

AN ANALYTIC SURVEY OF SIGNING INVENTORY PROCEDURES
IN VIRGINIA

by

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ABSTRACT

An analytic survey was made of the highway signing and sign-maintenance inventory systems in each of the districts of the Virginia Department of Highways. Of particular concern in reviewing the procedures was the format of the inventory forms, the applications of inventory information, the time and effort required to maintain the inventory, the reference uses of the inventory, and the needed changes in district inventory procedures and formats.

The survey revealed a diversity of engineering opinions regarding the need for and the applications of sign inventories. The formats of district inventories varied from log sheets listing numerous signs per page to individual index cards containing detailed information for each sign. The uses of inventory systems included logging maintenance activities, recording sign replacements, conducting sign inspections, making service life studies, and providing court case references.

This report does not recommend, for two reasons, the adoption of a uniform sign inventory format to be used throughout the districts. First, most district traffic engineers felt that their inventory procedures did not warrant change, and secondly, a decision to adopt a uniform procedure would of necessity be an administrative matter. A further compounding factor is that inventory requirements vary among districts. However, in the event that a uniform procedure were to be implemented in the future, the format suggested as a result of this review is a combination of the index card system and a master control log. A similar procedure currently used in one district provides complete inventory information with a minimum of record keeping.

INDEX

	<u>Page No.</u>
ABSTRACT	iii
LIST OF FIGURES	vii
INTRODUCTION	1
BACKGROUND	2
SIGNING INVENTORIES IN VIRGINIA	4
General Usage of Inventories	4
Maintenance of Inventory System	7
INVENTORY REVIEWS BY DISTRICT	7
Bristol	7
Culpeper	8
Fredericksburg	9
Lynchburg	10
Richmond	11
Salem	11
Staunton	12
Suffolk	13
CONCLUSIONS	13
ACKNOWLEDGEMENT	15
REFERENCES	17

LIST OF FIGURES

Figure No.

- 1 Worksheet used for recording data for the Saginaw, Michigan sign inventory.
- 2 Supplementary diagram of city block used for sign location in the Saginaw inventory.
- 3 Form used to record data for sign inventory in Tulase County, California.
- 4 Post card form by which the Tulase County Road Department receives reports on sign conditions for various agencies.
- 5 Data sheet with explanations used in taking sign inventory data in DuPage County, Illinois.
- 6 Form used in taking field data in 3M Sign Survey Guide.
- 7 Sample of sign inventory log sheet used in the Bristol District.
- 8 Sample sign inventory index card used in the Culpeper District.
- 9 Example master log sheet used in sign maintenance work in the Culpeper District office.
- 10 Form letter used to forward inventory cards to residency field crews in the Culpeper District.
- 11 Sample index card, front and back used for sign inventory in the Fredericksburg District.
- 12 Portion of sign layout sheet which can be reduced and used as sign inventory card for the Lynchburg District.
- 13 Example of log sheet currently used for sign inventory in Richmond District.
- 14 Sample sign inventory card to be used in Richmond District.
- 15 Sample index card format used for signing inventory in Salem District.
- 16 Filing cabinets used to store sign inventory cards in Salem District.

LIST OF FIGURES (cont.)

Figure No.

- 17 Example of log sheet format used for signing inventory in Staunton District.
- 18 Index card format for future use in the Staunton District sign inventory process.
- 19 Sample log sheet format for sign maintenance record in Suffolk District.

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INTRODUCTION

Sign inventory and maintenance record systems are topics of concern to every state highway agency. In Virginia, as in other states, the change in signing to conform with the new Manual on Uniform Traffic Control Devices can serve to increase the desirability for an up-to-date record of signs in place.

At the October 1971 meeting of the Department's district traffic engineers, held at Natural Bridge, Virginia, particular attention was directed to the implementation of sign inventory procedures. Jesse Bullock, traffic engineer, discussed sign maintenance and inventory systems and then suggested that all district traffic engineers establish a signing maintenance record keeping program. The discussion which followed noted that current practices throughout the districts vary considerably. Hence there was an evident need for a study to summarize procedures used to recommend whether or not a uniform or different method was warranted.

Therefore, the purpose of this report is to analytically summarize the signing and sign maintenance inventory procedures employed by the eight districts throughout the Department. Special account is made of the uses of the inventory systems in an effort to assess the necessity of keeping an inventory and to recommend what changes in procedure, if any, may be needed. This report also addresses itself to the desirability of implementing a uniform inventory procedure throughout all districts in the state.

The scope of this study encompassed a review of the inventory procedure currently in use in each of the districts. Points noted in the review follow:

- (1) The format of recording forms;
- (2) The uses of the inventory;
- (3) The effort and time required to maintain the inventory;
- (4) The number of times per year that reference is made to the inventory for non-routine purposes; and
- (5) Any change in procedure which would improve the inventory method.

Primary attention was directed to the maintenance inventory of signing on the interstate and primary routes since these are the routes of particular concern to the districts. The maintenance and inventory of signing on the secondary routes are generally handled at the residency level and therefore do not fall within the scope of this study.

