

A COUNTY RESPONSE
TO THE IDOT STUDY
TO DETERMINE ALTERNATIVE
PRIMARY AND SECONDARY
ROAD SYSTEM SIZES

Prepared by the Iowa State Association
of County Supervisors and their
designees in cooperation with city
representatives to the original
advisory committee.

September 15, 1982



Iowa State Association
of County Supervisors



Iowa County Engineers
Association

A RESPONSE TO "A STUDY TO DETERMINE ALTERNATIVE PRIMARY AND SECONDARY ROAD SYSTEM SIZES" AS PREPARED BY THE IOWA DEPARTMENT OF TRANSPORTATION JANUARY 29, 1982.

PREPARED BY THE IOWA STATE ASSOCIATION OF COUNTY SUPERVISORS AND THEIR DESIGNEES IN CO-OPERATION WITH CITY REPRESENTATIVES TO THE ORIGINAL ADVISORY COMMITTEE.

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INTRODUCTION:

This response is prepared to provide the public and its' elected representatives with certian information which we believe to be of importance in selecting the size and type of highway network to be supported by the people of Iowa.

In support of the D.O.T. and the advisory committe; the time allotted for the study by S.F. 456 was inadequate for any type of indepth study of the system needed to support Iowa's economy. The report was developed using existing data for various system sizes. The report contains no completely new material and is not truly a result of a "study to determine system sizes" but a consolidation of past D.O.T. philosophy.

The report as prepared by the Iowa Department of Transportation is, we believe, somewhat narrow in its' views and misleading or simplistic in its' content.

The advisory committee's participation in preparation was minimal. Meetings, all called by the Department of Transportation, were scheduled only five times for a period of two hours each. Membership attendance varied from one to five meetings which were largely spent in review of materials presented and comments thereon. We believe that the D.O.T.'s authors accepted those comments which favored their views and ignored most if not all of the remainder in their report.

This response to the report is likewise not the result of such a study. It will only outline certain other factors which we believe deserve consideration and points out the need for a complete outside study of the issues with resulting adoption of certain state policies by the legislature. The existing road and street system of Iowa is voluminous in ratio to land area when compared to other states. There may be a reason for this. Very few states are

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concentrated in their agricultural development. Not many years ago an average Iowa farm was 160 acres or less. In spite of the fact that the average farm operating unit is now larger in total acres, it is normally a collection of smaller units scattered over a large area necessitating movement of equipment, supplies and produce between these smaller units.

This is not meant to imply the present road system size must be maintained or enlarged but simply that we should not determine our system size based on the fact that we are 25th in land area and seventh in road mileage in the nation. System size must be determined by the economic needs for highway transportation in our particular economy.

There is no doubt our entire highway and bridge network is deteriorating faster than replacement is being financed. Every needs study completed since 1959 has indicated a shortfall in existing funds and with each ensuing study the shortfall has grown. At present, available funding is approximately 50% of the amount needed to develop and maintain the existing network in a condition which will fully meet our economic needs. Of course, development and maintenance standards can be reduced below the desirable and a lower figure can be obtained for total needs. Does this answer the need for safe economical transport of our goods?

System needs criteria of the past have been developed from sound economic and engineering knowledge not from the amount of money available. We should be ever mindful of what is truly needed for our state's general transportation network in spite of funding levels.

REASONS FOR SENATE FILE 456 - 69TH G.A. IA. 1981:

The report implies the reason for S.F. 456 was a need for a system study to balance the road system with available funds. We do not believe this to be the case.

Functional classification of highways and streets as we now know it was legislated in 1968 "for study purposes only" due to conflicts with other laws and federal regulation. The basic responsibility for classification, making use of local knowledge and expertise, was placed in the hands of local county classification boards with provision for certain minor alteration by the D.O.T. to provide continuity of systems and equity of mileages between counties in limited systems.

