

# Coordinating County Highway Engineering and Maintenance Operations

DALE FISHER  
Highway Director  
Allen County Highway Department  
Fort Wayne

## GOOD MANAGEMENT CAN HELP YOU KEEP GOOD EMPLOYEES

Coordinating maintenance and engineering is a management problem. Management is an organization of people, whether economic, political, or military, working toward a common objective. Too often management is considered to mean proficiency in such fields as engineering, maintenance, accounting, etc. This theory seldom works out in practice. The best electrical engineer, appointed manager, soon finds out that there is a vast difference between being able to work effectively himself and getting others to work as effectively as he did. To motivate others to do quality work is a means of assuring good roads and bridges. This is good management.

We who work with people and expect to get the most out of them should be guided by trust. I like to make these observations concerning an employee: first, that he is a rational being and will understand what he is told; second, that he is honest and can be trusted; third, that he should have an understanding and a voice in any order that affects him. We must motivate capable people to work effectively, to grow in proficiency, and to want to stay with the county highway department so that we may benefit by their skill and knowledge. All too often the well-trained person goes on to another job while the one you could do without stays with you.

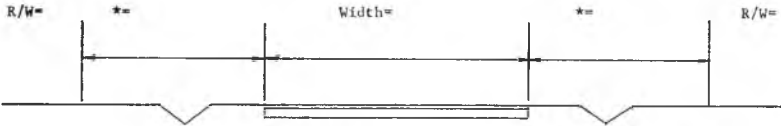
In Allen County we have a third department which we call maintenance engineering through which we are able to apply good engineering standards to the maintenance department. This third department can give close attention to new standards, testing and inspection methods, and their application to highway maintenance practices.

The maintenance engineer is responsible for a four-year program of upgrading our county roads. To do this, he made a map with every

ALLEN COUNTY ROAD INVENTORY

Name of Road \_\_\_\_\_ Length \_\_\_\_\_ ft.

From \_\_\_\_\_ To \_\_\_\_\_



Side Ditches		Shoulders	
_____	Good <input type="checkbox"/>	_____	Good <input type="checkbox"/>
_____	Fair <input type="checkbox"/>	_____	Fair <input type="checkbox"/>
_____	Poor <input type="checkbox"/>	_____	Poor <input type="checkbox"/>
_____	None <input type="checkbox"/>	_____	None <input type="checkbox"/>

\* Distance from edge of driving surface to fence, or other existing boundary.

Surface Type: \_\_\_\_\_ Comments: Condition of Surface and Base.  
 Gravel \_\_\_\_\_  
 Chip & Seal \_\_\_\_\_  
 Asphalt Pvm't \_\_\_\_\_  
 Concrete Pvm't \_\_\_\_\_

Bridge Reference Number: \_\_\_\_\_ Culvert Reference Number: \_\_\_\_\_

Traffic Count: \_\_\_\_\_ A.D.T. Date Taken: \_\_\_\_\_

FAS Route: \_\_\_\_\_ Compass Direction: \_\_\_\_\_

Number of Approaches: \_\_\_\_\_  
 Private: \_\_\_\_\_ Subdivision: \_\_\_\_\_ Business: \_\_\_\_\_

Railroad: Cross-Buck  Signal  Stop

Crossing= Good  Satisfactory  Dangerous  Abandon

General Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

road in the county shown as it is and what is proposed as an improvement. The probate date of each improvement is shown on this map. Copies of this map are made available to the other departments to guide their work.

To go hand-in-hand with this, we in Allen County are making a county-wide survey and complete inventory of all roads and bridges

STRUCTURE INVENTORY

48" TO 20' 6"

SHEET \_\_\_\_ OF \_\_\_\_

STRUCTURE NO. \_\_\_\_\_

ROAD NAME \_\_\_\_\_ OVER NAME OF DRAIN \_\_\_\_\_

BETWEEN \_\_\_\_\_ ROAD AND \_\_\_\_\_ ROAD

DISTANCE FROM INTERSECTION: \_\_\_\_\_

(Note: All structures to be measured from the WEST intersection on East-West Roads and from the SOUTH intersection on North-South Roads.)