BACKGROUND

To provide some insight into current inventory methods, a brief literature review will summarize certain procedures utilized outside of the state of Virginia. The review includes procedures of city and county agencies and their approaches are directly applicable to a statewide area as inventories are conducted by districts.

As part of a study financed by the National Highway Safety Bureau⁽¹⁾, a sign inventory was conducted in the city of Saginaw, Michigan. Voluminous data were recorded on worksheets as shown in Figure 1, and reduced using ADP techniques, (all figures are appended). This coding form was seen to be a precise way to show the location of a sign through utilizing both a street number and the distance from a reference curb. Figure 2 shows supplementary city block sketches used to assist in sign location.

On the keypunch format, signs are identified by a five unit code. The first unit is always a letter — either R for regulatory, W for warning, or G for guide sign. The next four units are identifying numbers. This code had to be supplemented by an additional R-series categories to include the nearly 200 parking series legends used by the city. Other categories on the form follow simple codes designed for this use. For example, in column 35, sign blank type, number 1 means aluminum, 2 is flat steel, 3 is embossed steel, 4 is wood and 5 is plastic. Any important irregularity not covered on the form is noted in the ten space comment section. A complete breakdown and explanation of the coding used in the inventory is available in the Saginaw Inventory Operations Manual.

The inventory had an immediate impact on sign replacement. During the inventory, field crews made recommended work orders on any sign in poor condition. In most cases, the recommendation resulted in immediate repair or replacement of the sign. As a result the inventory was responsible for helping bring city signing up to standards. Another favorable impact of the inventory was that it provided a capability for determining the service lives of various sign blanks, paints, reflective sheetings, poles, and other materials.

In a California study⁽²⁾, a county inventory process that can be seen as applicable to a district was reviewed. The method has been used successfully since 1953, and utilizes the format shown in Figure 3. Entries to this form are made from reports submitted on field blanks by sign crews. The form includes a sketch of the roadway surrounding a sign or signs, data on the types and makes of signs, and the date and nature of work performed. The form has proven to be easy to understand and has been accepted in courts as evidence as to times and dates that signs have been installed.

An interesting source of input information used in the California system is a prepared postcard (addressed to the Highway Department) which is distributed throughout various state agencies. Figure 4 shows a sample of the card which enables reporting of damage or other pertinent information from numerous officials. This procedure has proved beneficial in cases where the highway organization has been able to act immediately on the postal report.

A study made in DuPage County, Illinois⁽³⁾ inventoried all traffic control signs on the county road system. Each traffic sign on each county route was located by establishing its distance in miles from the nearest major crossroad or county line. The mileage information was obtained from odometer readings and recorded on field sheets as shown in Figure 5. The explanation of sheet-coding is shown in the figure.

After the collection of field data was completed, the inventory information was keypunched into data processing cards, each card representing one sign. This process was used because it provides the capability of summarizing various inventory information in many different ways. For example, information can be obtained based on location, sign type, or even the condition of signs and posts.

In a New York report of highway signing maintenance on the state system⁽⁴⁾, the importance of an inventory procedure was seen. An inventory was initiated to plan a maintenance program based on residency-assigned work crews.

The inventory lists all signs on the highway system -- including those on intersecting roads within the vicinity of intersections -- by mileposts, offset, and location. Lane markings and traffic signals are similarly located, and all data for these are stored by computer memory. Included in the system is an on-shelf inventory of signs in each residency. As a sign is taken from stock, a card is also taken. On it the foreman enters the location at which the sign was placed and indicates whether it is a new installation or replacement. This card is forwarded to the main office for key-punching and entry into the traffic control data file. This procedure provides an up-to-date traffic control inventory as well as an accurate stock inventory of signs. Unfortunately, no sample card was available for inclusion in this report.

These data permit the determination of a sign maintenance workload for each residency. The procedure has been used to estimate and measure the productive capacity of the average crew in all operations performed. These operations include clear coating one-fourth of all signs annually, replacing damaged and nonfunctional signing, and installing new signs.

The final sign inventory procedure to be reviewed is one published by the 3M Company for use by any municipality.⁽⁵⁾ The information obtained from the sign survey allegedly can be used to analyze existing signs and to plan a program of improvement and modernization of traffic control in conformity with the Manual on Uniform Traffic Control Devices.

The form used in the 3M survey is shown in Figure 6. The types of information recorded by the survey can be easily seen on the figure, so they will not be described here. The survey kit comes complete with instructions, however entries in eleven of the sixteen columns must be coded in the field. This presents a problem in that the inventory crew must memorize the codes in order to use the procedure efficiently.

SIGNING INVENTORIES IN VIRGINIA

Following the review of selected inventory procedures outside of Virginia, statewide inventories will not be described in terms of their general usage and the time and effort required to maintain them.

General Usage of Inventories

Although the uses of sign inventories vary from district to district, certain general applications may be noted. A list of the purposes of the inventories follows:

1. Record of sign maintenance performed.
2. Record of sign replacements (frequency and reasons).
3. Aid in field inspections.
4. Verification of sign being in place.
5. Assistance in court investigation of accidents.
6. Routine check of work performed.

