NEED

Perceptions of Iowa's road and street needs vary throughout the State and by the road users and various associations and interest groups. To obtain input from the general public, road users, local road and street officials and the several interest groups, a series of six public meetings was held throughout the State. Participants had the opportunity to provide input to this needs study. Comments ranged from "the importance of the road use tax (RUTF) for the counties and municipalities" to "limitations of funds and use of funds."

Responses to a questionnaire on road and street needs issues showed the respondents almost equally divided in their viewpoints and perceptions of needs and financing for roads and streets. Among proponents of the need for good transportation systems were the employers of industries who depend on the roads and streets for their business operations and employee commuting.

These perceptions of road and street needs provide another dimension for the assessment of road needs and financing in Iowa. Although these perceptions lack quantifiable input, they are important to the development of a road financing program responsive to the needs of Iowa.

Chapter 3
ROAD NEEDS

Road needs include the estimated dollar needs required to administer and operate, maintain, construct and reconstruct roads. These needs are based on the 1986 Quadrennial Needs Study which was critically reviewed, revised and updated for use in this study.

REVIEW OF NEEDS ESTIMATES

The road needs process employed in Iowa is based on needs models developed by the Federal Highway Administration in the 1970's and refined through the years. The models utilize current conditions and simulate road behavior into the future. The models analyze the best available information which in many ways takes into account the trends and issues discussed in the preceding section. For example

- rail abandonments increase truck traffic and loads on pavements; this trend is reflected in the updated traffic and vehicle classification counts which are used in the model;
- liability issues are reflected in the historical administration, maintenance and construction costs as well as the design guides applied to improvements;
- jurisdictional responsibility is reflected in the inventory of state, county and municipal roads which are employed in the model;
- levels of service to the public are reflected in the traffic standards, historical maintenance costs and design guides; and
- growth and shifts in travel patterns are reflected in traffic count information and projections of traffic

The methods and values employed in the needs analysis are reasonable and were professionally applied. For this study, the needs costs were adjusted to 1987 dollars and have been used for all needs summaries.

A reasonableness check was performed on the maintenance costs of the three jurisdictions by comparing them with historical expenditure. It was found that the cost of municipal maintenance was underestimated. Adjustments were made to bring municipal maintenance costs more in line with historical expenditure and the state and county costs and these adjustments are reflected in the road costs presented in this section.

PRESENTATION OF ROAD NEEDS

Historically, throughout the nation the road needs process has almost always estimated costs far in excess of current funding and very unrealistic in light of future funding possibilities. Consequently, a good case for legitimate road requirements was not made. At the national level and in many states, studies lost credibility and decision makers did not have the types of information required to set an economically efficient course of action for roads. The mis-perception often exists that roads are over funded and in the competition for scarce government funds at the national, state and local levels road investment has been losing.

In this study, we have presented the needs in the traditional way and set guidelines on priorities which are important to the total funding issue as well as the distribution of funds. Figure 3-1 contains a breakdown of the 20-year road needs by jurisdiction. The backlog column of construction contains needs which exist today - these are not forecasted needs. The accruing column of construction contains forecasted needs. Figure 3-2 contains the 20-year municipal road needs for each of six municipal population groups. When funds are insufficient to meet all needs, two policy questions remain:

1. What needs should be met first?
2. How should backlog construction be treated?

Figure 3-1

20-YEAR NEEDS SUMMARY
(Millions of 1987 Dollars)

JURISDICTION	CONSTRUCTION				TOTAL
	BACKLOG	ACCRUING	MAINT	ADMIN	
STATE					
RURAL	2,629	2,047	1,081	401	6,158
MUNICIPAL	549	1,093	274	145	2,061
Subtotal State	3,178	3,140	1,355	546	8,219
COUNTY					
FARM TO MARKET	1,593	2,420	1,019	284	5,316
SECONDARY	1,496	929	1,885	144	4,454
Subtotal County	3,089	3,349	2,904	428	9,770
MUNICIPAL					
ARTERIAL	187	500	307	129	1,123
COLLECTOR	358	607	510	175	1,650
STREET	848	943	1,101	305	3,197
Subtotal Municipal	1,393	2,050	1,918	609	5,970
TOTAL	7,660	8,539	6,177	1,582	23,959

Figure 3-2

20-YEAR NEEDS SUMMARY
MUNICIPAL POPULATION GROUPS
(Millions of 1987 Dollars)

POPULATION GROUP	CONSTRUCTION				TOTAL
	BACKLOG	ACCRUING	MAINT	ADMIN	
ZERO TO 2,500	557	628	554	135	1,874
2,500 TO 5,000	109	136	166	29	440
5,000 TO 10,000	115	227	191	70	603
10,000 TO 25,000	76	159	163	49	447
25,000 TO 50,000	127	259	202	83	671
50,000 AND UP	409	642	642	244	1,937
TOTAL	1,393	2,051	1,918	610	5,972

A hierarchy of road needs was developed based on a general philosophy of first maintain, then preserve, expand and finally modernize. Within this scheme, priorities were set for the different improvement types based on expected rates of return on the government's investment. The purpose is to establish some balance between: (1) minimum thresholds for preservation which exist regardless of economic benefit and (2) the benefits to the users of roads. The hierarchy is presented in six categories of road needs. Figure 3-3 summarizes the content of improvements in each category.

Figure 3-3

SUMMARY OF THE HIERARCHY OF ROAD NEEDS

CATEGORY 1

- Maintenance
- Administration

CATEGORY 2

- Resurfacing
 - Rural paved roads with traffic greater than 199 VPD¹
 - Rural unpaved roads with traffic greater than 49 VPD
 - Urban paved roads with traffic greater than 99 VPD
 - All urban unpaved roads
- Bridge 1
 - Structurally deficient rural bridges with traffic greater than 400 VPD
 - Structurally deficient urban bridges with traffic greater than 1000 VPD
- Railroad crossings, one half of the needs
- Reconstruction 1 (related to surface conditions)
 - Rural roads with traffic greater than 4,999 VPD
 - Urban roads with traffic greater than 9,999 VPD

CATEGORY 3

- Resurfacing
 - Rural paved roads with traffic less than 200 VPD
 - Rural unpaved roads with traffic less than 50 VPD
 - Urban paved roads with traffic less than 100 VPD
- Bridge 2
 - Structurally deficient rural bridges with traffic less than 401 VPD
 - Structurally deficient urban bridges with traffic less than 1,001 VPD
 - Functionally obsolete rural bridges with traffic greater than 1,000 VPD
 - Functionally obsolete urban bridges with traffic greater than 4,000 VPD
- Railroad Crossings, one half of the needs
- Reconstruction 2 (related to surface conditions)
 - Rural roads with traffic greater than 999 and less than 5,000 VPD
 - Urban roads with traffic greater than 4,999 and less than 10,000 VPD

¹VPD means Vehicles Per Day

Figure 3-3

SUMMARY OF THE HIERARCHY OF ROAD NEEDS (Cont.)

CATEGORY 4

- Capacity Improvement 1 - New Location, Reconstruction (added traffic lanes) and Major Widening
 - Rural roads with traffic greater than 4,999 VPD
 - Urban roads with traffic greater than 9,999 VPD
- Bridge 3
 - Functionally obsolete rural bridges with traffic greater than 100 and less than 1,001 VPD
 - Functionally obsolete urban bridges with traffic greater than 400 and less than 4,001 VPD
- Reconstruction 3 (related to surface conditions)
 - Rural roads with traffic greater than 399 and less than 1,000 VPD
 - Urban roads with traffic greater than 999 and less than 5,000 VPD

CATEGORY 5

- Capacity Improvement 2 - New Location, Reconstruction (added traffic lanes) and Major Widening
 - Rural roads with traffic less than 5,000 VPD
 - Urban roads with traffic less than 10,000 VPD
- Bridge 4
 - Functionally obsolete rural bridges with traffic less than 101 VPD
 - Functionally obsolete urban bridges with traffic less than 401 VPD
- Reconstruction 4 (related to surface conditions)
 - Rural roads with traffic less than 400 VPD
 - Urban roads with traffic less than 1,000 VPD

CATEGORY 6

- Modernization 1 - Reconstruction and Minor Widening (related to cross section and geometrics)
 - Rural roads with traffic greater than 4,999 VPD
 - Urban roads with traffic greater than 9,999 VPD
- Modernization 2
 - Rural roads with traffic greater than 999 and less than 5,000 VPD
 - Urban roads with traffic greater than 4,999 and less than 10,000 VPD
- Modernization 3
 - Rural roads with traffic greater than 399 and less than 1,000 VPD
 - Urban roads with traffic greater than 999 and less than 5,000 VPD
- Modernization 4
 - Rural roads with traffic less than 400 VPD
 - Urban roads with traffic less than 1,000 VPD

Chapter 4
ROAD FINANCE

The review and evaluation of finances available for Iowa's highways, roads and streets encompassed four major areas. These were:

1. Current Methods of Funding Distribution.
2. Historical Funding;
3. Highway Revenue Projections; and
4. Additional Funding Options.

Federal, state and local financial reports and other existing financial data were used for these analyses

CURRENT METHODS OF FUNDING DISTRIBUTION

The Road Use Tax Fund (RUTF) is the primary vehicle through which state road-related receipts are collected and disbursed in Iowa. Sources to the RUTF are:

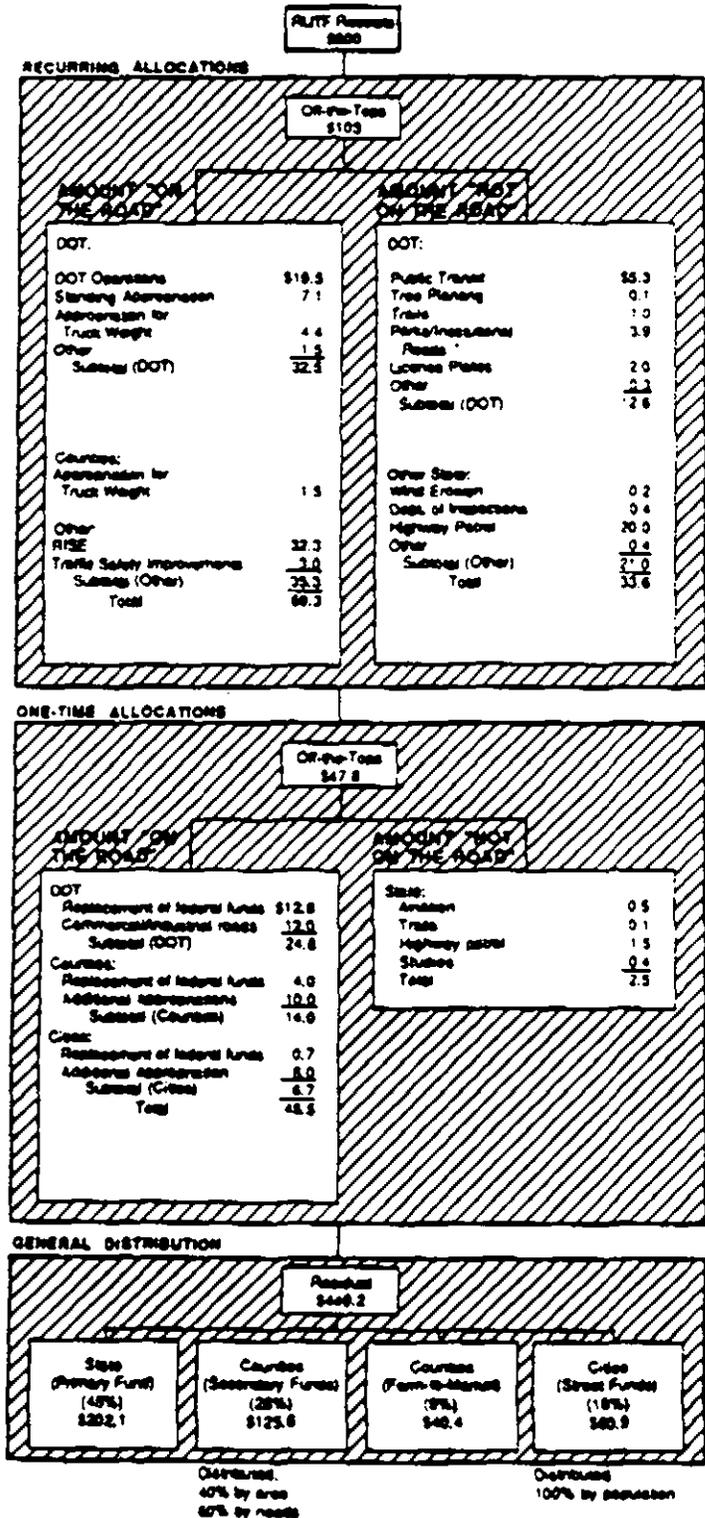
- motor fuel taxes.
- motor vehicle registration fees.
- motor vehicle use taxes, and
- driver license fees.

Total funds to the RUTF have increased from \$300 million in FY78 to \$540 million in FY87, measured in nominal dollars.

Disbursements from the RUTF are made in two ways. First, amounts are allotted for "off-the-tops" and special diversions -- items to which RUTF funds are directed before the general distribution among jurisdictional levels. Once the off-the-tops and special appropriations have been made, the remainder is allocated among the State's primary road fund, the counties' secondary road and farm-to-market funds, and

Figure 4-1

ALLOCATION OF RUTF REVENUES
(FY89 - \$ Million)



* Parks and Recreation needs are a special category which receive RUTF funds. These funds are not spent on the state highway system.

In addition to the foregoing, which are appropriated annually, there are additional one-time allocations occurring in FY89 and FY90. These one-time allocations amount to almost \$48 million in FY89. Of the nine separate one-time allocations, the two largest are Replacement of Lost Federal Funds and Additional Appropriations, of \$12 million to the State in FY89 for the Commercial and Industrial Highway Network (falling to \$10.4 million in FY 90); of \$10 million and \$8.7 million to the counties in FY89 and FY90, respectively, and of \$6 million and \$5.2 million to the cities in FY89 and FY90, respectively.

HISTORICAL FUNDING REVIEW

The historical review of receipts and expenditures among the three jurisdictional levels was conducted for the 10 year period 1978-87.

State Primary System

Highway-related receipts to the State totalled \$375 million in FY87. This is an increase from \$240 million in FY78, measured in nominal dollars, as shown in Figure 4-2. Receipts from State sources (i.e., the RUTF) accounted for an average of 59 percent of total Primary highway receipts, varying from 52 percent in 1980 to 66 percent in 1987.

Receipts from federal sources to the primary highway system have averaged 37 percent of the total over the period. The main federal funding sources for the state primary system are for the Interstate system, the primary system, and bridge replacement. These items currently represent almost 80 percent of all federal funds to the State system.