At the outset the department provided each county a mapping of what they considered to be their classified system (the primary system) for adoption by the local board. A majority of those submitted were adopted by the local boards, but in some instances additional roads were placed in the state systems, major county roads were substituted for minor state routes or certain state routes were classed into the county system. It is our belief that this should have been the case if the local boards were performing their legislated function properly. The local boards were to apply local knowledge of network conditions and classify in accord with the known use.

As with any exercise of this nature, there are variations in opinion and interpretation of definitions and guidelines and, in a few instances, the local board was out of balance with the majority. The department requested a means of resolving disputes in such cases and, with the aid of local officials, were successful in obtaining legislation providing for the state review board. This board is responsible for reviewing disputed classifica-

tions and transfer agreements and ruling thereon as well as advising D.O.T. on standards to be used in need studies.

Very few vigorous disputes took place prior to 1978. In 1978 the legislature implemented the transfer procedure for those roads classified for transfer to another jurisdiction and re-allocated Road User Funds. It immediately became a concern to all jurisdictions that were receiving roads or streets that the money allocated for those transfers was inadequate to cover the costs of construction and maintenance. Who would want more mileage than they had with funding at 50%? In the case of cities, the allocation of State Road Use Tax is on population and bears no relationship to needs. No added funding is available for the added street(s). A portion of county allocation was based on needs, but the law only re-allocates total funds available for all counties in a new ratio.

At about this same time the D.O.T. flooded the appeal process with requests to reclassify many of the Arterial Connector Roads to the trunk class. If successful in these appeals, the result was even more transfers than had been envisioned by local officials causing a greater hardship on local resources. We believe the D.O.T.'s persistent efforts along these lines and local government's frustration with the issue was the basic reason for the originally proposed bill (S.F. 456) prohibiting transfers except by mutual agreement. The requirement for the system size study was added by amendment at the request of the D.O.T.

We believe an overall system analysis should be made and the legislature should determine the overall size of the system. The existing classification procedure should be allowed to function in establishing the hierarchy of systems and the legislature should assign jurisdiction of the systems

allocating revenues thereto. We believe this was substantially the course of events between 1968 and 1978. All might have been well except that the D.O.T. did not receive what they thought was a reasonable allocation of funds for the system they were expected to administer. The alternative for them was to relegate further mileage to local jurisdiction.

The D.O.T. report has advanced one potential means of reducing some of the complaints leading to S.F. 456. If counties were responsible for trunk and trunk collector extensions in small cities, the local impact would be less pronounced.

Other suggestions advanced by committee members but not mentioned in the report were:

1. Revision of Administrative Rules to provide complete repair and restoration from right of way line to right of way line rather than shoulder to shoulder on roads being transferred.
2. Provide maintenance funds from the transferring jurisdiction for a transition period of years.
3. Develop a process which will transfer the road and the proportional needs, and funds allocated to those needs, to the receiving jurisdiction directly.
4. A recognition by the D.O.T. that every ruling made by local classification boards which conflicts with D.O.T. judgement is not the result of local ignorance or a conspiracy to load the state with highway mileage.

None of the methods advanced has unanimous acceptance by the committee. Probably none of them are the total answer to the problem. Perhaps a consolidation, with revisions of several of them, could minimize the effects. Some complaint will always be made so long as total funds do not match total

system needs.

A LOOK AT HIGHWAY FUNDING:

One reason for the D.O.T.'s dissatisfaction with highway fund allocation was their theory that state road user taxes should be allocated primarily on vehicle miles of travel ratios or the so called "earnings-credit" method.

We cannot endorse this philosophy since it is erroneous in its' basic premise "that road user incomes are the same for each vehicle mile of travel regardless of surface type, design speeds and vehicle type." In general, the interstate system returns the lowest vehicle mile tax and the loose surfaced road the highest vehicle mile tax to the road use tax fund.