Table 1 summarizes the uses of the inventories in the respective districts. A more complete description of the inventories by district follows in a later section of this report.

Signing inventories are of integral value when field inspections of signs are performed. The location of a sign along with appropriate descriptive information and, in many instances, the condition of the sign are logged on the inventory as part of the inspection procedure. The format of the inventory can greatly facilitate or can considerably hamper the conduct of a field inspection. In general, the field inspection can be considered the primary routine use of the inventory. In many districts the inventories are updated (new entries) only when the inspections are made.

Table 1

1796

Uses of Signing Inventories in Virginia

	Districts							
	Bristol	Culpeper	Fredericksburg	Lynchburg	Richmond	Salem	Staunton	Suffolk
Sign maintenance performed	✓	✓	✓	✓		✓	✓	✓
Sign replaced	✓	✓	✓	✓	✓	✓	✓	
Reason for sign replacement		✓	✓	✓		✓		
Day inspections*	✓		✓	✓				
Night inspections	✓	✓	✓	✓	✓	✓	✓	✓
Court case references	✓	✓	✓			✓	✓	
Check service life of materials		✓		✓		✓	✓	
Verify sign in place	✓	✓	✓	✓	✓	✓	✓	
Routine check of work performed		✓		✓		✓	✓	

Uses

*Some districts make two night inspections per year, thereby precluding the need for day inspections.

The primary purpose of the signing inventories is to record maintenance work. Both the maintenance activity and the date performed are noted. In general the maintenance activities are as follows:

1. Washing
2. Clear coating
3. Painting sign posts
4. Patching or other repairing

The second most important application generally made of the inventory record is to note sign installation and replacement. On all of the district inventories reviewed very few notations of initial installation were evident as, in most cases, the sign inventory procedure was established long after most of the logged signs were already in place. A notation that the sign was already in place was generally indicated by the installation date being left blank or indicated as the date that the inventory procedure was initiated.

About one-half of the inventory systems reviewed made note of the reason for, as well as the date of, sign replacement. Reasons for replacement generally fell into two categories: emergency and maintenance. The reasons indicated for emergency replacements were that the sign had been hit by a vehicle, stolen, or otherwise become the prey of vandalism. A maintenance replacement was indicated when a sign had been in service so long that it ceased to meet standard performance requirements.

The signing inventory can be considered as a key reference source for verification that a specific sign existed at a certain place at a given time. In all districts, with one exception, sign location was recorded by milepost or other adequate means such that a sign-verification capability was available. Such information has numerous applications related to the traffic control function performed by district traffic engineers. An example application is to assist in accident-causation investigations. Frequently, district traffic engineers receive inquiries from attorneys to check the locations and types of relevant traffic signs. One limitation is that the signing verification would be valid only for the date of the most recent inspection or maintenance work. However, the inventory logs are generally complete and detailed to an extent suitable for being admitted as evidence in court.

Another general application of the signing inventory is to routinely check on maintenance work. In some districts much of the maintenance is performed by the residencies within the district. By retaining the inventory log, the district engineer can run a spot check to determine if the indicated work has been performed.

The inventory uses mentioned above are the most obvious applications based on an overview of the inventory procedures in Virginia. As many of the inventory programs are individualized according to the usage and needs of particular district engineers, there are no doubt other uses which can be derived from the inventory systems.

Maintenance of Inventory System

As inventories are maintained at the district level, the district traffic engineer generally has the responsibility for maintaining and revising the signing inventory procedure. This is especially true for the interstate and primary routes, as mentioned earlier in this report. In isolated instances, the residency offices keep maintenance logs; and in one district the inventory cards are circulated between the district office and the appropriate residencies for purposes of work performance assignments and the corresponding annotations.

The district traffic engineers' assessments of time and effort required to maintain the inventory procedures varied considerably. Some felt that maintenance of the inventory encroached negligibly on the work load of their technicians, and others felt that the effective maintenance of an inventory procedure would require the full-time services of a technician. One felt that the maintenance of an inventory would be futile because of the recurring need for training due to personnel turnover.

The time and monetary costs of keeping an inventory are undoubtedly relatively high in one district due to a triplication of the logging effort. Separate inventory logs are maintained in the residency office, in the sign shop, and in the district office. It should be noted, however, that the maintenance effort of keeping an inventory varies with the geographical size of a district and the number of signs to be logged.

INVENTORY REVIEWS BY DISTRICT

Bristol

The basic signing and sign maintenance inventory procedure utilized in the Bristol District is a log form, a sample of which can be seen in Figure 7. The log sheets are filed by county and state route number; each line on the log sheet designated by a milepost reference pinpoints the sign location. The two right-hand columns on the sheet denote the mileposts for south- and northbound directions respectively. This format permits an overview of signs in both roadway directions on the same log sheet.

The log sheet also denotes the type of sign and standard code description to provide complete sign identification information. The sheet also provides columns for sign installation and replacement dates. Maintenance information relating the type of work performed is rendered under the "Remarks" column. Blank lines between each sign entry provide space for additional signs to be entered as they are erected. The log generally has to be retyped about every four years.