The State's highway related expenditures have increased from \$270 million in 1978 to \$378 million in 1987 measured in nominal dollars, as shown in Figure 4-3. The primary expenditures are for construction, maintenance, and general administration and miscellaneous. Construction related expenditures have shown a decline over the period in relative terms, from over 68 percent of total expenditures in 1978-79 (i.e., \$185 million) to 55 percent in 1986-87 (i.e., \$209 million). Maintenance expenditures have averaged 16 to 24

Figure 4-2

STATE HIGHWAY RECEIPTS (1)
(1978 - 1987)

(IN \$ MILLIONS OF NOMINAL DOLLARS)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987										
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$										
	X of Total																			
RECEIPTS																				
Primary Road fund/	134.1	55.9X	147.8	54.1X	140.1	46.8X	142.9	48.1X	153.9	49.5X	163.0	55.8X	170.2	47.9X	182.4	46.6X	189.9	49.6X	202.2	53.9X
Other Operations	0.5	0.2X	0.5	0.2X	0.5	0.1X	0.5	0.1X	0.5	0.1X	0.5	0.1X								
State Sources	0.6	0.3X	7.1	2.6X	7.1	2.2X	11.3	3.8X	11.5	3.9X	11.5	3.7X	11.5	3.2X	11.5	2.9X	11.5	3.0X	11.5	3.1X
RUFF:	2.5	1.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X
Special Appropriations:	6.7	2.8X	9.3	3.4X	9.4	3.0X	9.4	3.2X	12.0	4.5X	12.9	4.5X	12.9	3.6X	13.6	3.5X	13.7	3.6X	17.2	4.6X
Local Systems	0.0	0.0X	0.5	0.2X	0.5	0.2X	0.5	0.2X	0.5	0.2X	0.5	0.2X	0.5	0.2X	0.7	0.2X	0.7	0.2X	0.7	0.2X
Primary Road fund Approp	0.0	0.0X	0.5	0.2X	0.5	0.2X	0.5	0.2X	0.5	0.2X	0.5	0.2X	0.5	0.2X	0.9	0.2X	0.9	0.2X	0.9	0.2X
Interstate Matching	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X								
D.O.T. Approp.	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X								
Highway Grade Crossing fund	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X								
Grade Crossing Surface Repair	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X								
RISE Fund (50%)	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X								
Safety Improvement Projects	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X								
Bridge Bond Retirement	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X	0.0	0.0X								
Subtotal (RUFF):	144.4	60.2X	165.7	60.6X	166.1	52.5X	165.1	55.6X	178.9	57.6X	189.0	64.7X	196.7	55.4X	209.6	53.6X	227.0	59.3X	248.7	66.3X
federal:																				
Interstate	36.0	15.0X	33.4	12.2X	57.8	18.3X	36.4	12.2X	37.9	12.2X	47.1	16.1X	70.0	19.7X	74.1	18.9X	64.1	16.7X	60.3	16.1X
Primary	10.5	4.4X	2.6	1.0X	2.1	0.7X	11.3	3.8X	9.1	2.9X	32.1	11.0X	51.1	14.4X	44.4	11.3X	41.7	10.9X	34.6	9.7X
Bridge	0.0	0.0X	0.0	0.0X	0.0	5.3X	34.4	8.8X	25.9	6.8X	16.9	4.5X								
Safety & Other	37.8	15.8X	64.2	23.5X	75.5	23.9X	69.6	23.4X	68.6	22.1X	2.7	0.9X	6.4	1.8X	14.7	3.8X	11.4	3.0X	4.2	1.1X
Subtotal (federal)	84.3	35.2X	100.2	36.7X	135.4	42.8X	117.3	39.5X	115.6	37.2X	90.1	30.8X	146.5	41.2X	167.6	42.6X	143.1	37.4X	116.0	30.9X
Miscellaneous	11.1	4.6X	7.4	2.7X	14.8	4.7X	14.8	5.0X	16.3	5.2X	13.0	4.5X	12.0	3.4X	14.0	3.6X	12.8	3.3X	10.2	2.7X
GRAND TOTAL (All funds)	239.8	100.0X	273.3	100.0X	316.3	100.0X	297.2	100.0X	310.8	100.0X	292.1	100.0X	355.2	100.0X	391.2	100.0X	382.9	100.0X	374.9	100.0X

1 All figures are for fiscal year (July 1 - June 30)

SOURCE: Fiscal Year Highway Funds and Their Distribution (1978 - 87) as prepared by the DOT, Office of Economic Analysis

Figure 4-3

STATE HIGHWAY EXPENDITURES (1)
(1978 - 1987)

(IN \$ MILLIONS - NOMINAL DOLLARS)

EXPENDITURES FROM PRIMARY ROAD FUND/ OTHER OPERATIONS	1978		1979		1980		1981		1982		1983		1984		1985		1986		1987	
	\$	% of Total																		
Capital Outlay	185.1	68.2%	229.7	70.4%	173.3	62.9%	159.0	59.1%	144.4	54.7%	160.5	55.7%	268.3	71.5%	268.5	62.2%	238.4	62.0%	209.2	55.3%
Maintenance	49.6	18.3%	53.4	16.4%	55.8	20.3%	61.5	22.8%	63.4	24.0%	69.5	24.1%	70.0	18.7%	77.1	17.8%	77.2	20.1%	72.6	19.2%
General Administration/ Miscellaneous	31.3	11.5%	38.7	11.9%	40.9	14.9%	43.5	16.2%	50.2	19.0%	52.8	18.3%	31.0	8.3%	79.2	18.3%	61.5	16.0%	87.9	23.3%
Law Enforcement/Safety	5.5	2.0%	4.3	1.3%	5.3	1.9%	5.2	1.9%	6.1	2.3%	5.5	1.9%	5.7	1.5%	7.2	1.7%	7.5	2.0%	8.3	2.2%
TOTAL (Primary Fund/Other Operations)	271.5	100.0%	326.1	100.0%	275.3	100.0%	269.2	100.0%	264.1	100.0%	288.3	100.0%	375.0	100.0%	432.0	100.0%	384.6	100.0%	378.0	100.0%

FOOTNOTE

1 Figures for 1978-1981 are for the calendar years. Figures for 1982-87 are for fiscal years (July 1-June 30). Thus, expenditures for July 1, 1981 through Dec. 31, 1981 are counted in both the 1981 and 1982 totals, although each set of figures represents a 12-month period.

SOURCE: Federal forms 532, as completed and submitted by the DOI (1978-87)

percent over the period. The general administration and miscellaneous line item has shown an increase over the ten-year period, from 11.5 percent of total expenditures (or \$31 million) in 1978 to 23 percent (or \$38 million) in 1987. The remainder is comprised of law enforcement and safety, approximately two percent of the total annually.

County Secondary System

Counties derive road related revenues from two major sources -- the RUTF funds and property tax assessments. The counties' available road purpose revenues for the secondary funds have increased from \$170 million in 1978 to \$242 million in 1987. Of this total, the proportion from State sources has been approximately half in each of the ten years, \$85 million in 1978 rising to \$126 million in 1987. RUTF revenues constitute more than 90 percent of all State-derived revenues. The other major source of revenue for county roads is the property tax, representing between 38 percent and 45 percent of total county revenues. Property tax receipts attributable to roads have increased from 38 percent of total revenues (or \$65 million) in 1978 to 44 percent of total revenues (or \$106 million) in 1987.

Federal revenues to the secondary road funds have declined from five percent of total revenues (\$9 million) in 1978 to 2.5 percent (or \$6 million) in 1987, primarily due to the decreased contribution of revenue sharing. Receipts to the County Secondary Funds are shown in Figure 4-4.

Expenditures from the counties' secondary road funds have increased from \$180 million in 1978 to \$226 million in 1987. Of this total, construction has decreased as a proportion of the total -- from \$43 million (24 percent of the total) in 1978 to \$28 million (12 percent of the total) in 1987; while maintenance expenditures have increased from \$122 million (68 percent of the total) in 1978 to \$178 million (79 percent of the total) in 1987. Administration represents about three percent of the total, while engineering expenses represent a further five percent of the total. Expenditures from the County Secondary Funds are shown in Figure 4-5.

Figure 4-4

COUNTY SECONDARY ROAD FUND RECEIPTS (1)
(1978 - 1987)

(IN \$ MILLIONS - NOMINAL DOLLARS)

ITEM	1978		1979		1980		1981		1982		1983		1984		1985-1986		1987	
	\$	% of Total																
State Sources																		
RUFF	84.8	49.9%	91.3	50.3%	86.1	45.7%	92.2	47.1%	97.5	46.9%	104.6	47.0%	114.2	49.7%	181.4	49.3%	122.9	50.9%
Other (2)	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	4.0	1.7%	5.3	1.4%	3.0	1.2%
Subtotal (State):	84.8	49.9%	91.3	50.3%	86.1	45.7%	92.2	47.1%	97.5	46.9%	104.6	47.0%	118.2	51.4%	186.7	50.8%	125.9	52.1%
Federal Sources (3):																		
Bridge Replacement	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	11.8	3.2%	5.2	2.2%
Revenue Sharing	8.9	5.2%	9.7	5.3%	9.1	4.8%	7.4	3.8%	9.0	4.4%	6.7	3.0%	4.7	2.0%	3.7	1.0%	0.6	0.3%
Other Federal Aid	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.7	0.3%	2.6	1.2%	6.5	2.8%	0.0	0.0%	0.0	0.0%
Subtotal (federal)	8.9	5.2%	9.7	5.3%	9.1	4.8%	7.4	3.8%	9.7	4.7%	9.3	4.2%	11.2	4.9%	15.5	4.2%	6.0	2.5%
Local Sources																		
Property Tax	65.3	38.5%	69.3	38.2%	79.9	42.4%	88.3	45.1%	95.3	45.3%	101.1	45.4%	95.1	41.3%	158.4	43.1%	106.3	44.0%
Transfers From Farm-to-Market	0.0	0.0%	0.0	0.0%	0.7	0.4%	0.6	0.3%	0.8	0.4%	1.3	0.6%	1.7	0.7%	1.7	0.5%	0.6	0.2%
Miscellaneous (4)	10.9	6.4%	11.5	6.3%	12.8	6.8%	8.2	4.2%	5.8	2.8%	6.2	2.8%	4.0	1.7%	5.4	1.5%	2.8	1.2%
Tax Refunds/Credits	(0.1)	(0.1%)	(0.2)	(3.0%)	(0.2)	(0.1%)	(0.8)	(0.4%)	(0.1)	0.0%	0.0	0.0%	(0.2)	(0.1%)	0.0	0.00%	(0.1)	0.00%
Subtotal (local):	76.1	44.8%	80.6	44.4%	93.2	49.5%	96.3	49.2%	100.8	48.5%	108.6	48.8%	100.6	43.7%	165.5	45.0%	109.6	45.4%
GRAND TOTAL	169.8	100.0%	181.6	100.0%	188.4	100.0%	195.9	100.0%	208.0	100.0%	222.5	100.0%	230.0	100.0%	367.7	100.0%	241.5	100.0%

FOOTNOTES:

- Figures for 1978 through 1984 are on a calendar year basis. The 1985-86 figures cover the 18-month period January 1985 through June 1986. The 1987 figures are on a fiscal year (July 1 - June 30) basis.
- The "Other State" figures is derived from the DOI Office of Economic Analysis publication titled "Fiscal Year Highway Funds and Their Distribution".
- The level of detail with which federal revenues were reported changed with the 1985-86 report. Consequently the "Other Federal Aid" line item may include bridge replacement funds for some years.
- Includes equipment, building and right-of-way sales, transfers from other funds, county assistance funds, railroad program funds, and reimbursements to the secondary road funds, in addition to others. Some of these line items may be attributable to state or federal sources. Additionally, prior to 1982, the "miscellaneous receipts" line item was not broken out into its components in the reports.

Figure 4 5
 COUNTY SECONDARY ROAD FUND EXPENDITURES (1)
 (1978 - 1987)

(IN \$ MILLIONS - NOMINAL DOLLARS)

ITEM	1978		1979		1980		1981		1982		1983		1984		1985-1986		1987		
	\$	% of Total	\$	% of Total	\$	% of Total													
Construction:																			
Farm-to-Market	22.0	32.7%	20.0	10.1%	18.7	10.0%	12.3	6.7%	11.7	5.7%	12.0	5.8%	12.2	5.1%	11.1	3.4%	8.6	3.0%	
Local Secondary	23.4	13.1%	21.9	11.1%	15.3	8.2%	15.3	8.3%	14.9	7.3%	19.3	8.6%	27.4	11.5%	33.5	10.2%	22.6	10.0%	
Adjustments/Reimbursements	(2.0)	(1.6%)	(3.1)	(1.6%)	(2.7)	(1.5%)	(2.8)	(1.5%)	(2.1)	(1.0%)	(2.5)	(1.1%)	(3.2)	(1.4%)	(4.0)	(1.2%)	(3.1)	(1.4%)	
Subtotal (Construction):	43.4	24.2%	38.8	19.6%	31.3	16.8%	24.8	13.5%	24.5	11.9%	29.6	13.4%	36.4	15.2%	40.6	12.3%	28.1	12.4%	
Maintenance:																			
Roadway Maintenance (2)	72.4	40.4%	84.4	42.6%	82.8	44.5%	84.0	45.6%	94.1	45.9%	104.9	47.6%	109.6	45.9%	156.1	47.4%	114.6	50.6%	
General Roadway Maintenance (3)	49.6	27.7%	59.6	30.1%	56.5	30.4%	58.9	32.0%	69.1	33.7%	67.0	30.4%	72.8	30.5%	103.1	31.3%	63.7	28.1%	
Subtotal (Maintenance):	122.0	68.0%	144.0	72.8%	139.3	74.9%	142.9	77.5%	163.2	79.5%	171.9	78.0%	182.4	76.3%	259.2	78.7%	178.3	78.7%	
Administration:	5.0	2.8%	5.4	2.7%	5.6	3.0%	6.7	3.4%	6.7	3.3%	7.2	3.3%	7.6	3.2%	11.3	3.4%	7.6	3.4%	
Engineering:	8.9	5.0%	9.7	4.9%	9.9	5.3%	10.4	5.6%	10.8	5.3%	11.6	5.3%	12.5	5.2%	18.3	5.6%	12.5	5.5%	
GRAND TOTAL:	179.3	100.0%	197.9	100.0%	186.1	100.0%	184.3	100.0%	205.2	100.0%	220.3	100.0%	238.9	100.0%	329.4	100.0%	226.5	100.0%	

FOOTNOTES

- 1 Figures for 1978 through 1984 are on a calendar year basis. The 1985-86 figures cover the 18 month period January 1985 through June 1986. The 1987 figures are on a fiscal year (July 1 - June 30) basis.
- 2 Includes bridges and culverts, roads, snow and ice control, traffic control and road cleaning.
- 3 Includes new equipment, equipment operations, tools, materials and supplies, and real estate and buildings.

In addition to the secondary road funds, the counties have farm-to-market funds available to them. The farm-to-market fund is administered by the State DOT. Farm-to-market funds are by and large restricted to construction work on the farm-to-market system. Receipts to the farm-to-market fund increased from \$41 million in FY78 to \$59 million in FY87. The key revenue items to the farm-to-market fund are RUTF revenues (approximately 70 percent of the total or \$42 million, in 1987) and federal funds (24 percent of the total or \$14 million in 1987). Miscellaneous revenues make up the remainder. This is depicted in Figure 4-6. The vast majority of expenditures from the farm-to-market fund is construction expenditures on county farm-to-market roads (approximately 98 percent of the total). The level of such expenditures has increased from \$37 million in 1978 to \$69 million in 1987. Additional expenditures are general administration and miscellaneous costs (\$1.6 million in 1987) and expenditures on municipal streets, which are about 2.5 percent of total farm-to-market fund expenditures. This information is shown in Figure 4-7.

Municipal Street System

Total funds available for municipal street activities have increased from \$177 million in 1978 to \$286 million in 1987, as shown in Figure 4-8. Of this total, State sources have gradually grown in importance from approximately 25 percent of the total (\$45 million) in 1978 to 31 percent (\$89 million) in 1987. Federal revenue sources account for approximately 10 percent of municipal revenues (or \$28 million in 1987). Revenue sharing, a source of federal funding which accounted for between \$2.0 million and \$3.6 million annually for municipalities between 1978 and 1986 has now been discontinued.

The remainder of municipal funding is accounted for by local sources which declined slightly from 64 percent of the total (\$114 million) in 1978 to 59 percent of the total (\$169 million) in 1987. Of all the local sources, the most important are property taxes and special assessments, and new borrowing. Property taxes and special assessments have averaged about 37 percent of total road-related revenues (or \$106 million in 1987), while new borrowing, which has declined slightly over the years, still (in 1987) represents 15 percent of total revenues (or \$43 million in that year).