It may also be pointed out that on the extremely low traffic secondary roads the percentage of heavy vehicles is probably greater than on any other system. The school bus is, of course, operating tax free on all systems thus providing a form of road use tax subsidy to the school systems of the state. Not only does the school bus operate tax free, but it requires maintenance standards for snow removal and road surfacing materials in excess of what might otherwise be required.

We know the legislature has traditionally considered factors other than vehicle miles of travel in their allocation formulas. Perhaps not based on any scientific study or concrete factors, but certainly on a realization of some of the foregoing factors and a common knowledge that certain roads are essential to the state's economy in spite of their low earning power. We applaud the legislature for its' foresight in this endeavor. While no jurisdiction has ever been satisfied with its' allocation, we believe an honest effort has been made to be fair and realistic to all concerned.

The report states road user revenues are the sole source of revenues to the primary system and the local jurisdictions have other sources available. We do not argue that point under current fundings. However, the legislature can provide outside funds as it sees fit to the primary system. Revenue sharing is not a local level financing alternative, but is extensively used to supplement dwindling road funds at the county level. Property taxes are not popular, but are being levied at or near the maximum in most counties. Special assessments and bonding for cities are a form of property tax although bonds may be paid from road use tax allocations if available. In short, other sources are available to local systems because local governments make them available, not because it is easy to take from other needs. The legislature has a similar prerogative on the funding for primary highways.

DUPLICATION OF SERVICE AND PAVEMENT ON SECONDARY ROADS:

The D.O.T. report makes much of the view that paved secondary (mostly trunk) roads are a duplication of a service provided by the state controlled systems. It implies that all paved routes are functioning equally, are in equal condition or that the secondary system is better and that counties will continue to pave unlimited mileages without control to be exercised by the D.O.T. Without considering interstate mileage, we believe the state has added more miles to the total network than has any other jurisdiction. Prior to the 1950's, few if any county roads were paved. County Supervisors recognized the changing transportation needs of rural residents and farm operators. Some counties were rapidly depleting available aggregate supplies

and needed a means of preserving those remaining for lower volume roads. Whatever the reason for paving, we are aware of no county which has plans to pave beyond a limited mileage to provide a network of all-weather roads to meet the needs of the public.

While some paved secondary routes do draw traffic from the adjacent primary system we do not see them as a duplication of service but as a supplement to the primary service. Many small cities are not served by the primary system. Large areas of agricultural production are not served by the primary system. If these entities are to survive in today's economy, they must be served by an adequate highway network. We see the county paved systems as being the only alternative for meeting that need.

The implication that the county pavements are equal to or better than the primary routes is ridiculous. Since county pavements were not started until a majority of primary roads were completed, some geometrics are better than on some of the primary system. The newer primarys are better than most of the secondarys. It is all a matter of when construction takes place and the current design standards based on traffic. The pavement on the secondary system is designed and constructed to carry fewer and lighter vehicles than the primary pavement. Thus, the average county pavement age of 14 years is not directly related to the average primary pavement age of 36 years.

The only factor which may enhance pavement life on the secondary system is the relatively lower traffic volumes. Unrestricted axle loadings on agricultural vehicles and a tendency for overloaded commercial vehicles to frequent the county system may offset the lower traffic volumes in lowering the service life.

Substantial mileages of the counties' paved systems lying in close proximity.

to primary highways are in fact the result of the D.O.T.'s relocation of the primary highway which relegated the old primary with all the development on it to the counties. These are usually heavily used due to development and are of an age requiring substantial maintenance expenditures. The justification for relocation has normally been that re-location was cheaper for the state than on-site reconstruction. Little attention has been given to long range total highway network costs or mileages. Proximity of needed paved roads or streets is a relative thing. In the business district of larger cities a half block is usually considered reasonable for a paved alley-street alternating. In the remainder of the developed area a block is adequate and on sparsely developed areas perhaps none at all. The same is true of the rural system. Paved primary roads are generally more frequent or closer spaced near the metropolitan centers, but rural development surrounding those areas necessitates added secondary road paving. To suggest a blanket five mile spacing is ludicrous and unfounded in reason. Current primary system does not even comply with such a provision of road spacing in many locations.