The uses of the Bristol inventory procedure are outlined in Table 1. As yet, application of the inventory to study reasons for sign replacement has not been made because separate studies have been used in the past. To date, detailed study to determine the service lives of given materials under given roadway conditions have not been needed; however it was felt that the inventory in its present format could be used for that purpose.

It was also felt that the time and effort required to maintain the log were not unreasonable.

There have been very few times throughout the course of a year that the district traffic engineer has needed to refer to the log for non-routine purposes such as court case inquiries. However, the log would be used for this purpose if necessary.

The district traffic engineer felt that the system adequately meets all inventory needs and that a change in procedure is unwarranted.

Culpeper

The format of the Culpeper inventory system is unique in that it consists of a card file coupled with a master control log sheet. An example of the card is depicted in Figure 8. One card is kept for each sign and the cards are filed by county, route and milepost. Master log sheets (see Figure 9) are kept for each residency. These sheets record the disposition of the cards as they are sent out to the residency for the purposes of conducting inspections and doing maintenance work. The combined master sheet and card logging system seems to be the most complete method used throughout the state, and it does eliminate duplication of the logging effort as only one card is maintained for each sign.

From Figure 8 it can be seen that the general sign shape and code number are entered on the card and the sign position with respect to the roadway center line is indicated. Maintenance codes used on the cards are as follows:

- I -- Initial Installation
- W -- Washed
- C -- Clear Coated
- R -- Maintenance Replacement
- ER -- Emergency Replacement
- RR -- Revision Replacement
- P -- Patched

Uses of the Culpeper inventory, in addition to those listed in Table 1, include locating signs which are removed, routinely checking signs during daytime inspections, and answering miscellaneous inquiries regarding sign location. A particular advantage of an inventory is the capability to fabricate a sign replacement without having to physically go to the site first.

Engineers at the Culpeper District Office feel that use and maintenance of the inventory system requires a minimum of time and effort. The operation is facilitated by use of the combination of the master log sheet and the individual cards to provide inventory information to the Residency Office without duplication of records. Further, use is made of a form letter (see Figure 10) from the district traffic engineer forwarding the cards to the residency for the purpose of maintenance work. The Culpeper District feels that the effort of keeping the inventory system is negligible compared to the benefit derived.

Fredericksburg

The format of the Fredericksburg District's inventory system is essentially a file of 3 x 5 index cards, an example of which is shown in Figure 11. The cards are filed according to the code number shown in the upper left-hand corner of the front of the card. For the example in Figure 11, "16" designates the county in which the sign is located, "0207" the primary route, and "11.72" the milepost. The standard Virginia signing code "R-21" is also listed. Frequently additional remarks such as "near Rt. 301" in the example are used to simplify locating the sign in the field. On the back of the inventory cards the sign shape, message and size are used to provide a complete description.

Coded maintenance and replacement entries used on the cards are as follows:

Maintenance:	w	—	washed
Replacement:	v	—	vandalism
	a	—	accident
	o	—	worn out

The only maintenance code "w" is used, as the field maintenance program in the Fredericksburg District does not include clear coating and post painting. However, complete replacement codes are used, as the rate of vandalism is about 70% according to the district traffic engineer.

Supplementary forms used in conjunction with the Fredericksburg inventory include maps of the district that indicate the date and road sections of day and night field inspection performance. Other forms used include diagrams of intersections to assist in locating signs.

Uses of the inventory are outlined in Table 1. The aforementioned usage of indicating reasons for sign replacement is more detailed than any other procedure throughout the eight districts. The inventory has been found to be extremely helpful as a legal reference to establish sign location in court proceedings. However one standard use to which the inventory is not applied in the Fredericksburg District is that of determining the service life of materials.

The district traffic engineer feels that there are too many variables affecting the service life for them to be accurately indicated on the inventory. For example, the direction that a sign is facing affects its service life because of exposure to the

sun. Further, overhead signs on up-grade interstate routes are heavily exposed to exhaust emission from trucks. Consequently, these signs must be washed more frequently and are subject to more wear. It is felt by the Fredericksburg District Traffic Engineer that factors such as these render a mere inventory tabulation inadequate for service life studies.

A use of the inventory in some districts is to conduct a routine check on maintenance performed by residencies. However, in the Fredericksburg District, the sign washing is performed by district forces, so the inventory is not used for routine work-performance checking.

The current signing and sign maintenance inventory procedure used in the district is considered both essential and adequate.

Lynchburg

Due to a recent turnover of district traffic engineers, the Lynchburg District is currently without an active sign maintenance and inventory system. However, plans have been formulated to establish a program in the near future.

The establishment of the program will consist of conducting an inventory to note all signs to be added or deleted and the needed maintenance work. The format for this initial inventory will be a log sheet recording sign locations by milepost. This interim inventory will be run by district work crews with assistance from residency forces. The noted repairs will then be made and the necessary maintenance performed. For this phase, the log sheet will be retained by residency work forces; upon completion, the log will be returned to the district office for a sign inspection. Then, additional signs needed will be fabricated and erected.