Figure 4-7

FARM-TO-MARKET FUND EXPENDITURES
(1978-1987)

(IN \$ MILLIONS NOMINAL DOLLARS)

ITEM	1978		1979		1980		1981		1982		1983		1984		1985		1986		1987	
	\$	% of Total																		
Gen & Admin /Miscellaneous	0.3	0.8%	0.5	0.9%	0.9	1.6%	0.5	0.8%	0.6	1.1%	0.8	1.4%	1.5	2.3%	1.1	1.3%	0.5	0.6%	1.6	2.2%
Expenditures on County Roads	37.4	97.7%	52.9	98.5%	55.1	97.2%	65.4	98.8%	55.6	98.6%	57.5	97.6%	62.7	97.1%	80.1	97.8%	81.5	99.0%	69.4	97.2%
Expenditures on Municipal Streets	0.6	1.6%	0.3	0.6%	0.7	1.2%	0.3	0.5%	0.2	0.4%	0.6	1.0%	0.4	0.6%	0.7	0.9%	0.3	0.4%	0.4	0.6%
GRAND TOTAL	38.3	100.0%	53.7	100.0%	56.7	100.0%	66.2	100.0%	56.4	100.0%	58.9	100.0%	64.6	100.0%	81.9	100.0%	82.3	100.0%	71.4	100.0%

FOOTNOTE
 1. Figures for 1978-81 are for the calendar years. Figures for 1982-87 are for fiscal years (July 1 - June 30). Thus expenditures for July 1, 1981 through Dec. 31, 1981 are counted in both the 1981 and 1982 totals, although each set of figures represents a 12-month period.

SOURCE: Federal Forms 532, as prepared and submitted by the DOL (1978-87)

MUNICIPAL STREET RECEIPTS
(1978 - 1987)

(IN \$ MILLIONS - NOMINAL DOLLARS)

ITEM	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
State Sources										
RUF Receipts	42.9	24.2%	58.4	0.0%	60.7	26.7%	64.6	28.6%	22.2	25.8%
Other State Sources	1.8	1.0%	1.9	1.1%	5.5	2.2%	5.0	1.8%	6.8	3.3%
Subtotal (State)	44.7	25.2%	60.3	33.6%	65.4	28.9%	75.5	31.8%	27.6%	32.6%
Federal Sources										
Revenue Sharing	3.6	2.0%	3.5	1.9%	2.8	1.1%	2.4	1.0%	2.4	0.9%
Grants	14.9	8.4%	12.6	7.0%	17.4	8.5%	16.8	7.0%	17.8	6.8%
Subtotal (Federal)	18.5	10.4%	16.1	9.0%	20.2	9.9%	14.6	6.3%	21.9	7.6%
Local Sources										
Property Tax and Special Assessments	61.5	34.7%	64.8	36.1%	65.5	32.0%	75.4	35.0%	83.5	36.7%
General Fund Appropriations	2.6	1.5%	1.6	0.9%	2.2	1.1%	2.4	1.0%	2.3	1.0%
Utility Receipts	2.0	1.1%	2.1	1.2%	1.7	0.8%	2.5	1.1%	2.3	1.0%
Borrowing	43.4	24.5%	28.0	15.6%	41.6	20.3%	46.4	21.6%	51.9	22.8%
Refunds	0.8	0.5%	0.7	0.4%	0.8	0.4%	1.0	0.4%	1.0	0.4%
Other Local Revenues (1)	3.9	2.2%	6.1	3.4%	6.8	3.3%	7.7	3.4%	6.6	2.8%
Subtotal (Local)	114.2	64.4%	103.3	57.5%	119.2	58.2%	134.4	62.4%	148.9	65.5%
GRAND TOTAL	177.4	100.0%	179.7	100.0%	204.8	100.0%	215.3	100.0%	227.5	100.0%

(1) Includes sales of property and equipment, interest income, licenses, fees and permits, income and miscellaneous

SOURCE: Report of Municipal Street Finance, 1001, 1978-1987

Figure 4-8

Municipal street expenditures, shown in Figure 4-9, have increased from \$159 million in 1978 to \$280 million in 1987, measured in nominal dollars. Of the total, construction expenditures have averaged 32 percent of total expenditures (reaching \$88 million in 1987), maintenance expenditures represent approximately 30 percent of total expenditures (\$76 million in 1987), engineering and administration a further eight percent (totalling about \$23 million in 1987) and other miscellaneous items (e.g., lighting, sidewalks, trees) a further 11-12 percent. The balance is accounted for by debt service costs which increased from \$28 million in 1978 (or 18 percent of the total) to \$62 million in 1987 (or 22 percent of the total). Over the last four years, debt costs have been steady at about 22 to 23 percent of total municipal road related expenditures.

REVENUE PROJECTIONS

Revenue projections were made for the period 1989-2008 based on current road revenue sources and distribution formulas. These projections include the following:

- Projections of RUTF Sources and Uses
- Federal Highway Revenue Projections
- State Primary Revenue Projections
- County Secondary Road Fund Projections
- County Farm to Market Fund Projections
- Municipal Street Fund Projections
- Twenty Year Highway Revenues in Real Dollars

Projections of RUTF Sources and Uses

Iowa DOT, Office of Economic Analysis, projections for the period 1989-94 were used as the basis for the twenty year period made for this study. These projections included motor fuel tax, vehicle registrations, use tax and driver licenses. Off-the-top allocations were made for currently authorized programs.

Figure 4-9
MUNICIPAL STREET EXPENDITURES
 (1978 - 1987)

(IN \$ MILLIONS - NOMINAL DOLLARS)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987										
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$										
	% of Total																			
Construction:	54.4	34.3%	54.9	31.2%	80.9	39.1%	84.9	39.1%	71.6	32.8%	60.4	26.8%	64.2	27.2%	74.9	29.0%	71.2	26.9%	87.9	31.4%
Maintenance:	46.5	29.3%	55.9	31.8%	58.5	28.2%	57.6	26.5%	64.3	29.3%	68.6	30.5%	73.9	31.3%	73.4	28.4%	77.7	29.4%	75.9	27.1%
Administration:	4.4	2.8%	4.8	2.7%	5.3	2.6%	6.2	2.9%	7.1	3.2%	7.7	3.4%	8.0	3.4%	8.6	3.3%	8.7	3.3%	10.2	3.6%
Engineering (Construction):	7.9	5.0%	9.9	5.6%	10.9	5.3%	9.3	4.3%	9.4	4.3%	8.9	4.0%	11.7	4.9%	12.8	5.0%	13.2	5.0%	17.8	4.6%
Other:																				
Street Lighting	11.2	7.1%	12.1	6.9%	13.3	6.4%	13.9	6.4%	16.1	7.3%	16.9	7.5%	18.9	8.0%	19.5	7.5%	20.7	7.8%	20.9	7.5%
Sidewalks	1.0	0.6%	0.8	0.5%	1.0	0.5%	1.3	0.6%	1.3	0.6%	1.1	0.5%	1.5	0.6%	1.7	0.7%	1.9	0.7%	1.3	0.5%
Trees	1.6	1.0%	2.1	1.2%	1.8	0.9%	2.0	0.9%	1.7	0.8%	1.4	0.6%	1.6	0.7%	1.8	0.7%	1.7	0.6%	1.8	0.6%
Equipment Purchase	2.9	1.8%	3.8	2.2%	4.4	2.1%	3.8	1.8%	3.9	1.8%	4.4	2.0%	4.2	1.8%	5.2	2.0%	6.2	2.3%	4.8	1.7%
Miscellaneous	0.7	0.4%	0.5	0.3%	0.2	0.1%	0.3	0.1%	0.2	0.1%	0.3	0.1%	0.5	0.2%	2.1	0.8%	1.6	0.6%	2.9	1.0%
Debt Service:	28.0	17.7%	31.2	17.7%	30.8	14.9%	37.8	17.4%	43.8	20.0%	55.3	24.6%	51.9	22.0%	58.3	22.6%	61.7	23.3%	61.5	22.0%
TOTAL	158.6	100.0%	176.0	100.0%	207.1	100.0%	217.1	100.0%	219.1	100.0%	225.0	100.0%	236.4	100.0%	258.3	100.0%	264.6	100.0%	280.0	100.0%

After deducting the off-the-tops from the gross RUTF receipts, the net amount is distributed to the jurisdictional levels according to the current distribution formula (i.e., the State receives 45 percent of net receipts, the county secondary funds receive 28 percent, the farm to market fund receives nine percent, and the municipalities receive 18 percent)

Gross receipts to the RUTF are projected to increase from approximately \$600 million in 1989 to \$1,091 million in 2008, measured in nominal dollars. Total off-the-tops are projected to increase from approximately \$100 million in 1989 to \$180 million in 2008. The net amount for general distribution increases from almost \$500 million in 1989 to over \$900 million in 2008.

Federal Highway Revenue Projections

The projections of federal revenues to all three jurisdictional levels in Iowa over the 1989-2008 period are based on Iowa's current highway trust fund appropriations adjusted to reflect experience with actual receipt of revenues. The current appropriations, as outlined in the 1987 U.S. Surface Transportation Act, are the theoretical annual federal highway revenues allocated to Iowa through the end of FY 1991. These revenues are in two parts -- formula and discretionary. Typically, only a portion of the State's full formula appropriation for any one year can be spent. This amount is the "obligation"

It is likely that the program for funding highways will change with the enactment of a new Surface Transportation Act in 1991. It is difficult to project federal revenues without a large degree of speculation. After 1991, therefore, we can only make informed judgments as to what will happen. Over the 1992-2008 period, federal revenues are estimated to be the same amount in each year.

Based on these guidelines, formula funding to Iowa from the federal highway trust fund is assumed to fall from \$141 million per year in SFY89 to \$13.5 million per year after FY91. Discretionary funding falls from approximately \$50 million per year today to \$9.3 million per year after FY91.

The allocation of projected federal revenues to the jurisdictions follows current experience. The state's allocation of federal funds falls from \$150 million per year today to \$110 million per year after 1991. The counties' share falls from \$24.6 million per year to \$24.4 million per year, while the municipalities' share declines from \$16.8 million per year to \$9.4 million per year after 1991.

State Primary Projections

Total receipts for state highway purposes are projected to increase from \$438 million in 1989 to \$619 million in 2008.

County Secondary Road Fund Projections

Receipts to the county secondary fund are projected to increase from \$269 million in 1989 to \$487 million in 2008 for the county secondary road funds.

County Farm to Market Fund Projections

Farm to market fund revenues are projected to increase from \$71 million in 1989 to \$113 million in 2008 based on the assumptions made herein.

Municipal Street Revenue Projections

Revenues for municipal streets are projected to increase from \$256 million in 1989 to \$434 million in 2008.

Twenty Year Highway Revenues in Constant Dollars

The projections of 20-year highway revenues at all three jurisdictional levels are outlined in terms of nominal (or current) dollars. In order to compare those revenues to the needs estimates, the figures are stated in constant 1987 dollars. In order to convert nominal dollars into constant 1987 dollars, an estimate of future inflation is made. The inflation estimates used here to make the conversion are 4.0 percent in 1988, 5.1 percent in 1989 and 1990, 5.2 percent in 1991 and 5.0 percent per year thereafter. The figures for 1989-91 are Data Resources Inc. (DRI) estimates of the change in the nationwide consumer price index.

Using these inflation estimates, highway revenues available to the state highway system fall from \$400 million in 1989 to \$223 million in 2008, measured in constant 1987 dollars. County secondary fund revenues fall in real terms from \$246 million to \$176 million over the same period, while farm to market fund receipts fall from \$65 million to \$41 million. Municipal street receipts fall from \$224 million in 1989 to \$157 million in 2008.

ADDITIONAL FUNDING OPTIONS

The highway needs to revenues comparison shows that there is a shortfall at all three jurisdictional levels. The State of Iowa may, thus, wish to consider some additional ways of generating revenues to apply against the shortfall. Several potential funding options for generating additional revenues were assessed for this study. These included:

1. Expansion of currently existing major revenue sources at all three jurisdictional levels.
2. Implementation of statewide financing sources successfully used for highway purposes in other states, and implementation of public financing mechanisms which are innovative, or non-traditional in nature; and
3. Implementation of public-private financing mechanisms (i.e., private developer related mechanisms) - a class of revenues also considered innovative in nature.

Expansion of Existing Revenue Sources

The primary existing revenue sources (excluding federal revenues) at the three jurisdictional levels were assessed. They include:

- State: RUTF (gas tax, vehicle registration fees, drivers license fees, and the vehicle use tax);
- Counties: RUTF, property taxes; and
- Cities: RUTF, property taxes, borrowing.

In many cases Iowa already has road related taxes that are quite high relative to other states. Also, the local jurisdictions property taxes are in many cases reaching authorized limits. There may, thus, be relatively little opportunity for substantially expanding these existing taxes and fees. There may be some opportunity, though, for expanding the use of debt financing for road purposes. The State of Iowa currently has a low level of debt relative to other states. Virtually no debt is used for road purposes at the State or county level. Debt has been, however, an important source of financing for streets at the municipal level.

Other Public Sector Revenue and Financing Approaches

A variety of other revenue and financing approaches are used in other states for road purposes. These can be broadly divided into two categories -- those that generate significant revenues on a statewide basis (e.g., weight distance taxes, local option gas taxes) and those that generate significant revenues for a single facility, (e.g., tolls), or a number of facilities within an area (e.g., municipal road utility). The revenue items in the category of public sector measures are as follows:

- Weight distance fees
- Tolls
- Local option motor fuel taxes
- Municipal road utilities
- Local option transportation excise taxes
- The state lottery
- Alcohol taxes
- Billboard advertizing fees

A promising funding mechanism in this group may be the local option sales tax, which has been implemented by several local jurisdictions in Iowa.

Private Development Related Mechanisms

Innovative and non-traditional financing strategies that involve the private sector in funding highway improvements generally provide funding for a specific road project, or for projects within a limited geographic area. These mechanisms have gained in popularity in recent years due to the increased divergence between highway need and funds available for highway expenditures. Many of the items in this category are primarily applicable to urban areas, and several (e.g., traffic phasing ordinances and traffic performance standards) are similar in nature.

Some of the most common private development related mechanisms are the following:

- Benefit assessment districts
- Metro districts
- Tax increment financing
- Airspace utilization
- Traffic phasing ordinances
- Traffic performance standards
- Fair share contributions
- Land banking
- Proffer zoning
- Subdivision approval
- Lease purchase agreements
- Private support for highway beautification

The applicability of these mechanisms should be judged on a case by case basis. In particular, tax increment financing has been successfully applied in a number of instances in Iowa (e.g., in the construction of an interchange in Davenport). The expanded use of this funding method could be investigated.

Chapter 5

A GUIDE TO DECISION MAKING

In this chapter, the key issues related to Iowa's roads are summarized and recommendations are made. Real solutions and political consensus on the issues will likely involve financial, as well as, institutional considerations related to jurisdictional responsibilities. Whatever course of action is adopted by decision-makers, we believe it should be founded in the economic efficiency of Iowa's existing road transportation. Efficiency of the existing system is vital to economic growth as well as the financial and economic feasibility of new road development. However, it would be mistaken to believe that only the redistribution of road funds will lead to more efficient road transportation in Iowa. Levels of funding are as critical.

LEVELS OF FUNDING

Since the 1960s, the nation has been assessing its road needs and since that time the price tag placed on roads has continued to startle decision-makers. Consequently, the assessments were deemed unrealistic, the studies lost credibility, and many states, including Iowa, began to cut back on standards and levels of service.