In the late 1950's and early 1960's, studies developed indicated that average daily traffics of somewhere between 100 and 130 V.P.D. economically justified paving a secondary road. In spite of higher construction costs, we do not believe this figure has greatly changed. Vehicle operating costs, highway maintenance costs and road user tax rates have also increased. Since no one has actually developed any new material to dispute the former studies, we must conclude that the figure of 400 V.P.D. suggested in the D.O.T.'s report was picked out of the air and has no validity. Economic justification is certainly more than a function of user tax earnings.

We do not deny that paving of a road drains traffic from other similar roads. It draws from all roads in proximity. The reduction of traffic on other roads does reduce maintenance needs on them and is in fact a consideration prior to paving.

In short, we do not see the paved secondary system as being a substitute for, but as a supplement to the primary system. The systems are not constructed to the same standards and probably do not have the same life expectancy. The counties do not plan a limitless paved system. The legislature could perhaps develop minimum criteria which should be considered in a decision for paving of a secondary road, but final determination should be left to local authorities; not the D.O.T.

If, as the D.O.T. report states, the county paved system is as good as the primary system; why are costs used in the 1979-99 Road Need Study report for primary improvements from 1.6 to 3.2 times the costs used for comparable secondary improvements on comparable traffic volumes? A newly constructed and paved primary road may look the same as a newly constructed and paved secondary road, but they are not the same.

One county's critique of the D.O.T. report states "if a road is properly designed originally, properly maintained and periodically resurfaced or reconstructed, it should last indefinitely." If this is meant to imply that the D.O.T. has been using improper design and maintenance procedures on the state system, the committee does not concur. With few exceptions, we believe the D.O.T. personnel has based designs on the best information available to them at the time. The type and quantity of traffic and development on or adjacent to a highway twenty years after design cannot always be properly forecast. Design and construction for a life expectancy of eternity is neither prudent or practical.

THE IOWA BRIDGE SYSTEM STATUS:

The D.O.T. report states that 4416 of the 22,226 bridges on the county's systems are structurally deficient. In essence, this means that they are not capable of carrying current legal loadings and either are or should be posted. It should also be pointed out that 7,842 of the county bridges are over 50 years old. The following table provides information on the total network bridge system.

Iowa Bridge Status - 1982

	Primary System	Secondary Co. System	City System
Number of Structures	3695	22074	1410
Number of Structures Structurally Deficient	444	4916	202
Number of Structures Functionally Obsolete	539	6843	384
Sq. feet of Surface of Structures - Total	23,934,930	31,343,595	4,802,134
Sq. feet of Surface Structurally Deficient	2,590,137	5,532,003	536,033
Sq. feet of Surface Functionally Obsolete	2,994,080	8,039,256	1,124,609
% of Structures either S.D. or F.O.	27	53	42
% of Sq. feet either S.D. or F.O.	23	43	35

Source of information: Ia. D.O.T. Highway Division

Replacement of all deficient and ancient bridges can probably not be justified from an earnings of road use tax standpoint. Are they justified from some other standpoint? Should bridges on all roads with less than some minimum traffic be vacated and closed or left to point of collapse with counties liable for damages? Should established load limits on bridges be enforced and violators punished regardless of vehicle type? These are questions which cannot be left to individual counties for answer. It requires adoption of a state policy for

uniform execution to be effective. Such a policy is appropriately a legislative and not an administrative function.