When this process is completed, a final signing inventory procedure similar to that used in the Culpeper District will be initiated. The exact format for the inventory has not as yet been established, however it is expected to include sign detail information such as is shown in Figure 12. The figure is a portion of a shop drawing which can be reduced and conveniently put into a card size format.

The anticipated uses of the Lynchburg signing inventory are summarized in Table 1. The district traffic engineer expects to make particular use of the inventory when replacing a sign which is felled or destroyed in the field. From the inventory record sufficient detail information will be available to permit refabrication of the sign without going through the design process. Another use of the inventory emerges when citizens request entrance permits and the signs must be moved to accommodate the request.

The inventory is expected to be a valuable aid in evaluating the service life of given materials. However, it is not anticipated that the inventory will be used as a court reference to verify sign location since no continuous check is possible.

The inventory will also be used in conjunction with activities of the residencies which are related to signing. The inventory cards will be turned over to residency crews for maintenance work and then used to check the work. A unique aspect of the signing program in the Lynchburg District will include a "signing seminar" in which key residency personnel will be briefed on sign maintenance and inventory procedures.

Richmond

The current sign inventory for the Richmond District consists of a log sheet as shown in Figure 13. On the reverse of the form are supplemental intersection diagrams showing sign location. The forms do not indicate sign maintenance work performed, but they do not sign descriptions and the general sign condition. Sign maintenance records are kept in many residencies within the district.

Although the Richmond District Traffic Engineer feels that the current log sheet system is adequate, he foresees the inevitability of a card file system and has designed a comprehensive card format, which is shown in Figure 14. This record features complete sign description and maintenance logging capabilities and is adaptable to a small ringed clipboard for relative ease of use during a field inspection. It is suggested that the reverse of the card be used for a roadway or intersection sketch if needed to help identify the sign location.

The uses of the Richmond inventory outlined in Table 1 are for the existing log sheet system. Implementation of the card system would add the capability of recording maintenance performed and reason for sign replacement. The district traffic engineer feels that the inventory is not a suitable means to assess material service life or to verify sign existence for court case purposes.

The inventory is generally used only about one time per month for non-routine reference purposes. The general feeling is that the revised card system log is probably not warranted because of personnel requirements to maintain the inventory. Another confounding factor in the Richmond District is the problem of personnel turnover that necessitates the training of new people to maintain the inventory.

Salem

The Salem District Traffic Engineer was the first to adopt a card format for the inventory system. A sample card is shown in Figure 15. The cards are filed by county, route, direction, and milepost. To provide an idea of the amount of file space needed, the photograph in Figure 16 shows the filing cabinets used for the inventory cards. The space requirement is not considered to be a problem.

The format of the card is complete in that it allows for recording all types of routine maintenance work performed and reasons for sign replacements. The card does allow for inclusion of the sign message and standard code number. The primary limitation of the card is that it provides space for only a single entry per maintenance item. By contrast, the Richmond District's proposed inventory card shown in Figure 14 permits numerous entries for each maintenance item and extends the life of the inventory card to equal the life of the sign.

The extent to which the Salem District utilizes the inventory system makes the effort very worthwhile. Uses outlined in Table 1 include sign maintenance, sign replacement, inspections, court case reference, service life check, and check on work performance of residency crews. One further use in the Salem District is that the inventory is helpful in processing requests for new signs. There is a ready reference of what other signs are in the vicinity of the requested sign. Reference is made to the inventory as often as twice a week, therefore it is regarded as essential.

It should also be mentioned that as sign maintenance is performed the date is stamped on the back of the sign. This step provides supplemental information to the inventory.

Staunton

The signing inventory format used in the Staunton District is the log sheet shown in Figure 17. Analogous to the situation in the Richmond District, a card format (Figure 18) has been prepared in anticipation of a change. However unlike the Richmond District Traffic Engineer, the Staunton District Traffic Engineer feels that the inventory is desirable and is in favor of implementing a more suitable format.

One drawback of the current Staunton system is that the logging effort is increased threefold due to the fact that three copies of the log sheet are maintained. One logbook is kept at each of the following places: the residency office, the sign shop, and the district office. All three logs presumably are kept up to date.

In addition to the excessive logging effort with the current system, there are other reasons why the Staunton District Traffic Engineer wants a card system. With the existing format it is difficult to use supplemental sketches to assist in the location of a sign, as is the practice in many districts. Also, frequent changes in signing materials, statewide policies, and legislation regarding signing, make the more versatile card system desirable.

Wide usage is made of the inventory in Staunton, as indicated in Table 1. In addition to recording sign installation, maintenance, and replacement, the inventory is used as a reference for material service life checks and also for court case reference. The court case reference capability has been shown to be of questionable value according to some district traffic engineers. However, the Staunton District Traffic Engineer noted that the absence of such a record for presentation in court when requested could put the Department in an embarrassing position.

Other uses of the inventory system which were cited include facilitation of the sign inspection procedure and use as a reference for specific annual reports. The Staunton District Traffic Engineer feels that the sign inventory is a useful aid for ordering stock materials and that a central computerized inventory might be warranted in the event that sign fabrication is centralized.