STRUCTURE INFORMATION

Type of Construction:

A) Indicate Corrugated Steel Drainage Structures:

- 1) Pipe \_\_\_\_\_ Gage \_\_\_\_\_
- 2) Pipe Arch \_\_\_\_\_ Gage \_\_\_\_\_
- 3) Arch \_\_\_\_\_ Gage \_\_\_\_\_
- 4) Headwalls: Yes \_\_\_\_\_ No \_\_\_\_\_
- 5) Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

B) Indicate Type of Truss: \_\_\_\_\_

- 1) Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

C) Indicate Other Type of Structures:

- 1) Flat Slab \_\_\_\_\_
- 2) Integral Slab & Beam \_\_\_\_\_
- 3) Thru Concrete Arch \_\_\_\_\_
- 4) ½ Thru Concrete Arch \_\_\_\_\_
- 5) Thru Steel Arch \_\_\_\_\_
- 6) ½ Thru Steel Arch \_\_\_\_\_
- 7) Stone Block Arch \_\_\_\_\_
- 8) Thru Plate Girder \_\_\_\_\_
- 9) ½ Thru Plate Girder \_\_\_\_\_
- 10) Deck Plate Girder \_\_\_\_\_
- 11) Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

and their condition. This is being done in such a manner as to make it useable for data processing or to make it easily transferable to data cards.

Our county commissioners have implemented a retirement policy which retires an employee at age 65; this permits us to hire younger men. In today's labor market the younger men are coming on fast and must be considered. We should make way for the younger man, lead him, follow him, or get out of his way.

STRUCTURE INVENTORY ( cont. )

48" TO 20' 0"

SHEET \_\_\_\_ OF \_\_\_\_

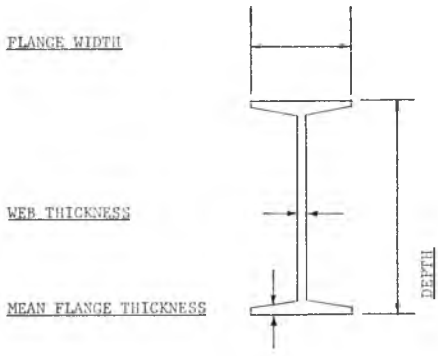
D) Stringer Information:

- 1) Center to Center \_\_\_\_\_
- 2) Flange Width \_\_\_\_\_
- 3) Stringer Depth \_\_\_\_\_
- 4) Flange Thickness \_\_\_\_\_
- 5) Web Thickness \_\_\_\_\_
- 6) Condition of Stringers \_\_\_\_\_
- 7) Remarks: \_\_\_\_\_

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D) Clear Width of Bridge \_\_\_\_\_

A safety program, with a safety committee and regular meetings, is being followed. It is management's responsibility to provide safety instructions to protect those whom we send into unsafe situations. If we lose the service of a man after training him, both the employee and the employer are hurt. Regular physical check-ups will be required for those who drive equipment or in other ways endanger either themselves or the public. In the construction business, a life or limb is lost every 2 million man-hours of work.

We are trying to make the maintenance crews feel that they are a part of the action and that they do have some say in the work to be done. They, after all, do buy gas and do pay the gas tax. We

work for them as well as they for us. The commissioners helped to get a sizeable raise for the county highway employees and in turn are expecting them to work together with supervision to produce a top-notch maintenance department. We have so much work ahead of us that we're a little like the mosquito in a nudist colony; we know what we should do, we just don't know where to start.

### THE TASKS AHEAD

Some of the tasks ahead, if good coordination is to exist, are:

1. **MODIFY** existing records and methods of accounting to advise maintenance properly.
2. **IMPROVE** budgeting in all phases of the highway department.
3. **KNOW** road conditions and be able to anticipate traffic present and future.
4. **HAVE** a complete and accurate inventory of all roads and bridges.
5. **DEVELOP** rolling stock and equipment plus a parts inventory to keep it in repair.
6. **MAINTAIN** a communication between office and field where plans are put into achievement.
7. **TEACH**, instruct and upgrade field supervision that they may understand work orders.
8. **ADVISE** all highway personnel that a complaint comes from a taxpayer and must be treated with respect.

These and many other improvements not mentioned are being implemented to place our highway department on a business basis.

### CONCLUSION

In conclusion, what may engineering do for maintenance? If there is a lack of understanding between engineering and maintenance, in most occurrences it is due to a failure of good descriptive engineering. The professional engineer has had several years of college and understandably tends to talk over the heads of maintenance employees, who may have minimum education. The engineer must go to great length to word instructions in a manner to be easily understood. In his ability to plan, draw, cost and describe lies the highway department's success.