In this study, we have attempted to critically assess road needs in light of both economics and the minimum physical thresholds required to preserve a road -- a no frills approach. A general priority sequence was set forth to first maintain, then preserve, expand and finally modernize. Within this sequence, priorities were broadly established based on expected rates of return for types of road improvement. On this philosophy, we built up the needs in categories (See Chapter 3).

The funding projections for this study were developed to reasonably reflect historical road funding policy at the state and local levels. Consequently, increased road funding and rates of funding have been included and kept in line with historical increases.

Specific assumptions regarding rate increases included in the projections are listed below

1. In developing funding projections, it is assumed that the gasoline tax increases by 2 cents every four years (1994, 1998, 2002 and 2006) and that gasoline and diesel tax rates rise accordingly. This is consistent with actual experience over the last 25 years.
2. It is assumed that truck registration fees increase 20 percent in 1996.
3. It is assumed that the use tax rate increases from four to five percent in 1996.
4. County and municipal property taxes were assumed to increase by 0.4 percent per year between 1989 and 1992 and by four percent per year after 1993.

The county property tax used for roads was assumed to be 25.3 percent of the county property tax total. The municipal property tax used for streets was assumed to be 22.8 percent of the municipal property tax total.

The above assumptions are in line with historical tax rate growth and distribution trends and were made to have projections realistically reflect historical tax policy for comparison to needs. They do not represent recommended future tax policy.

It was anticipated considering the nature of the improvements in the hierarchy that economical levels of funding were somewhere between categories 4 and 5 of the needs. A comparison of the road needs to projected funding was made to see what needed improvements were possible. The results are contained in Figure 5-1. In summary, the results indicate the following:

1. Funds are insufficient to preserve all roads and bridges.
2. Trade-offs will have to be made between needed reconstruction, bridge replacement and high rate-of-return capacity improvements.

Figure 5-1

AVERAGE YEARLY NEEDS AND FUNDING
(Millions of 1987 Dollars)

	<u>1989-93</u>	<u>1994-98</u>	<u>1999-03</u>	<u>2004-08</u>	<u>1989-08</u>
Needs through Category 6 (Total)	\$1,558	\$1,287	\$1,059	\$ 889	\$1,198
Needs through Category 5	1,464	1,193	967	819	1,111
Needs through Category 4	1,130	859	681	604	812
Needs through Category 3	950	720	584	522	694
Needs through Category 2	721	491	473	468	538
Projected Funding	\$ 874	\$ 780	\$ 707	\$ 626	\$ 747

All jurisdictions will be faced with the preservation problem. The state and municipalities, particularly the state, will be required to choose between high-rate-of-return capital replacement and preservation improvements and high-rate-of-return capacity improvements. Not being able to implement high rate-of-return improvements seems intolerable, yet these are the hard choices the state will be facing.

Lower rate-of-return road and bridge needs and all modernization were counted to determine an economically optimum level of government investment without regard to minimum preservation thresholds for roads. This was done only to estimate purely economical levels of road funding and recognize roads needs that could easily compete with other government funding. The lower rate-of-return needs amounted to \$281 million annually in capital replacement and preservation improvements in Categories 3, 4 and 5 and an additional \$94 million annually in modernization in Category 6. Reducing total needs by these amounts produced the following results.

	<u>MILLIONS OF 1987 DOLLARS</u>	
	<u>PERSPECTIVE</u>	
	5-Year <u>1989-1993</u>	10-Year <u>1989-1998</u>
Estimated Yearly Economical Levels of Road Need	\$1,183	\$1,047
Average Yearly Funding	<u>874</u>	<u>827</u>
Annual Shortfall	309	220
Percent Shortfall	35%	27%

Conservatively stated, Iowa's total road funding is below the economically optimum level by at least 27% and in the short term even more. The shortfall is substantially greater, if one also realistically considers the physical requirements. How should the Road Use Tax Fund (RUTF) be distributed among the three jurisdictions in light of such constrained funding levels?

DISTRIBUTION OF RUTF AMONG THE JURISDICTIONS

This section treats the distribution of the RUTF among the three jurisdictions. The percentage split of available RUTF among the state, county and municipal governments depends on the following factors:

1. The priority assigned to improvement types.
2. The costs of the improvements.
3. The timing of the needs and available revenues.
4. The amount of RUTF funds available.
5. The funds available for roads outside of available RUTF (primarily diversions made to the State before the split of RUTF and local funding)

We used a stepwise method to distribute the funds. First, we met the needs in Category 2, then category 3 and so on until all available funds were used. Where funds were not sufficient to meet the next category of need, they were distributed according to each jurisdiction's percentage need within the category.

Two cases were studied:

Case 1: Using the Hierarchy of Road Needs as presented in Chapter 3.

Case 2: Modifying the Hierarchy of Road Needs presented in Chapter 3 to give more priority to capacity improvements.

During the study, the substantive argument was made that capacity improvements (which exhibit very high rates of return) were not being given proper priority in the Hierarchy of Road Needs, particularly considering (1) the scarcity of funds and (2) these roads would probably require reconstruction or resurfacing in addition to the increased capacity. For Case 2, the capacity improvements in Category 4 were moved to category 3 and those in Category 5 were moved to Category 4.

Additionally, a sensitivity analysis was performed to assess the impacts of increased funding on the distribution percentages.

In making the assessment, emphasis is placed on the first five year period for the following reasons:

1. If the needs were assessed five years from today, the first five-year period probably would change very little considering progress made in backlogged improvements under current funding constraints.
2. Improvements in the first five-year period are less a function of projections and there is less uncertainty associated with the numbers.

A five-year perspective of the results of this analysis is contained in Figure 5-2. A ten-year perspective is contained in Figure 5-3.

From our point of view, Case 2 represents the most reasonable set of needs priorities for the equitable distribution of RUTF. One could argue that capacity improvements should be given even higher priority on the basis of economics, however, we feel this solution best balances both economics and the minimum preservation requirements among the three jurisdictions.

Averaging the Case 2 five- and ten-year results for current funding, produces the following distribution among the jurisdictions.

<u>STATE</u>	<u>COUNTY</u>	<u>MUNICIPAL</u>
52%	29%	19%

The financial impacts on the jurisdictions of implementing the above distribution are contained in Figure 5-4. The resulting percentages would represent a shift of \$35 million annually in available RUTF from the counties to the state and municipalities.

Figure 5-2

DISTRIBUTION OF AVAILABLE RUTF
A Five-Year Perspective: 1989-1993

		CASE 1		
ANNUAL R.U.T.F. FOR DISTRIBUTION (Millions of 1987 Dollars)	PERCENTAGE DISTRIBUTION			
	STATE	COUNTY	MUNICIPAL	
\$444*	50.0	29.8	20.2	
\$488	52.1	29.8	18.1	
\$629	55.3	26.7	17.9	
\$686	53.3	27.8	18.9	

		CASE 2		
ANNUAL R.U.T.F. FOR DISTRIBUTION (Millions of 1987 Dollars)	PERCENTAGE DISTRIBUTION			
	STATE	COUNTY	MUNICIPAL	
\$444*	53.1	26.8	20.1	
\$488	56.3	25.9	17.8	
\$629	57.4	24.4	18.2	
\$686	57.7	23.5	18.8	

* Forecasted funding based on historical precedent

Figure 5-3

DISTRIBUTION OF AVAILABLE RUTF
 A Ten-Year Perspective: 1989-1998

		CASE 1		
ANNUAL R.U.T.F. FOR DISTRIBUTION (Millions of 1987 Dollars)		PERCENTAGE DISTRIBUTION		
		STATE	COUNTY	MUNICIPAL
\$436*		47.2	35.4	17.4
\$479		50.6	33.1	16.3
\$612		49.5	32.4	18.1
\$667		46.7	33.8	19.5

		CASE 2		
ANNUAL R.U.T.F. FOR DISTRIBUTION (Millions of 1987 Dollars)		PERCENTAGE DISTRIBUTION		
		STATE	COUNTY	MUNICIPAL
\$436*		50.9	31.9	17.2
\$479		54.0	30.8	15.2
\$612		54.7	27.3	18.0
\$667		52.5	28.4	19.1

* Forecasted funding based on historical precedent

Figure 5-4

FINANCIAL IMPACTS OF CHANGING RUTF DISTRIBUTION FORMULA
(Millions of 1987 Dollars)

5-YEAR PERSPECTIVE
(Average \$444 million available annually)

	<u>State</u>	<u>County</u>	<u>Municipal</u>
Current Law	200	164	80
Study Results	<u>231</u>	<u>129</u>	<u>84</u>
Difference	- 31	- 35	- 4

10-YEAR PERSPECTIVE
(Average \$436 million available annually)

	<u>State</u>	<u>County</u>	<u>Municipal</u>
Current Law	196	161	79
Study Results	<u>227</u>	<u>126</u>	<u>83</u>
Difference	+ 31	- 35	+ 4

it would be mistaken to interpret the redistribution of available RUTF as the funding solution for roads in Iowa. Even with a change in distribution, the impacts on roads at historically projected funding levels and under current institutional relationships will be significant.

State Impacts

Over the next five years the state would have \$393 million (1987 dollars) annually to invest in the primary system, if it received 52 percent of available RUTF and current overall funding policy continued. This amount would still leave the State short of meeting its Category 3 needs. Consequently, the State would still be faced with trading off high rate-of-return road and bridge preservation and capital replacement improvements with high rate-of-return capacity improvements. Stated in a more specific way, the State would have approximately \$200 million per year to choose among a backlog of need comprised of:

- \$132 million per year of pressing capacity improvements involving a total of 452 miles of road;
- \$118 million per year of high priority bridge improvements involving a total of 300 bridges; and
- \$127 million per year of higher volume road reconstruction involving 2,160 miles in total.

Each of the above categories of improvement would be expected to yield high rates of return.

When the general improvement of the primary network is not possible due to funding constraints, the targeting of funds becomes essential. This concept of targeting funds was set forth in a Commercial Network for Iowa and has been used in other states under various names such as "priority primary routes". The Commercial Network or priority primary routes concepts represent prudent approaches considering the need for efficiency in the network and the current extreme funding constraints.

The need for development highways was raised at several public meetings. Although studies of selected development highways may show economic feasibility, paying for such highways does not appear prudent or feasible as part of current constrained financing. Special financial packages linked to development would probably need to be formulated to justify developmental highways.

County Impacts

Counties have responsibility for the most extensive road networks in Iowa -- 89,558 miles, 80 percent of the total state mileage. The counties' mileage is primarily low volume gravel roads. Over the next five years the counties would have \$261 million (1987 dollars) annually to invest in the Farm-to-Market and Secondary systems, if they received 29 percent of available RUTF. This would represent a considerable shift in funding away from the current distribution. If a change were adopted, it would need to be implemented gradually to minimize the impact on the counties. A philosophy of no actual decreases should be adopted. For example, if funding were frozen at current levels until the year the newly adopted distribution was reached, the county would experience no actual decreases.

Like the state, the counties will be faced with difficult choices -- related to general levels of service on the secondary and farm-to-market road systems. Although the tradeoffs will not involve high rate of return capacity improvements, like the state, the counties will also not be able to fully meet needs through Category 3. The following statements characterize the counties' situation.

- Over the next 20 years, the counties will be able to improve about 4,000 backlogged deficient bridges while an additional 4,500 currently backlogged deficient bridges and 1,500 which will become deficient will not be repaired due to the lack of funds.

- Over the next 20 years, the counties will be unable to reconstruct approximately 20,000 deficient miles of roads due to lack of funds. More than 1,000 of these miles would have greater than 400 vehicles per day and would exhibit feasible rates of return (more than 20 percent), if funds were available to invest

it is difficult to estimate how long deficient bridges can be maintained through stop gap measures. The county road systems are an illustration of minimum physical thresholds which must be met, if you want a road.

Municipal Impacts

Over the next five years the municipalities of Iowa would have approximately \$220 million (1987 dollars) annually to invest in their arterial, collector and other street systems, if they received 19 percent of available RUTF. Like the state and counties, this amount would fall short of meeting municipal needs through Category 3. Although municipal backlog needs for expanded capacity are not as extensive as the state's (66 miles for the municipalities versus 452 miles for the state) future or accruing capacity problems are expected to increase significantly. Approximately 600 miles of capacity deficient roads will develop over the next 20 years. During this time period, the municipalities will be faced with trading off needed preservation improvements to meet capacity requirements. The following statements briefly describe other impacts on municipalities.

- Municipalities will be able to improve 340 bridges over the next 20 years, while another 271 bridges, of which more than half are currently deficient, will go unrepaired due to lack of funding.
- Municipalities would be able to reconstruct approximately 68 miles of arterial streets while approximately 458 miles of collectors and 4,500 miles of lower traffic volume deficient streets will not be improved due to the lack of funds.

Even in light of a prospective redistribution of available RUTF the impacts and burden on all three jurisdictions will be significant. Any redistribution of financial resources is likely to be a volatile political issue. Such a volatile issue could easily detract or overshadow a recognition of the general lack of road funds in Iowa and the corresponding unsatisfied road needs.

DISTRIBUTION OF RUTF AMONG MUNICIPALITIES

An analysis similar to that performed for the three jurisdictions was performed for the municipal population groups. The results are contained in Figure 5-5 and demonstrate the financial difficulties facing the municipalities under 2,500 population. The analysis was also run assuming equal tax burden per person among the population groups. The results, shown in Figure 5-6, confirm the financial difficulties facing urban areas under 2,500 population under current distribution schemes.

Several other conclusions can be inferred from these results.

1. The economic and financial viability of very small municipalities and their ability to support road infrastructure could be in question, particularly considering population losses that may be recorded in the 1990 census.
2. There are cities in Iowa with populations greater than 2,500 and less than 50,000 population that, from the view point of roads, have relatively solid tax bases, less relative need and do not appear to suffer as much from capacity problems. These cities may have the potential to be promoted as growth centers, if other infrastructural conditions are examined and show results similar to roads.
3. Clearly the large municipalities have the greatest inherent resources to meet their road needs.

The following analyses examine other potential factors for the distribution of available RUTF among municipalities.

Figure 5-5

DISTRIBUTION OF RUTF AMONG MUNICIPAL POPULATION GROUPS

Population Group	Percent of <u>1980 Population</u>	PERCENTAGE DISTRIBUTION		
		<u>1989-93</u>	<u>1989-98</u>	<u>Average</u>
Over 50,000	33.9	25.3	29.4	27.8
25,000 to 50,000	13.4	8.0	9.2	8.6
10,000 to 25,000	8.7	6.0	6.4	6.2
5,000 to 10,000	12.6	7.1	6.8	7.0
2,500 to 5,000	9.4	6.8	5.9	6.4
0 to 2,500	22.0	45.8	42.3	44.0

Figure 5-6

DISTRIBUTION OF RUTF AMONG MUNICIPAL POPULATION GROUPS
(Assuming Equal Local Tax Burden Per Person)

Population Group	Percent of <u>1980 Population</u>	PERCENTAGE DISTRIBUTION		
		<u>1989-93</u>	<u>1989-98</u>	<u>Average</u>
Over 50,000	33.9	38.7	40.7	39.7
25,000 to 50,000	13.4	6.5	7.3	6.9
10,000 to 25,000	8.7	6.2	6.4	6.3
5,000 to 10,000	12.6	5.7	5.6	5.7
2,500 to 5,000	9.4	8.3	7.8	8.1
0 to 2,500	22.0	34.6	32.2	33.4

Currently, RUTF revenues are allocated to the municipalities on the basis of population. Figure 5-7 depicts the allocation of funds resulting from the use of a variety of different criteria -- allocation by area, lane miles, total miles, vehicle miles traveled (VMT) and needs.