Suffolk

The format of the Suffolk District inventory varies significantly from those of the other districts. As seen in Figure 19, the inventory is a log sheet kept by route, county, and road section number. The three entries are inspection, washing, and clear coating operations. The primary difference from most other inventories is that there is no provision on the Suffolk District log for exact sign location by mile-post or for an indication of sign message.

Naturally, this type of log restricts the district traffic engineer from having a precise record of what signs are in place. One reason given for not having this information on the log is that all of the maintenance work on the primary and secondary routes is performed by residency forces. The interstate system signing is maintained by district forces, and sign plans filed in the district office provide detailed location and message information.

The Suffolk District Traffic Engineer feels that to maintain a detailed inventory would require the services of another full-time person. He feels that the current maintenance log sheet supplemented with existing work order forms for sign replacement information is as complete a record as is needed.

CONCLUSIONS

A review of signing and sign maintenance inventory procedures in the districts has revealed a diversity of engineering opinions regarding the needs and uses of an inventory system. In all districts, some form of logging sign maintenance is practiced and considered essential. There are many questions relative to how much information is needed, in what format it is most effectively kept, and what amount of time and effort is justifiable to maintain an effective inventory. There are no definitive answers to such questions, as inventory requirements vary among districts.

In most cases the district traffic engineers were satisfied with their inventory systems, and no changes in procedure were considered desirable. Therefore a recommendation for the adoption of a uniform procedure is not made. It is felt that were a uniform method to be prescribed for the districts it would of necessity be an administrative decision and not a research decision.

However, based on the review of current inventory formats used throughout the districts, a conclusion can be drawn relative to an effective format which would provide complete information while requiring minimal effort. It is believed that use of a card inventory system with the format designed by the Richmond District Traffic Engineer (see Figure 14) would be most effective in supplying all needed information for the life of a sign. The card format is versatile enough to accommodate changes in maintenance procedures if necessary. It is further suggested that, in cases where work would be performed by residency or other forces outside of the district office, a master form such as the one used in Culpeper (see Figure 9) be used to provide work crews with needed information without duplication of records.

1805

A question frequently raised regarding inventory systems relates to the feasibility of initiating an automated system with a statewide reference capability. Based on opinions of most district traffic engineers such an approach is not warranted as there is very little need for reference to inventory information outside of the district.

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J. W. Nicholson	—	Culpeper District
Bobby Pierce	—	Lynchburg District
Buddy Taylor	—	Salem District
J. L. Thomas	—	Staunton District