The D.O.T. implies counties have a prerogative in performing structural analysis and determining posting criteria for bridges. This is not really true. The federal government prescribes the analytical criteria which must be used. Failure to post in accord with the resulting analysis results in unlimited liability for damages sustained by structural failure. While we are all aware that vehicles have crossed posted structures with loads in excess of the posting and that in most cases the structure did not fall down at the time, the load did damage the structure and it may fail under its' own weight after passage of the load, a vehicle weighing less than the posting may collapse the structure a few days after passage of the load or the next overload may collapse it. Fatigue of structural members cannot be measured in ordinary inspection procedures. Impending failure cannot usually be foreseen.

ABANDONMENT AND VACATION OF 10,000 MILES OF SECONDARY ROADS:

The D.O.T. report suggests vacating approximately 10,000 miles of secondary roads to reduce funding requirements. While we subscribe to the concept of vacation of un-needed roads, we are not sure what constitutes a definition of "un-needed." If we did know the definition, we would be hard pressed to determine a mileage of such roads in the state. Of course, the D.O.T. has the vision to determine 10,000 miles to be in that category without any segment by segment knowledge or a definition.

Does un-needed mean:

- (a) Less than 5 V.P.D., 10 V.P.D., 50 V.P.D.?
- (b) Uninhabited?
- (c) Without continuity?
- (d) One requiring an expensive stream crossing or one without a stream?

Every person could have their own criteria, but total agreement is difficult and there are exceptions to every rule. Who will determine those exceptional cases? Should every county be required to abandon proportionately with the proposed cut and dried formula regardless of its past policies with regard to vacation or its rate of rural subdivision or industrial development?

The objective of vacation of a maximum number of highway miles is certainly desirable, but we do not accept the proposal as set forth and believe it to be an over-simplification of a very complex issue.

The proposed maximum claim for vacation related damages is likewise an over-simplification. Damages to each property vary, but such maximums soon become norms. Some are overpaid and others underpaid. Under this proposal the average county could vacate about 11% of its current mileage, pay 20 years of maintenance cost for damages resulting in 220% of its current average total maintenance cost. Since counties are currently spending from 60 to 100% of available road funds for maintenance, it can readily be seen the damages could not possible be paid without complete disregard for the remaining 89% of county roads for an unacceptable period.

MISCELLANEOUS COMMENT:

The D.O.T. report stated "Maximum economic gain potential for the people of the state can be identified with the largest primary road alternative." We

find this hard to accept since costs of comparable construction seem to be higher on the primary system and the D.O.T. is advocating contract maintenance on portions of the primary system with the counties.

The D.O.T. report suggests: "Contract maintenance items on a part of the primary system to counties." This has been done in some cases in the past with good results for both parties. It is not a cure all and may not be more economical in all cases. If the county has to add personnel or equipment to perform the function, benefit is doubtful.

CONCLUSIONS:

1. The report as published by the Iowa D.O.T. touches only the surface of the issue. It considers only the road use tax earning power based on vehicle miles of travel as economic justification for roads. We believe consideration must be given to other economic factors in determining the highway system needed.
2. The D.O.T. report considers services to financial institutions, sale tax collection points and etc., as being fulfilled by the primary system simply by passing through or near a community. This theory completely ignores a large segment of the population which uses and contributes to those facilities.
3. The report suggests contracting of maintenance functions on the primary system with counties to reduce state forces and costs. This may be a viable solution in some cases, but not if counties must enlarge forces and equipment resources to carry out the function.
4. Vacation and abandonment of some secondary roads is probably needed and desirable. The exact number of miles which may be logical candidates is

entirely dependent on the policies of elected officials. Adoption of a state-wide policy or criteria by the legislature would be beneficial. Such a policy should consider factors which justify a public road and not be a formula requiring a percentage of each county's system be closed.

5. The alternative system sizes considered in the report are only three of an infinite number of such alternatives. They were selected for use by the D.O.T. because at least some information had previously been developed on them; not because of any lengthy committee study or acceptance as conclusive.

6. Iowa's total bridge system is suffering from antiquity. Legislative steps should be taken to reduce liability to local jurisdictions in the use of alternatives such as low water crossings and fords.

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