As can be seen allocating revenues on the basis of miles or lane mile causes the larger cities' share of funds to be significantly reduced while the smaller cities' share is increased. Allocating on the basis of VMT has the exact opposite affect. Allocating based on area causes both the largest and smallest cities to lose revenues, while the midsize cities gain RUTF revenues. Allocating based on needs causes the smallest cities (0 - 2,500 population) to gain revenues (from 23 percent of total revenues available to 31 percent of the total) while the amount available in each of the other groups is shaved slightly.

DISTRIBUTION OF RUTF AMONG COUNTIES

The distribution of RUTF among counties involves two funds -- the County Farm-to-Market and Secondary road funds. The current proportion of these funds is shown below:

County Farm-to-Market	24.32%
County Secondary	75.68%

The percentages obtained from an analysis of priorities indicates the following for a 5- and 10-year perspective.

	<u>1989-93</u>	<u>1989-98</u>
COUNTY FARM TO MARKET	43.6	40.9
COUNTY SECONDARY	56.4	59.1

This indicates a shift in priority to the Farm to Market system. The percentages when total needs are compared without regard to priorities are shown below for the same time periods.

Figure 5-7

DISTRIBUTION OF RUTF REVENUES AMONG CITY GROUPS

CURRENT METHOD	METHOD 1		METHOD 2		METHOD 3		METHOD 4		
	Population Allocation	Allocation % By Ln Miles Difference	Allocation % By Miles Difference	Allocation % By VMT Difference	Allocation % By Needs Difference				
0 - 2500	22.89%	35.62%	12.74%	56.30%	13.42%	13.68%	-9.20%	31.38%	8.50%
2500 - 5000	9.35%	10.38%	1.03%	10.35%	1.01%	7.69%	-1.66%	7.36%	-1.99%
5000 - 10000	12.44%	12.19%	-0.25%	12.27%	-0.17%	11.11%	-1.33%	10.10%	-2.34%
10000 - 25000	8.58%	7.21%	-1.37%	7.28%	-1.30%	9.40%	0.82%	7.48%	-1.09%
25000 - 50000	13.13%	10.35%	-2.78%	10.06%	-3.07%	15.38%	2.25%	11.23%	-1.90%
50000+	33.65%	24.26%	-9.37%	23.73%	-9.89%	42.74%	9.11%	52.44%	-1.18%
100 00%	100 00%	100 00%	100 00%	100 00%	100 00%	100 00%	100 00%	100 00%	100 00%

	<u>1989-93</u>	<u>1989-98</u>
COUNTY FARM TO MARKET	45.0	44.7
COUNTY SECONDARY	55.0	55.3

Total needs also point to a shift in priority to the Farm to Market system.

The counties currently have the flexibility to utilize Secondary road funds on Farm to Market roads. A recommendation to change the current ratio of the two systems would only further constrain the counties' individual programming prerogatives. In light of the current funding limitations, public demands and minimum preservation requirements, the current flexibility may be warranted. The following discussion addresses the distribution among the counties.

RUTF funds are currently allocated among the counties based on two criteria -- needs and area. Sixty percent of the available funds are distributed on the basis of needs, while 40 percent of the funds are distributed based on area. In assessing potential revised allocation methods, we again looked at the allocation of revenues under a variety of different criteria, including:

- total county population
- rural population
- area alone
- needs alone
- vehicle miles of travel (VMT)
- total miles
- lane miles

As for the cities, several of these criteria lead to allocations that are significantly different from the current allocations, as shown in Figure 5-8. For example, allocating revenues on the basis of total county population or rural population would lead some counties' revenues to increase by 100 percent or more while other counties' revenues would be reduced by more than 60 percent. The swings are also significant (though not quite as large) when the allocation is by miles, lane miles, area, or VMT -- many counties having their

Figure 5 8

DISTRIBUTION OF RUTF REVENUES AMONG INDIVIDUAL COUNTIES

County	METHOD 1		METHOD 2		METHOD 3	
	Current Allocation	Allocation %	Allocation %	Difference	Allocation %	Difference
Adair	1.03%	0.33%	0.33%	-0.70%	0.78%	-0.25%
Adams	0.74%	0.20%	0.20%	-0.54%	0.67%	-0.27%
Allamakee	1.13%	0.52%	0.52%	-0.61%	0.93%	-0.20%
Appanoose	0.95%	0.53%	0.53%	-0.42%	0.73%	-0.22%
Audubon	0.87%	0.29%	0.29%	-0.58%	0.47%	-0.41%
Benton	1.25%	0.81%	0.81%	-0.43%	1.29%	0.04%
Black Hawk	1.10%	4.73%	4.73%	3.63%	1.45%	0.35%
Boone	0.93%	0.90%	0.90%	-0.03%	1.11%	0.18%
Bremer	1.00%	0.85%	0.85%	-0.08%	1.34%	0.57%
Buchanan	0.77%	0.79%	0.79%	0.02%	1.35%	0.36%
Buena Vista	0.77%	0.71%	0.71%	-0.05%	0.98%	0.21%
Butler	1.03%	0.61%	0.61%	-0.42%	1.45%	0.42%
Calhoun	0.82%	0.46%	0.46%	-0.35%	1.11%	0.29%
Carroll	1.03%	0.79%	0.79%	-0.24%	1.00%	0.06%
Cass	0.97%	0.50%	0.50%	-0.39%	0.75%	-0.22%
Cedar	1.14%	0.64%	0.64%	-0.50%	1.28%	0.14%
Cerro Gordo	0.86%	1.66%	1.66%	0.81%	0.89%	0.03%
Cherokee	0.95%	0.56%	0.56%	-0.39%	0.76%	-0.19%
Chickasaw	0.87%	0.53%	0.53%	-0.34%	0.94%	0.07%
Clarke	0.73%	0.30%	0.30%	-0.43%	0.40%	-0.33%
Clay	0.87%	0.67%	0.67%	-0.19%	0.64%	-0.22%
Clayton	1.39%	0.72%	0.72%	-0.67%	1.73%	0.33%
Clinton	1.31%	1.96%	1.96%	0.65%	1.23%	-0.08%
Crawford	1.43%	0.65%	0.65%	-0.78%	1.00%	-0.43%
Dallas	1.09%	1.01%	1.01%	-0.07%	1.61%	0.52%
Davis	0.91%	0.31%	0.31%	-0.60%	0.51%	-0.40%
Decatur	0.94%	0.34%	0.34%	-0.60%	0.50%	-0.36%
Delaware	1.09%	0.65%	0.65%	-0.44%	1.15%	0.06%
Des Moines	0.84%	1.59%	1.59%	0.75%	1.11%	0.27%
Dickinson	0.58%	0.54%	0.54%	-0.04%	0.92%	0.34%
Dubuque	1.33%	3.22%	3.22%	1.89%	2.27%	0.94%
Emmet	0.60%	0.46%	0.46%	-0.14%	0.48%	-0.12%
Fayette	1.17%	0.87%	0.87%	-0.29%	1.24%	0.07%
Floyd	0.80%	0.67%	0.67%	-0.13%	0.89%	0.08%
Franklin	0.91%	0.45%	0.45%	-0.47%	0.69%	-0.23%
Fremont	0.97%	0.32%	0.32%	-0.65%	0.77%	-0.20%
Greene	0.86%	0.42%	0.42%	-0.45%	0.59%	0.27%
Grundy	0.89%	0.49%	0.49%	-0.40%	0.94%	0.05%
Guthrie	1.05%	0.41%	0.41%	-0.64%	0.98%	0.07%
Hamilton	0.90%	0.61%	0.61%	0.29%	0.76%	0.16%
Hancock	0.87%	0.47%	0.47%	-0.39%	0.89%	0.03%
Hardin	1.03%	0.24%	0.24%	-0.28%	1.03%	0.00%
Harrison	1.22%	0.56%	0.56%	-0.66%	1.06%	-0.15%
Henry	0.85%	0.62%	0.62%	0.18%	0.95%	0.11%
Howard	0.80%	0.31%	0.31%	-0.42%	0.59%	-0.21%
Howard	0.64%	0.45%	0.45%	-0.22%	0.61%	0.05%
Iowa	0.70%	0.51%	0.51%	-0.40%	0.75%	0.05%

Figure 5.8

DISTRIBUTION OF RUTF REVENUES AMONG INDIVIDUAL COUNTIES

County	METHOD 1	METHOD 2	X Difference	METHOD 3	X Difference
	Current Allocation	Allocation By Pop		Allocation By Un Pop	
Iowa	1.15X	0.53X	-0.62X	1.26X	0.12X
Jackson	1.25X	0.77X	-0.48X	1.33X	0.07X
Jasper	1.51X	1.25X	-0.26X	1.73X	0.22X
Jefferson	0.79X	0.56X	-0.23X	0.56X	-0.23X
Johnson	1.36X	2.80X	1.45X	1.41X	0.05X
Jones	0.98X	0.70X	-0.28X	0.97X	-0.01X
Keokuk	0.98X	0.44X	-0.53X	1.06X	0.08X
Kossuth	1.56X	0.75X	-0.81X	1.28X	-0.29X
Lee	1.10X	1.48X	0.38X	1.31X	0.22X
Linn	1.77X	5.83X	4.06X	2.60X	0.84X
Louisa	0.78X	0.41X	-0.36X	0.99X	0.21X
Lucas	0.80X	0.35X	-0.44X	0.44X	-0.36X
Lyon	0.82X	0.44X	-0.38X	0.84X	0.02X
Madison	1.04X	0.43X	-0.61X	0.70X	-0.34X
Mahaska	0.98X	0.78X	-0.19X	0.98X	0.00X
Marion	1.06X	1.02X	-0.04X	1.08X	0.02X
Marshall	1.13X	1.43X	0.29X	1.20X	0.07X
Mills	0.87X	0.46X	-0.41X	0.67X	-0.21X
Mitchell	0.71X	0.42X	-0.28X	0.71X	0.00X
Mondak	1.17X	0.40X	-0.76X	0.69X	-0.48X
Monroe	0.84X	0.32X	-0.52X	0.41X	-0.43X
Montgomery	0.78X	0.46X	-0.32X	0.54X	-0.24X
Muscatine	0.78X	1.39X	0.61X	1.46X	0.68X
O'Brien	0.82X	0.58X	-0.24X	0.98X	0.16X
Osceola	0.61X	0.29X	-0.32X	0.44X	-0.17X
Page	1.08X	0.65X	-0.43X	0.60X	-0.48X
Palo Alto	0.73X	0.44X	-0.30X	0.66X	-0.07X
Plymouth	1.56X	0.85X	-0.71X	1.30X	-0.25X
Pocahontas	0.82X	0.39X	-0.43X	0.93X	0.11X
Polk	1.55X	10.40X	8.85X	2.50X	0.94X
Pottawattamie	1.99X	2.97X	0.98X	2.18X	0.18X
Poweshiek	1.04X	0.66X	-0.38X	0.85X	-0.19X
Ringgold	0.96X	0.21X	-0.75X	0.50X	-0.46X
Sac	0.97X	0.48X	-0.49X	0.91X	-0.06X
Scott	0.88X	5.49X	4.61X	1.90X	1.02X
Shelby	1.33X	0.52X	-0.81X	0.79X	-0.54X
Sioux	1.22X	1.06X	-0.16X	0.92X	-0.30X
Story	1.13X	2.48X	1.35X	1.46X	0.33X
Tama	1.13X	0.67X	-0.46X	1.16X	0.17X
Taylor	0.91X	0.29X	-0.62X	0.68X	-0.22X
Union	0.78X	0.48X	-0.30X	0.44X	-0.34X
Van Buren	0.83X	0.30X	-0.53X	0.71X	-0.12X
Wapello	0.96X	1.38X	0.42X	1.05X	0.09X
Warren	1.16X	1.20X	0.04X	1.50X	0.34X
Washington	1.07X	0.69X	-0.38X	1.11X	0.04X
Wayne	0.86X	0.38X	-0.47X	0.67X	-0.19X
Webster	1.20X	1.58X	0.37X	1.35X	0.15X
Winneshiek	0.63X	0.65X	0.02X	0.72X	0.09X

Figure 5-8

DISTRIBUTION OF RUTF REVENUES AMONG INDIVIDUAL COUNTIES

County	METHOD 1		METHOD 2		METHOD 3	
	Current Allocation	Allocation By Pop	Allocation %	Difference	Allocation %	Difference
Winnebago	1.35%	0.75%	0.60%	-0.22%	1.14%	-0.22%
Woodbury	1.71%	3.46%	1.75%	-0.17%	1.55%	-0.17%
Worth	0.54%	0.31%	-0.23%	0.20%	0.74%	0.20%
Wright	0.83%	0.56%	-0.27%	-0.31%	0.53%	-0.31%
	100.00%	100.00%			100.00%	