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APPENDIX

18.0

STREET HAYES

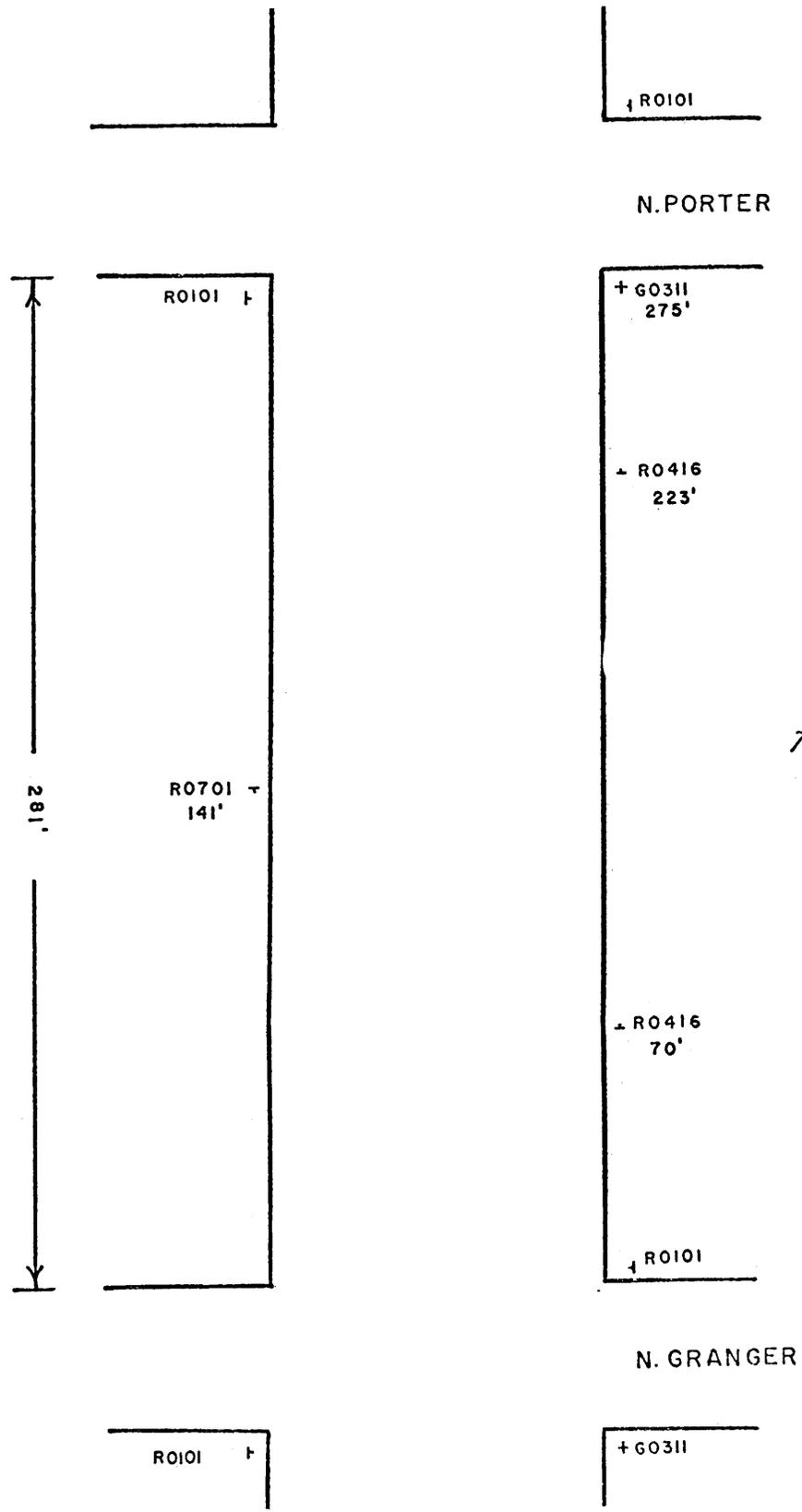


Figure 2. Supplementary diagram of city block used for sign location in the Saginaw inventory.

CODE			
A	Install	1	Porcelain
B	Replace	2	Safftysyne
C	Repair, Mtce See NOTE	3	Htwkins
D	Relocate	4	Ashley
E	Existing	5	Unknown
F	Paint	6	Kresky
G	Remove	7	TC Thermo-Vac
	NOTE	8	Safeway
Cv	Repair, Vandalism	9	Zumar
Cx	Repair, Accident		

If RR Xing, enter number in box
(Check on Crossbuck) BAC 247-2

Line SPRR

STOP Sign Resolution Date 53-2017

SPEED ZONE Date Prima Facie (55)

If in a Town, enter name in box Near Goshen
(Line Mtl. Plant)

For Office Use Only:

High Accident Fre

Stop Sign Log

Inventory

SHEET NO. 12

MECHANICAL TRAFFIC COUNT									
Station	Time Start	Reading	Date	Time Stop	Reading	Date	Count	Interval	
<u>R.80-A.304(N)</u>	<u>6 A.M.</u>	<u>16770</u>	<u>3-6-58</u>	<u>6 A.M.</u>	<u>19884</u>	<u>3-7-58</u>	<u>3114</u>	<u>24 Hr. Mech.</u>	
" "	<u>(S)</u>	<u>3932</u>	"	"	<u>6143</u>	"	<u>2211</u>	" "	

SIGN	REMARKS	DATE
<u>W9R</u>	<u>C-E-3</u>	<u>6-28-56</u>
<u>W47R</u>	<u>E-B-B</u>	<u>5-21-57</u>
<u>W42R</u>	<u>C-E-3</u>	<u>5-21-57</u>

SPRR

X-Bucks & # B Signal

AVE 304

ROAD 80

450'

800'

R.80/A.304 & Stripe
R.80 Stop-Limit Bar
& Stop Ahead E-W

SIGN	REMARKS	DATE
<u>Dump</u>	<u>OK</u>	<u>5-21-57</u>
<u>Litter</u>	<u>OK</u>	<u>5-21-57</u>
<u>RIR</u>	<u>OK</u>	<u>5-21-57</u>
<u>W17R</u>	<u>Cx-E-F7</u>	<u>5-21-57</u>
<u>Dump</u>	<u>Cx-E-F7</u>	<u>5-21-57</u>

SIGN	REMARKS	DATE
<u>Dump</u>	<u>OK</u>	<u>5-21-57</u>
<u>RIR</u>	<u>OK</u>	<u>5-21-57</u>
<u>W17R</u>	<u>OK</u>	<u>5-21-57</u>

SIGN	REMARKS	DATE
<u>W42R</u>	<u>OK</u>	<u>5-21-57</u>
<u>W47R</u>	<u>E-B-B</u>	<u>5-21-57</u>
<u>W9R</u>	<u>OK</u>	<u>5-21-57</u>

Figure 3. Form used to record data for sign inventory in Tulase County, California.

1812

FOR COUNTY USE ONLY		Jan. 5, 1959 DATE
Location <u>Henderson Avenue at East from Hwy. 65 Freeway</u> (USE ROAD NUMBERS)		
Type of Sign or Device <u>25 mph sign</u>		
Check condition(s) which cause this sign or device to fail as a traffic warning device: <input type="checkbox"/> Damaged <input type="checkbox"/> Poor location <input type="checkbox"/> Obscured <input type="checkbox"/> Poor night-time visibility		
Other _____		
Remarks: <u>Citation, CHP # G 109272</u> <u>on 12/23/58 signs too far apart.</u>		
<u>Howard Jones</u> SIGNATURE	<u>Porterville Safety Council</u> TITLE OR ORGANIZATION	

Figure 4. Post card form by which the Tulase County Road Department receives reports on sign conditions for various agencies.