Figure 5 8

DISTRIBUTION OF RUTF REVENUES AMONG INDIVIDUAL COUNTIES

County	METHOD 1		METHOD 4		METHOD 5		METHOD 6		METHOD 7		METHOD 8	
	Current Allocation	Allocation By Area	Allocation X Difference	Allocation By Area	Allocation X Difference	Allocation X Difference	Allocation By Miles	Allocation X Difference	Allocation by VMT	Allocation X Difference	Allocation By Needs	Allocation X Difference
Adair	1.03%	1.02%	-0.01%	1.15%	0.12%	1.15%	0.12%	1.15%	0.12%	1.15%	1.03%	0.01%
Adams	0.74%	0.76%	0.02%	0.80%	0.06%	0.80%	0.06%	0.80%	0.06%	0.80%	0.72%	-0.01%
Allamoree	1.13%	1.14%	0.01%	0.98%	-0.15%	0.98%	-0.15%	0.98%	-0.15%	0.98%	1.12%	0.00%
Appanoose	0.95%	0.93%	-0.02%	0.83%	-0.12%	0.83%	-0.12%	0.83%	-0.12%	0.83%	0.96%	0.01%
Audubon	0.67%	0.60%	-0.07%	0.85%	-0.02%	0.85%	-0.02%	0.85%	-0.02%	0.85%	0.92%	0.05%
Benton	1.25%	1.28%	0.04%	1.35%	0.10%	1.35%	0.10%	1.35%	0.10%	1.35%	1.22%	-0.03%
Black Hawk	1.10%	1.02%	-0.09%	0.86%	-0.24%	0.86%	-0.24%	0.86%	-0.24%	0.86%	1.16%	0.06%
Boone	0.93%	1.02%	0.09%	1.08%	0.15%	1.08%	0.15%	1.08%	0.15%	1.08%	0.97%	-0.06%
Bremer	0.77%	0.78%	0.01%	0.79%	0.02%	0.79%	0.02%	0.79%	0.02%	0.79%	0.76%	-0.01%
Buchanan	1.00%	1.02%	0.02%	1.04%	0.04%	1.04%	0.04%	1.04%	0.04%	1.04%	0.99%	-0.01%
Buena Vista	0.77%	1.02%	0.26%	1.12%	0.36%	1.12%	0.36%	1.12%	0.36%	1.12%	0.60%	-0.17%
Butler	1.03%	1.04%	0.01%	1.07%	0.04%	1.07%	0.04%	1.07%	0.04%	1.07%	1.02%	-0.01%
Calhoun	0.82%	1.02%	0.20%	1.10%	0.28%	1.10%	0.28%	1.10%	0.28%	1.10%	0.68%	-0.14%
Carroll	1.03%	1.03%	0.00%	1.10%	0.07%	1.10%	0.07%	1.10%	0.07%	1.10%	1.03%	0.00%
Cass	0.97%	1.00%	0.03%	1.01%	0.04%	1.01%	0.04%	1.01%	0.04%	1.01%	0.96%	-0.02%
Cedar	1.14%	1.05%	-0.09%	1.07%	-0.07%	1.07%	-0.07%	1.07%	-0.07%	1.07%	1.20%	0.06%
Cerro Gordo	0.66%	1.03%	0.17%	1.08%	0.22%	1.08%	0.22%	1.08%	0.22%	1.08%	0.74%	-0.11%
Cherokee	0.95%	1.02%	0.08%	1.11%	0.17%	1.11%	0.17%	1.11%	0.17%	1.11%	0.89%	-0.05%
Chickasaw	0.87%	0.90%	0.03%	0.94%	0.07%	0.94%	0.07%	0.94%	0.07%	0.94%	0.85%	-0.02%
Clarke	0.77%	0.77%	0.04%	0.74%	0.03%	0.74%	0.03%	0.74%	0.03%	0.74%	0.70%	-0.02%
Clay	0.87%	1.02%	0.15%	1.08%	0.21%	1.08%	0.21%	1.08%	0.21%	1.08%	0.32%	-0.10%
Clayton	1.39%	1.24%	-0.07%	1.19%	-0.20%	1.19%	-0.20%	1.19%	-0.20%	1.19%	1.40%	0.00%
Clinton	1.31%	1.28%	-0.07%	1.11%	-0.20%	1.11%	-0.20%	1.11%	-0.20%	1.11%	1.36%	0.05%
Crawford	1.43%	1.28%	-0.15%	1.36%	-0.07%	1.36%	-0.07%	1.36%	-0.07%	1.36%	1.54%	0.10%
Dallas	1.09%	1.07%	-0.02%	1.01%	-0.07%	1.01%	-0.07%	1.01%	-0.07%	1.01%	1.10%	0.01%
Davis	0.91%	0.91%	0.00%	0.91%	0.01%	0.91%	0.01%	0.91%	0.01%	0.91%	0.92%	0.00%
Decatur	0.94%	0.95%	0.01%	0.85%	-0.09%	0.85%	-0.09%	0.85%	-0.09%	0.85%	0.93%	-0.01%
DeWane	1.09%	1.02%	-0.07%	1.01%	-0.08%	1.01%	-0.08%	1.01%	-0.08%	1.01%	1.14%	0.05%
Des Moines	0.84%	0.73%	-0.11%	0.68%	-0.16%	0.68%	-0.16%	0.68%	-0.16%	0.68%	0.91%	0.07%
Dickinson	0.58%	0.60%	0.10%	0.74%	0.15%	0.74%	0.15%	0.74%	0.15%	0.74%	0.52%	-0.07%
Dubuque	1.33%	1.09%	-0.24%	0.86%	-0.47%	0.86%	-0.47%	0.86%	-0.47%	0.86%	1.49%	0.16%
Emmet	0.60%	0.70%	0.11%	0.72%	0.12%	0.72%	0.12%	0.72%	0.12%	0.72%	0.53%	-0.07%
Fayette	1.17%	1.30%	0.13%	1.27%	0.10%	1.27%	0.10%	1.27%	0.10%	1.27%	1.08%	-0.09%
Floyd	0.80%	0.90%	0.10%	0.97%	0.17%	0.97%	0.17%	0.97%	0.17%	0.97%	0.74%	-0.06%
Franklin	0.91%	1.05%	0.13%	1.11%	0.20%	1.11%	0.20%	1.11%	0.20%	1.11%	0.83%	-0.09%
Fremont	0.97%	0.94%	-0.04%	0.84%	-0.14%	0.84%	-0.14%	0.84%	-0.14%	0.84%	1.00%	0.03%
Greene	0.86%	1.02%	0.15%	1.07%	0.21%	1.07%	0.21%	1.07%	0.21%	1.07%	0.76%	-0.10%
Grundy	0.89%	0.90%	0.00%	0.92%	0.03%	0.92%	0.03%	0.92%	0.03%	0.92%	0.89%	0.00%
Guthrie	1.05%	1.07%	0.02%	1.05%	0.00%	1.05%	0.00%	1.05%	0.00%	1.05%	1.04%	0.01%
Hamilton	0.90%	1.03%	0.13%	1.02%	0.12%	1.02%	0.12%	1.02%	0.12%	1.02%	0.81%	-0.09%
Hancock	0.87%	1.02%	0.15%	1.11%	0.24%	1.11%	0.24%	1.11%	0.24%	1.11%	0.77%	-0.10%
Harrison	1.03%	1.03%	0.00%	1.09%	0.06%	1.09%	0.06%	1.09%	0.06%	1.09%	1.03%	0.00%
Hartsville	1.22%	1.24%	0.02%	1.22%	0.00%	1.22%	0.00%	1.22%	0.00%	1.22%	1.20%	-0.02%
Hawley	0.83%	0.79%	-0.04%	0.85%	-0.02%	0.85%	-0.02%	0.85%	-0.02%	0.85%	0.80%	-0.03%
Hempstead	0.80%	0.86%	0.06%	0.86%	0.00%	0.86%	0.00%	0.86%	0.00%	0.86%	0.80%	-0.06%
Hills	0.70%	0.77%	0.07%	0.81%	0.11%	0.81%	0.11%	0.81%	0.11%	0.81%	0.64%	-0.05%
Iowa	1.15%	1.04%	-0.10%	1.05%	-0.09%	1.05%	-0.09%	1.05%	-0.09%	1.05%	1.21%	0.06%

Figure 5-8

DISTRIBUTION OF RUTF REVENUES AMONG INDIVIDUAL COUNTIES

County	METHOD 1		METHOD 4		METHOD 5		METHOD 6		METHOD 7		METHOD 8	
	Current Allocation	Allocation By Area	Allocation By Ln Miles	Allocation X Difference	Allocation X Difference	Allocation By Miles	Allocation X Difference	Allocation by VMT	Allocation X Difference	Allocation By Needs	Allocation X Difference	
Jackson	1.25X	1.15X	0.92X	-0.33X	0.92X	0.92X	-0.33X	0.76X	-0.49X	1.32X	0.07X	
Jasper	1.51X	1.32X	1.36X	-0.20X	1.36X	1.36X	-0.15X	1.50X	-0.02X	1.64X	0.13X	
Jefferson	0.79X	0.78X	0.84X	0.05X	0.84X	0.84X	0.05X	0.78X	-0.01X	0.80X	0.01X	
Johnson	1.36X	1.11X	1.03X	-0.25X	1.03X	1.03X	-0.33X	1.92X	0.56X	1.53X	0.17X	
Jones	0.98X	1.05X	0.94X	0.07X	0.94X	0.94X	-0.04X	0.93X	-0.05X	0.94X	-0.04X	
Keokuk	0.98X	1.03X	1.04X	0.06X	1.04X	1.04X	0.06X	1.04X	0.06X	0.94X	-0.04X	
Kossuth	1.56X	1.75X	1.85X	0.19X	1.85X	1.85X	0.28X	1.68X	0.13X	1.44X	-0.12X	
Lee	1.10X	0.94X	0.78X	-0.15X	0.78X	0.78X	-0.32X	1.01X	-0.08X	1.20X	0.10X	
Linn	1.77X	1.28X	1.31X	-0.48X	1.31X	1.31X	-0.46X	3.16X	1.40X	2.09X	0.32X	
Louisia	0.78X	0.72X	0.64X	-0.06X	0.64X	0.64X	-0.14X	0.66X	-0.11X	0.81X	0.04X	
Lucas	0.80X	0.78X	0.71X	-0.02X	0.71X	0.71X	-0.09X	0.41X	-0.39X	0.81X	0.02X	
Lyon	0.82X	1.05X	1.11X	0.23X	1.11X	1.11X	0.30X	0.89X	0.08X	0.66X	-0.16X	
Madison	1.04X	1.01X	1.01X	-0.04X	1.01X	1.01X	-0.03X	0.76X	-0.28X	1.07X	0.02X	
Manitou	0.98X	1.02X	1.02X	0.05X	1.02X	1.02X	0.11X	1.08X	0.06X	0.94X	-0.03X	
Marion	1.06X	0.89X	0.94X	-0.17X	0.94X	0.94X	-0.10X	1.24X	0.18X	1.17X	0.11X	
Marshall	1.33X	0.87X	0.73X	-0.06X	0.73X	0.73X	-0.15X	1.49X	0.35X	1.21X	0.07X	
Mills	0.87X	0.80X	0.83X	0.03X	0.83X	0.83X	0.02X	0.50X	-0.37X	0.92X	0.05X	
Mitchell	0.71X	0.83X	0.86X	0.13X	0.86X	0.86X	0.16X	0.71X	0.01X	0.62X	-0.09X	
Monroe	1.17X	1.25X	1.19X	0.02X	1.19X	1.19X	0.02X	0.88X	-0.28X	1.11X	0.06X	
Montrose	0.64X	0.78X	0.68X	-0.06X	0.68X	0.68X	-0.16X	0.60X	-0.44X	0.88X	0.04X	
Montgomery	0.76X	0.75X	0.81X	0.03X	0.81X	0.81X	0.02X	0.58X	-0.20X	0.80X	0.02X	
Muscatine	0.78X	0.79X	0.81X	0.01X	0.81X	0.81X	0.09X	1.12X	0.33X	0.77X	-0.01X	
O'Brien	0.62X	1.03X	1.16X	0.20X	1.16X	1.16X	0.31X	0.99X	0.17X	0.69X	-0.14X	
Oceola	0.61X	0.71X	0.81X	0.10X	0.81X	0.81X	0.20X	0.66X	0.05X	0.54X	-0.07X	
Osceola	0.82X	0.71X	0.71X	-0.06X	0.71X	0.71X	-0.06X	0.65X	-0.40X	1.17X	0.09X	
Page	1.08X	0.96X	1.03X	-0.13X	1.03X	1.03X	0.06X	1.05X	0.02X	0.80X	-0.02X	
Palo Alto	0.73X	1.00X	0.77X	0.27X	0.77X	0.77X	0.31X	1.12X	0.33X	0.77X	-0.01X	
Plymouth	1.56X	1.54X	1.59X	0.01X	1.59X	1.59X	0.04X	1.61X	0.02X	1.56X	-0.01X	
Pocahontas	0.82X	1.04X	1.12X	0.22X	1.12X	1.12X	0.30X	0.97X	0.15X	0.68X	-0.16X	
Polk	1.55X	1.03X	0.91X	-0.52X	0.91X	0.91X	-0.64X	3.12X	1.57X	1.90X	0.35X	
Pottawattomie	1.99X	1.72X	1.59X	-0.27X	1.59X	1.59X	-0.40X	1.21X	-0.79X	2.18X	0.18X	
Pottawatie	1.04X	1.05X	1.09X	0.01X	1.09X	1.09X	0.05X	0.74X	-0.30X	1.03X	0.01X	
Ringgold	0.96X	0.96X	0.97X	0.01X	0.97X	0.97X	0.02X	0.45X	-0.50X	0.95X	0.00X	
Sec	0.97X	1.03X	1.14X	0.06X	1.14X	1.14X	0.17X	1.02X	0.05X	0.93X	-0.04X	
Scott	0.80X	0.81X	0.62X	-0.07X	0.62X	0.62X	-0.26X	1.73X	0.85X	0.93X	0.05X	
Shelby	1.33X	1.05X	1.08X	-0.28X	1.08X	1.08X	-0.25X	0.76X	-0.56X	1.51X	0.19X	
Stow	1.22X	1.37X	1.52X	0.15X	1.52X	1.52X	0.30X	1.61X	0.39X	1.12X	-0.10X	
Story	1.33X	1.02X	1.06X	-0.12X	1.06X	1.06X	-0.08X	2.13X	1.00X	1.21X	0.08X	
Tama	1.33X	1.29X	1.29X	-0.04X	1.29X	1.29X	-0.04X	1.08X	-0.24X	1.35X	0.03X	
Taylor	0.91X	0.94X	1.02X	0.04X	1.02X	1.02X	0.11X	0.48X	0.40X	0.86X	0.02X	
Union	0.78X	0.76X	0.78X	0.02X	0.78X	0.78X	0.00X	0.60X	-0.22X	0.74X	0.03X	
Van Buren	0.83X	0.87X	0.83X	0.05X	0.83X	0.83X	0.01X	0.85X	0.11X	1.08X	0.11X	
Vapello	0.96X	0.78X	0.77X	-0.18X	0.77X	0.77X	-0.19X	0.99X	0.17X	1.26X	0.11X	
Warren	1.16X	1.00X	0.99X	-0.16X	0.99X	0.99X	-0.06X	1.01X	0.02X	1.13X	0.04X	
Washington	1.07X	1.02X	0.92X	-0.05X	0.92X	0.92X	-0.06X	0.92X	0.09X	0.79X	-0.02X	
Wayne	0.86X	0.95X	0.95X	0.09X	0.95X	0.95X	0.06X	0.92X	0.07X	0.79X	-0.05X	
Webster	1.20X	1.28X	1.29X	0.08X	1.29X	1.29X	0.08X	1.29X	0.09X	1.15X	-0.05X	
Winnebago	0.55X	0.72X	0.80X	0.08X	0.80X	0.80X	0.17X	0.80X	0.17X	1.45X	0.08X	
Winnebush	1.35X	1.23X	1.16X	-0.12X	1.16X	1.16X	-0.19X	1.16X	0.19X	1.45X	0.08X	
Woodbury	1.71X	1.56X	1.48X	-0.16X	1.48X	1.48X	-0.24X	1.47X	-0.24X	1.86X	0.11X	

DISTRIBUTION OF RUTF REVENUES AMONG INDIVIDUAL COUNTIES

County	METHOD 1		METHOD 4		METHOD 5		METHOD 6		METHOD 7		Method 8	
	Current Allocation		Allocation By Area	% Difference	Allocation By Ln Miles	% Difference	Allocation By Miles	% Difference	Allocation by VMT	% Difference	Allocation By Needs	% Difference
Worth	0.54%		0.71%	0.17%	0.74%	0.20%	0.74%	0.20%	0.50%	-0.04%	0.43%	-0.12%
Wright	0.83%		1.03%	0.20%	1.08%	0.25%	1.08%	0.25%	1.00%	0.17%	0.70%	-0.13%
	100.00%		100.00%		100.00%		100.00%		100.00%		100.00%	

allocation increased by 30-40 percent over current levels. It should be noted that the counties that benefit under one particular allocation method do not necessarily do so under all methods (e.g., Polk County would have their RUTF revenues increased by 60 percent if the criteria used were rural population, while it would have its RUTF revenues reduced by 40 percent if lane miles were the criteria.

Using needs as the primary criteria has the benefit of ensuring that the new amounts allocated to counties are relatively close to their old levels. While this method does, indeed increase the share to some counties and decrease others, it is simple to apply and will be frequently updated through the Quadrennial Need Study. Also, the needs estimates implicitly incorporate the other potential criteria (e.g., VMT, lane miles) and relate directly to the individual counties' road related requirements. Using needs as the criteria for funding allocation most counties gain or lose less than ten percent from their current funding levels. The greatest beneficiaries are Dubuque (RUTF funding levels up 15 percent), Johnson (up 16 percent), Linn (up 31 percent), Polk (up 33 percent), and Shelby (up 18 percent). Those counties which would lose most from the reallocation include Buena Vista (RUTF funding levels down 16 percent), Calhoun (down 13 percent), Lyon (down 15 percent), O'Brien (down 13 percent), Palo Alto (down 17 percent), Pocahontas (down 14 percent), and Wright (down 13 percent).

However, the ability of certain counties to generate local revenues for road purposes has traditionally been an important consideration in the allocation of RUTF revenues among the counties. This is the reason land area is included in the current allocation formula. An analysis was performed to assess the tax burden on individual counties. The findings indicate that, as expected, generally counties having less rural or total population have the highest per capita tax burden. This is illustrated in Figures 5-9 and 5-10. In Figure 5-9 counties are ranked by rural population and the per capita rural property tax is calculated. In Figure 5-10 counties are ranked by total population and the per capita total county property tax is calculated. This burden on low population counties should be considered in assessing the impacts of distributing RUTF revenues among the counties.

Figure 5-9

Page 2

COUNTY PROPERTY TAX BURDEN ON RURAL POPULATION¹

County	1990 Census Rural Population	Total County Property Tax Levy (FY99)	Rural County Property Tax Levy (FY99)	Rural Tax Rates \$ per \$1,000 Valuation	Percentage Rural Property Tax
Clanke	4,862	\$1,553,134	\$1,116,942	9.34	\$221
Monroe	5,025	\$1,518,250	\$1,298,150	10.18	\$259
Osceola	5,320	\$1,337,329	\$2,154,703	5.98	\$425
Lucas	5,325	\$1,788,094	\$1,181,571	12.23	\$220
Union	5,429	\$2,565,247	\$1,629,135	11.44	\$177
Audubon	5,718	\$2,015,992	\$1,810,955	11.09	\$177
Adams	5,731	\$587,377	\$899,474	6.20	\$137
Emet	5,818	\$2,272,997	\$1,869,969	7.46	\$221
Kinggood	5,112	\$878,898	\$774,370	5.29	\$121
Davis	5,255	\$1,391,351	\$1,190,151	9.58	\$120
Wright	5,410	\$2,688,400	\$2,214,379	11.55	\$322
Montgomery	5,503	\$1,955,791	\$1,494,502	7.31	\$225
Jefferson	5,868	\$2,275,345	\$1,575,867	7.20	\$229
Decatur	7,089	\$1,361,025	\$1,070,253	9.71	\$151
Howard	7,254	\$2,250,567	\$1,899,861	8.23	\$222
Greene	7,255	\$3,113,878	\$2,594,506	7.71	\$252
Page	7,331	\$2,596,243	\$1,706,358	8.51	\$233
Humboldt	7,452	\$2,473,212	\$2,022,602	6.83	\$271
Average (<7,500 pop)				8.29	\$255
Clay	7,850	\$2,870,719	\$1,963,118	11.99	\$250
Palo Alto	8,100	\$2,405,910	\$2,105,924	6.24	\$221
Wilks	8,125	\$1,395,400	\$1,677,346	11.99	\$171
Wayne	8,199	\$1,468,063	\$1,220,049	10.40	\$141
Taylor	8,351	\$1,248,612	\$1,107,505	7.59	\$171
Franklin	8,405	\$2,877,418	\$2,534,322	11.44	\$171
Worth	8,409	\$2,465,255	\$2,168,480	7.45	\$171
Madison	8,515	\$2,143,925	\$1,955,131	8.53	\$171
Wilton	8,511	\$2,051,152	\$1,755,670	6.50	\$171
Van Buren	8,508	\$1,530,000	\$1,315,315	9.71	\$152
Winnepago	8,740	\$1,812,252	\$1,479,715	6.75	\$171
Ida	8,918	\$1,379,398	\$1,194,784	4.90	\$171
Appanoose	8,953	\$2,040,453	\$1,281,658	11.31	\$140
Worth	9,075	\$1,827,729	\$1,503,052	6.43	\$140
Cass	9,143	\$2,474,066	\$1,925,938	6.83	\$171
Cherokee	9,231	\$1,508,550	\$1,273,142	11.97	\$171
Hamilton	9,280	\$4,216,603	\$3,764,507	9.55	\$171
Frederic	9,401	\$2,061,240	\$2,059,887	9.01	\$171
Acadit	9,509	\$1,645,200	\$1,548,817	6.30	\$171
Shelby	9,565	\$2,852,712	\$2,435,775	7.41	\$251
Average (7,500-10,000 pop)				7.25	\$201
Leon	10,203	\$1,350,005	\$1,637,337	5.36	\$171
Poweshieck	10,428	\$3,123,418	\$2,460,766	7.30	\$171
Stacy	10,819	\$3,561,092	\$2,354,210	7.62	\$271
Cerro Gordo	10,856	\$6,638,220	\$2,985,551	7.15	\$271
Hancock	10,925	\$2,152,572	\$1,875,555	4.02	\$171
Sac	11,118	\$2,097,887	\$1,821,655	5.52	\$154
Sioux	11,206	\$2,843,490	\$2,290,328	4.58	\$204
Dickinson	11,293	\$2,069,891	\$1,384,976	4.34	\$123
Allamakee	11,333	\$2,248,039	\$1,906,136	6.11	\$158
Pocahontas	11,359	\$2,184,394	\$1,942,083	5.25	\$171
Grundy	11,485	\$2,386,903	\$2,071,111	5.75	\$180
Chickasaw	11,497	\$3,040,088	\$2,412,866	8.54	\$210
Henry	11,558	\$3,265,283	\$2,233,052	8.90	\$193
Jones	11,302	\$3,020,525	\$2,487,583	5.51	\$211
Buena Vista	11,960	\$2,683,476	\$2,008,374	5.58	\$158

¹U.S. Census Rural Definition.

Figure 5-9

COUNTY PROPERTY TAX BURDEN ON RURAL POPULATION

County	1980 Census Rural Population	Total County Property Tax Levy (FY89)	Rural County Property Tax Levy (FY89)	Rural Tax Rates \$ per \$1,000 valuations	Percent of Total Property Tax
Manaska	11,969	\$3,832,639	\$2,910,314	2.29	\$2.01
Osborne	11,989	\$2,856,562	\$1,212,616	5.51	\$1.71
Suthrie	11,983	\$2,532,216	\$2,263,911	7.47	\$1.39
Louis	12,055	\$2,840,175	\$2,515,359	7.10	\$2.09
Dawford	12,260	\$3,117,224	\$2,561,240	7.55	\$2.09
Average (10,000-12,500 pop)				6.43	\$1.91
Hardin	12,529	\$3,395,698	\$2,537,200	6.43	\$2.11
Madison	12,660	\$3,199,129	\$2,212,008	6.40	\$1.71
Keokuk	12,921	\$2,001,535	\$1,315,180	6.27	\$1.41
Marion	13,177	\$4,333,758	\$2,490,198	8.36	\$1.99
Morrison	13,241	\$2,957,476	\$2,401,740	7.22	\$1.71
Carne	13,246	\$4,205,762	\$2,710,842	7.49	\$2.01
Cairhour	13,542	\$2,468,017	\$2,090,177	5.99	\$1.54
Washington	13,557	\$3,258,534	\$2,468,505	6.69	\$1.91
Des Moines	13,573	\$6,730,687	\$3,157,345	9.38	\$2.01
Boone	13,582	\$3,744,323	\$2,317,851	6.55	\$1.71
Winnebago	13,885	\$3,715,717	\$2,309,008	6.36	\$2.01
Delaware	13,991	\$3,135,111	\$2,577,847	6.79	\$1.71
Tama	14,120	\$3,273,859	\$2,760,311	6.56	\$1.99
Wasson	14,714	\$6,776,479	\$3,474,286	8.92	\$2.01
Average (12,500-15,000 pop)				7.44	\$1.91
Clinton	15,067	\$6,590,260	\$3,222,273	6.73	\$2.01
Payette	15,141	\$2,952,853	\$2,474,546	6.31	\$1.71
Iowa	15,403	\$3,492,280	\$3,160,125	7.45	\$1.71
Decor	15,501	\$1,260,811	\$2,716,611	6.14	\$1.71
Kossuth	15,500	\$4,518,135	\$4,018,375	11.82	\$1.99
Benton	15,706	\$3,900,270	\$3,096,698	6.99	\$1.71
Plymouth	15,850	\$3,448,870	\$2,763,571	6.46	\$1.71
Lee	16,151	\$6,900,048	\$3,231,004	6.17	\$1.71
Jackson	16,191	\$2,530,907	\$2,008,718	6.66	\$1.71
Bremer	16,375	\$3,224,224	\$2,209,401	7.37	\$1.71
Webster	16,510	\$6,075,845	\$3,359,245	7.12	\$2.01
Buchanan	16,540	\$3,015,507	\$2,403,003	6.55	\$1.41
Johnson	17,203	\$11,548,455	\$4,330,950	7.62	\$2.01
Average (15,000-17,500 pop)				6.84	\$1.69
Butler	17,568	\$2,506,255	\$2,263,765	6.61	\$1.28
Black Hawk	17,671	\$14,478,159	\$3,452,526	8.48	\$1.95
Muscatine	17,827	\$5,733,685	\$3,142,481	6.87	\$1.76
Story	17,877	\$7,239,823	\$3,154,989	6.90	\$1.76
Warren	18,286	\$5,393,544	\$3,609,289	9.41	\$1.91
Woodbury	18,981	\$13,891,387	\$5,943,675	6.60	\$2.01
Dallas	19,614	\$4,065,906	\$3,101,051	5.80	\$1.58
Average (17,500-20,000 pop)				7.52	\$1.92
Clayton	21,098	\$3,350,203	\$2,812,445	7.33	\$1.34
Jasper	21,133	\$6,249,711	\$3,732,340	8.30	\$1.71
Scott	23,139	\$7,429,436	\$3,322,739	7.39	\$1.43
Pottawattamie	26,513	\$10,101,882	\$5,202,338	7.14	\$1.95
Dubuque	27,718	\$11,105,990	\$4,676,229	8.72	\$1.99
Polk	30,490	\$49,904,294	\$7,885,921	10.78	\$2.01
Linn	31,408	\$26,751,211	\$6,308,285	9.71	\$1.95
Average (>20,000 pop)				8.48	\$1.92
Total		\$429,740,598	\$242,677,623		

Figure 5-10

COUNTY PROPERTY TAX BURDEN ON TOTAL POPULATION

County	1990 Census Total Population	1990 Census Total Population	Total County Property Tax Levy (FY89)	Per Capita County Property Tax Total
Adams	5,731	5,731	\$987,377	\$172.33
Ringgold	5,112	5,112	\$879,898	\$172.30
Wayne	8,199	8,199	\$1,488,053	\$181.49
Taylor	8,353	8,353	\$1,248,512	\$149.48
Osceola	8,371	8,320	\$1,337,929	\$159.83
Audubon	8,559	8,718	\$2,015,892	\$235.84
Clarke	8,612	8,962	\$1,553,194	\$171.64
Van Buren	8,626	8,625	\$1,530,000	\$177.37
Ida	8,908	8,908	\$1,379,398	\$154.85
Worth	9,075	9,075	\$1,827,729	\$201.40
Davis	9,104	9,255	\$1,331,361	\$145.83
Monroe	9,209	9,225	\$1,518,250	\$164.73
Fremont	9,401	9,401	\$2,361,240	\$251.17
Adair	9,509	9,509	\$1,845,200	\$194.05
Decatur	9,794	9,789	\$1,351,026	\$138.97
Average (<10,000 pop)				\$178.72
Lucas	10,313	9,325	\$1,788,094	\$173.38
Howard	11,114	7,254	\$2,250,567	\$202.50
Pocahontas	11,369	11,369	\$2,184,394	\$192.14
Madra	11,552	8,409	\$2,465,255	\$290.86
Guthrie	11,983	11,983	\$2,532,216	\$211.32
Louisa	12,055	12,055	\$2,840,176	\$235.50
Greene	12,119	7,255	\$3,113,879	\$265.94
Humboldt	12,246	7,452	\$2,473,212	\$201.36
Mitchell	12,329	8,611	\$2,051,102	\$165.34
Madison	12,597	8,576	\$2,343,325	\$186.27
Palo Alto	12,721	8,100	\$2,408,910	\$189.21
Lyon	12,896	10,203	\$1,850,006	\$148.46
Keokuk	12,921	12,921	\$2,001,535	\$154.91
Winnebago	13,010	8,740	\$1,812,292	\$139.30
Franklin	13,035	8,405	\$2,377,418	\$222.73
Emmet	13,106	5,818	\$2,272,997	\$170.44
Willis	13,406	8,126	\$1,995,400	\$148.84
Montgomery	13,413	6,603	\$1,955,791	\$145.66
Gallatin	13,542	13,542	\$2,468,017	\$182.85
Hancock	13,833	10,925	\$2,152,572	\$155.33
Union	13,858	5,429	\$2,565,247	\$185.11
Sac	14,118	11,118	\$2,097,887	\$148.50
Grundy	14,366	11,486	\$2,386,303	\$166.15
Shelby	15,043	9,586	\$2,862,712	\$190.50
Waukegan	15,103	11,333	\$2,248,039	\$148.80
Iowa	15,429	15,424	\$3,492,280	\$226.35
Chickasaw	15,437	11,497	\$3,040,088	\$196.24
Appanoose	15,511	8,953	\$2,040,453	\$131.55
Dickinson	15,629	11,293	\$2,069,891	\$132.44
Cherokee	16,238	9,234	\$1,508,550	\$92.90
Jefferson	16,316	6,888	\$2,276,945	\$139.55
Wright	16,319	5,430	\$2,688,400	\$164.74
Harrison	16,348	13,241	\$2,957,476	\$180.91
Cass	16,932	9,143	\$2,474,066	\$146.12
O'Brien	16,972	11,969	\$2,656,552	\$156.53
Butler	17,668	17,568	\$2,506,255	\$147.51
Hamilton	17,862	9,290	\$4,316,503	\$275.25
Cedar	18,535	15,580	\$3,260,811	\$174.98
Henry	18,890	11,568	\$3,265,283	\$172.96
Delaware	18,933	13,991	\$3,136,113	\$165.64
Crawford	18,935	12,250	\$3,117,224	\$164.53
Page	19,053	7,331	\$2,596,243	\$136.19
Poweshiek	19,306	10,438	\$3,123,418	\$151.18
Lama	19,533	14,120	\$3,273,859	\$167.51
Clay	19,575	7,850	\$2,570,719	\$135.43
Floyd	19,597	10,319	\$3,061,092	\$156.20
Average (10,000-20,000 pop)				\$172.94

Figure 5-10

COUNTY PROPERTY TAX BURDEN ON TOTAL POPULATION

County	1940 Census Total Population	1950 Census Rural Population	Total County Property Tax Levy (FY89)	Per Capita County Property Tax (Total)
Washington	20,141	13,957	\$3,258,934	\$161.19
Jones	20,401	11,302	\$3,020,525	\$148.05
Buena Vista	20,774	11,960	\$2,583,476	\$129.17
Clayton	21,098	11,098	\$3,350,203	\$159.79
Hardin	21,775	12,529	\$3,395,598	\$156.04
Winnesheek	21,375	13,385	\$3,716,717	\$176.90
Kossuth	21,391	15,602	\$4,615,736	\$215.85
Jackson	22,503	15,190	\$2,530,907	\$112.47
Manaska	22,867	11,969	\$3,332,639	\$146.01
Buchanan	22,900	15,540	\$3,515,507	\$153.52
Darroll	22,951	13,246	\$4,205,762	\$183.25
Denton	23,549	15,106	\$3,300,270	\$138.92
Plymouth	24,743	15,390	\$3,448,370	\$139.39
Greene	24,820	15,376	\$3,224,224	\$129.90
Fayette	25,488	15,141	\$2,352,353	\$115.95
Boone	26,194	15,582	\$3,744,323	\$143.00
Callias	26,513	15,514	\$4,065,305	\$153.33
Marion	27,669	15,177	\$4,303,756	\$155.57
Average (20,000-30,000 pop)				\$152.56
Sioux	27,413	15,206	\$2,843,193	\$102.24
Warren	27,375	15,266	\$3,000,544	\$110.00
Wasper	27,425	15,110	\$3,244,711	\$118.30
Average (30,000-40,000 pop)				\$129.50
Adair	41,241	22,360	\$3,799,129	\$94.41
Muscataine	41,436	22,327	\$5,733,085	\$141.00
Marshall	41,602	24,714	\$6,775,478	\$163.00
Lee	43,106	25,050	\$6,900,048	\$160.07
Webster	45,953	26,530	\$6,075,845	\$132.22
Des Moines	46,203	26,573	\$6,730,687	\$145.58
Cerro Gordo	48,458	26,856	\$6,538,220	\$136.99
Average (40,000-50,000 pop)				\$139.17
Clinton	57,122	29,057	\$6,580,060	\$115.19
Story	72,326	37,377	\$7,239,823	\$100.10
Johnson	81,717	37,209	\$11,548,455	\$142.55
Pottawattamie	86,561	28,613	\$10,101,882	\$116.70
DuSable	93,745	27,718	\$11,105,990	\$118.47
Average (50,000-100,000 pop)				\$118.60
Woodbury	100,884	28,881	\$13,891,387	\$137.70
Black Hawk	137,961	27,571	\$14,478,159	\$104.94
Scott	160,022	23,199	\$17,429,436	\$108.92
Linn	169,775	31,308	\$26,751,211	\$157.57
Polk	303,170	30,490	\$48,904,294	\$161.31
Average (>100,000 pop)				\$134.09
Total			\$429,740,598	

RECOMMENDATIONS

This section contains recommendations related to the road issues described in Chapters 2, 3, 4 and in the foregoing sections of this Chapter. We have developed a rational process for the distribution of available RUTF revenues. We believe the criteria applied within this process to set priorities for road needs among the jurisdictions are equitable and balanced in light of both economics and minimum preservation thresholds for roads. The outcome of applying independently established criteria within the process certainly will not be satisfactory to all the entities involved. Nevertheless, a rational process exists and criteria are not cast in stone. It is stressed that the jurisdictions continue to seek consensus on criteria and preserve the process that has begun. The underlying road needs of Iowa can only be satisfied through intergovernmental cooperation.

Funding Levels

We would be remiss, if we didn't point out the economic necessity and viability of road investment in Iowa. Road and other government investment should be considered relative to their anticipated economic benefit in the overall competition for state and local government funds. As previously stated in this chapter and in the section on Road Economics in Chapter 2, the concept of minimizing government's expenditure in roads can be detrimental to the economics of the state. The financially conservative and economically critical review of the needs indicates that road funding is at a critically low level in Iowa. Consequently, RUTF funds are not sufficient to justify their diversion to non-road purposes.

Consequently, a key item of this study was to review and evaluate the off-the-top allocations from the RUTF. Approximately one third of the ongoing off-the-tops do not get "on the road" (i.e., in the form of construction, maintenance and related administration and engineering activities on the state, county and municipal road systems).

The general recommendations regarding these off-the-tops are that they be closely reviewed in light of Iowa's grave need for road-related funds, and that alternative ways of funding those items (e.g., through the general fund) should be seriously considered. Items that fall into this category are:

- The Highway Patrol
- Public Transit Assistance
- Trails
- Wind Erosion
- Tree Planting
- Notice and Personal delivery of Service
- The Department of Inspection and Appeals Appropriation

In a few cases, there is a clearer relationship between the off-the-top's objective and road-related activities - in particular, the License Plate Fund allocation, and the odometer law enforcement allocation. These should, however, still be reviewed to determine if alternative methods of funding can be found.

In the cases where the off-the-tops are for road purposes, although not as critical to road finances as the preceding items, some simplification may be beneficial and the recommendations are as follows:

- Standing Appropriation to the Primary Road Fund of \$7.1 million per year. Consideration should be given to discontinuing this off-the-top and allocating the money to the RUTF for distribution. As outlined in Chapter 4, this off-the-top is not earmarked for any specific purposes.
- The Truck Weight Allocation to the Primary Road Fund of \$4.4 million per year and to the farm-to-market of \$1.5 million per year should be considered for discontinuation. The affects of truck weight are incorporated in the needs estimates used in this study.

- Parks and Institutional Roads receive 0.65 percent of RUTF receipts annually. While this is a worthwhile and necessary function, it absorbs funds which would otherwise be available for use on the jurisdictional highway systems. Consideration should be given to funding this function through other channels.
- Local Systems (Secondary and Urban) is an allocation of \$500,000 per year to the Primary Road Fund. Local systems provides an important liaison function in the State DOT and any streamlining for funding purposes is not intended to detract from the importance of this function in facilitating intergovernmental cooperation.
- The RISE Program in principle serves a useful purpose and should be maintained in its present form. The concept of justifying road expenditures in the context of development and benefits make sense.
- DOT Operations – An annual allocation, totalling \$19.5 million in FY89, for administration purposes should be considered for discontinuation.
- Grade Crossing Repair and Safety Fund allocations are items which serve special requirements and receive \$1 million per of RUTF monies. Consideration should be given to discontinuing these as separate off-the-tops.
- Traffic Safety Improvement Projects receive 0.5 percent of RUTF monies or \$3 million in FY89. Given the importance of traffic safety to the people of Iowa, it is recommended that this off-the-top be retained.

The above recommendations would simplify the distribution of RUTF.

if all the off-the-tops recommended for discontinuation here were in fact no longer directly appropriated, the amount of funds (in FY89) available for addition to the general pool for RUTF distribution would be approximately \$67 million. Under the current allocation formula (i.e., 45-37-18) this would yield \$30 million for the state, \$25 million for the counties and \$12 million for the cities. The DOT would lose approximately \$20 million from their present level of off-the-tops recommended for discontinuation, while the counties would gain \$23.5 million (i.e., up from the \$1.5 million they receive as a truck weight allocation), and the cities would gain \$12 million. Under a revised allocation (i.e., 52-29-19) the DOT would gain \$2.7 million, the counties would gain \$17.8 million and the cities would gain \$12.7 million over and above the funds they currently receive from the off-the-tops recommended for discontinuation. These distributions are shown in Figure 5-11.

Distribution of RUTF Among the Jurisdictions

The current formula for the distribution of RUTF would apply, if more than twice the existing RUTF amount were available for distribution. However, in reality funds are extremely constrained. Our analysis indicates, under a variety of conditions, that the state's percentage of RUTF be significantly increased. If current policy on overall funding and diversions remains relatively constant, it is recommended that the State receive 52 percent, the counties receive 29 percent and the municipalities 19 percent of available RUTF and that the counties receive no reductions in their funding share set at the time the new formula is enacted.

To minimize the impact on the counties the change would need to be gradually implemented. This could be accomplished by holding county RUTF revenues constant until these revenues equaled 29 percent of available RUTF. The transition would take approximately seven years considering the funding projections developed for this study.

We believe this redistribution will promote better efficiency in Iowa's overall road transportation. However, in light of the current limitations on road funds, it would be mistaken to conclude that the redistribution of RUTF alone will satisfy Iowa's future road needs. This redistribution amounts only to an average increase

DISTRIBUTION OF ADDITIONAL FUNDS DUE TO DISCONTINUATION OF SOME OFF-THE-TOPS

CURRENT OFF-THE-TOPS RECOMMENDED FOR DISCONTINUATION AS SPECIAL ALLOCATIONS: (\$ MILLION)			
<u>State DOT</u>	<u>Counties</u>	<u>Municipalities</u>	<u>Not Directly Related to Roads</u>
Standing Appropriation \$7.1	Truck Weight Appropriation \$1.5		Parks/Institutional Roads * \$3.9
Truck Weight Appropriation: \$4.4			Highway Patrol: \$20.0
DOT Operations: \$19.5			Public Transit: \$5.3
Grade Crossings: \$1.0			Trails: \$1.0
			Wind Erosion: \$0.2
			Tree Planting: \$0.1
			Notice/Personal Delivery of Service: \$0.1
			Department of Inspections/ Appeals: \$0.4
			License Plates \$2.0
			Odometer Law Enforcement \$0.2
<hr/> \$32.0	<hr/> \$1.5	<hr/> -0-	<hr/> \$33.2
TOTAL: \$66.7 MILLION			

* Parks and Institutional Roads are not part of the state primary system.

DISTRIBUTION OF ADDITIONAL FUNDS DUE TO DISCONTINUATION OF SOME OFF-THE-TOPS

**DISTRIBUTION OF ADDITIONALLY RELEASED
FUNDS BASED ON CURRENT
DISTRIBUTION FORMULA:
(\$ million)**

	<u>Current Allocation</u>	<u>Revised Allocation</u>	<u>Net Gain/ (Loss)</u>
State (45%)	\$32.0	\$30.0	\$(2.0)
Counties (37%)	\$1.5	\$24.7	\$23.2
Municipalities (18%)	\$0.0	\$12.0	\$12.0
TOTAL	<u>\$33.5</u>	<u>\$66.7</u>	

**DISTRIBUTION OF ADDITIONALLY RELEASED
FUNDS BASED ON NEWLY RECOMMENDED
DISTRIBUTION FORMULA:
(\$ million)**

	<u>Current Allocation</u>	<u>Revised Allocation</u>	<u>Net Gain/ (Loss)</u>
State (52%)	\$32.0	\$34.7	\$2.7
Counties (29%)	\$1.5	\$19.3	\$17.8
Municipalities (19%)	\$0.0	\$12.7	\$12.7
TOTAL	<u>\$33.5</u>	<u>\$66.7</u>	

of \$31 million per year to the State and \$4 million per year to the municipalities. A review of the impacts on the jurisdictions discussed in preceding sections of this chapter puts the redistribution of RUTF in the perspective of total funding limitations.

Distribution of RUTF Among the Counties

The current distribution of RUTF among the counties doesn't adequately reflect relative road requirements. A distribution by need best represents relative road requirements. The reasoning behind including land area in the current formula was to lessen the financial burden for roads on counties with less productive tax bases. We believe the distribution of RUTF should be more in line with need. It is recommended that the distribution be changed to better reflect need. One way to mitigate the short-term financial impacts is to annually increase the percentage need represents in the formula -- for example from 60% need/40% area to 70% need/30% area and so on. Limits on the percentage that needs represent in the formula, may be required in light of the counties tax burden. Furthermore, no county's share should be decreased in transitioning to a new funding policy for distribution.

Distribution of RUTF Among the Municipalities

Each of the analyses performed on this issue indicates that the current distribution by population satisfies the relative need of all municipal population groups except municipalities less than 2,500 population. The percentage needs of only this municipal population group (less than 2,500) exceed their percentage of the total municipal population.

The arguments against increasing the share to this municipal group relate to the utilization efficiency of RUTF resources divided up between 832 very small government entities. This argument does have merit and has the potential for solution through more efficient consolidated road maintenance government organization. However, the prerogatives and autonomy of these entities must be respected.

Furthermore, if the counties assume the maintenance responsibility for county extensions through these small municipal areas a portion of their need would be satisfied.

All of the above considered, a compromise solution would be to increase the share of these small municipalities by a percentage above their population percentage and decrease the other population groups proportionally. This would place this group somewhere between population and need with regard to distribution. The concept is illustrated below:

<u>MUNICIPAL POPULATION GROUP</u>	<u>PERCENT POPULATION</u>	<u>ADJUSTMENT</u>	<u>COMPROMISE DISTRIBUTION</u>
0 - 2,500	22.8	+3.0	25.8
2,500 - 5,000	9.4	-0.4	9.0
5,000 - 10,000	12.4	-0.5	11.9
10,000 - 25,000	8.6	-0.3	8.3
25,000 - 50,000	13.1	-0.5	12.6
OVER 50,000	33.4	-1.3	32.1

It is recommended that the distribution among the municipalities take place as follows:

- First, a distribution be made among the municipal groups according to percentages established through a compromise distribution similar to that presented above. This would adequately consider the needs of the municipalities less than 2,500 population;
- Second, the distribution within each group be made on the basis of population.

Once an appropriate resource distribution is reached, then the institutional responsibilities can be worked out. Similar to the preceding recommendations for counties, no municipality should receive a decrease in funding in the transition to a new funding distribution policy.

Road Responsibilities of Small Municipalities

Discussions held at the public meetings and the comparisons of needs to finances indicate that many of Iowa's small municipalities lack the institutional capacity to efficiently perform maintenance due to their small size. Conversely, the counties have: (1) the maintenance organizations; (2) decentralized locations; (3) efficiency of maintenance routings; and (4) the know-how to economically perform this maintenance. It is recommended that the counties be given the maintenance responsibility for county extensions through municipalities with less than 2,500 population. In previous studies some municipalities indicated a desire to retain responsibilities for such extensions. They should be given this prerogative.

It is also recommended that a mechanism be established to promote and enable municipalities under 1,000 population to utilize the county for maintenance of their entire street systems. Similarly, the prerogatives of the small municipalities as incorporated entities would need to be considered.

Actions to consolidate the maintenance resources of very small municipalities at the county level make sense from the view point of efficiency and more optimum use of governments road resources.

Levels of Service

Some of Iowa's citizens perceive that design standards for road construction are too high. This perception in most cases does not correlate with the facts. It is true, for example, that some replacement bridge spans are longer, but the savings in the substructure costs often reduce the total cost of the bridge. The reduction of design standards generally does not produce significant savings in road construction. An arbitrary reduction in standards and levels of service also carry the risk of liability. The road research programs carried out by Iowa's state and local governments and organizations such as the American Association of State Highway and Transportation Officials (AASHTO) are continually conducting research and value engineering studies to improve the cost effectiveness of highway design practice.

Conversely, the application of standards, particularly the paving of roads having less than 200 vehicles per day, can save some money. Progress is being made: over the last ten years the number of newly paved roads in the category has steadily decreased. It is recommended that all jurisdictions uniformly adhere to the design guides regarding the paving of low-volume roads.

The state defines levels of maintenance service according to the activities to be performed and planning guidelines for service in a maintenance management system for its primary network. The larger urban areas and counties, if not already implemented, should implement similar systems for their maintenance programs. Such systems can provide the basis for concrete estimates concerning the consolidation of small municipality road maintenance at the county level and other intergovernmental maintenance issues and negotiations, as well as objective assessments regarding uniform economical maintenance practices on more than 70,000 miles of gravel and earth roads.

It is recommended that plans be developed by the counties designating Level B secondary roads, maintenance levels on other roads, as well as roads that have the potential for abandonment. In total these may not be perceived to produce significant savings, but can result in some savings and public expectations and maintenance accountability will be better established.

Liability

Iowa is one of the few states that does not have a ceiling on tort liability. The liability settlements for Iowa are high with respect to other states. It is recommended that Iowa enact a limitation on tort liability.

Highway Research Program

In light of the discussion contained in Chapter 2, it is recommended to enact legislation for the transfer of one-half of one percent from the municipalities RUTF allocation into a municipal street research fund for conducting municipal street research through the Iowa Highway Research Board. Municipal representation

on the Highway Research Board should be increased by at least two municipal engineers to provide better representation geographically and among the population groups.

Decision Making

Road policy, is vital to efficient road transportation. However, it cannot be implemented without the intergovernmental cooperation of the state, counties and municipalities. The quadrennial need study process provides an excellent local point for objectively assessing road policy and a forum in which related jurisdictional road issues can be addressed. It is recommended that the process be formally established and involve the participation of the state, counties and cities. Furthermore, road policy should be reassessed in light of: (1) the results of the 1990 census and (2) the new Federal surface transportation policy slated for 1991.

County Rural Arterials

Currently, there are several miles of county arterial roads that are "by default" on the county secondary system. It is recommended that these roads be reclassified as trunk or trunk collector and be included by definition as farm-to-market roads.