DISTRICT SIGNS AND SYMBOLS

Bristol

COUNTY Washington LOGGED BY CTG
 ROUTE 11 KEY
 STARTING POINT Smyth Co. Line
 TU—Touch Up
 RP—Repaint
 RN—Renew

DATE 6-8-70

North SpC.	South SpC.	TYPE OF SIGN	CODE	SIZE	S	D	COND.	SYM.	DATE INST.	DATE REPL.	REMARKS
26.20		Night Arrow	W-10								
26.17		Night Arrow	W-10								
26.10		Pavement Narrows (2)	W-17E								
26.01		Divided Hwy. Ends (2)	W-16E								
25.47		55 Speed Limit Trucks 45	R-5B R-3B								
25.20		Int. Rt. 91E									
4.91		Left Turn Traffic	R-32A								
25.08		Left Turn Traffic Use Inside Lane	R-32A								
5.03		Int. Rt. 91W									
5.11		Divided Hwy. Ends	W-16E								
5.19		Pavement Narrows	W-17E								
5.26		Keep Right	R-21B								
24.79		Keep Right (2each)	R-22A	W-53A							

Figure 7. Sample of sign inventory log sheet used in the Bristol District.

LEESBURG RESIDENCY

ROUTE	NIGHT STUDY	TO SHOP	FROM SHOP	T ^a RES	FROM RES	ROUTE	NIGHT STUDY	TO SHOP	FROM SHOP	TO RES	FROM RES.	ROUTE	NIGHT STUDY	TO SHOP	FROM SHOP	TO RES	FROM RES
7	2-22-70 4-14-71	2-25-70 4-20-71	4-3-70 9-23-71	4-7-70 9-24-71		9	2-4-70 3-31-71	2-16-70 4-9-71	3-30-70 6-14-70	4-2-70 6-19-71		15	2-11-70 3-18-71 2-2-72	2-17-70 3-22-71 3-14-72	4-15-70	4-21-70	
5. Bridges	2-10-70 3-18-71	2-25-70 3-15-71	4-15-70 8-17-71	4-21-70 9-23-71		28	12-15-69 4-1-71	JAN-70 4-5-71	3-30-70 9-27-71	4-2-70 9-28-71		50	2-11-70 3-1-71	2-27-70 3-5-71	3-24-71	3-26-71	5-20-70 11-24-71
287	2-4-70 3-31-71	2-6-70 4-9-71	3-30-70 9-24-71	4-2-70 9-27-71		390	2-4-70 3-31-71	2-6-70 4-6-71	3-2-70 6-14-71	3-2-70 6-14-71							

Figure 9. Example master log sheet used in sign maintenance work in the Culpeper District office.

1818

Form No. 22-A

DEPARTMENT OF HIGHWAYS

INTER-DEPARTMENTAL MEMORANDUM

TO : Culpeper , Virginia
FROM : J. W. Nicholson , 19
SUBJECT: Sign Maintenance Route_____Proj_____

The District Sign Crew has completed replacement, patching, relocation, and additions as required to signs on the above routes.

The attached cards are for your Sign Crew to complete maintenance as shown on these cards. Please have the date entered on each card as the work is performed.

As soon as the work is completed, please return the cards to my office where they will be filed until the next annual study.

J. W. Nicholson
District Traffic Engineer

JWN:jhb
cc: Mr. D. B. Hope
Mr. H. E. Carpenter

Figure 10. Form letter used to forward inventory cards to residency field crews in the Culpeper District.

1820

TEXT NO. 16	SIGN NO. 68	<input checked="" type="checkbox"/> GROUND OVERHEAD	<input type="checkbox"/>	RTE. NO. 460	PROJ. NO. 0460-073-105, C-503
<p>Panel Size:</p> <p>Horizontal <u>108</u> In.</p> <p>Vertical <u>54</u> In.</p> <p>Border Width: <u>2</u> In.</p> <p>Margin Width: <u>—</u> In.</p> <p>Corner Radii: <u>7</u> In.</p> <p>Letter Type : <u>1- 3</u></p> <p>Color Combination: C- 7</p>					
<p>G-55C</p>					

Figure 12. Portion of sign layout sheet which can be reduced and used as sign inventory card for the Lynchburg District.

1000

ROUTE _____ COUNTY _____ MAINT SEC _____ MILE POST _____										
DIRECTION _____ DIST. E.P. TO R/W _____										
DESCRIPTION	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; vertical-align: top;">SIGN STD.</td> <td style="width: 80%; vertical-align: top;"> SIZE PANEL _____ W X _____ H LETTER _____ </td> </tr> <tr> <td colspan="2" style="text-align: center;">LOGGED BY _____ DATE _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">INITIAL INSTALLATION DATE _____</td> </tr> </table>	SIGN STD.	SIZE PANEL _____ W X _____ H LETTER _____	LOGGED BY _____ DATE _____		INITIAL INSTALLATION DATE _____				
SIGN STD.	SIZE PANEL _____ W X _____ H LETTER _____									
LOGGED BY _____ DATE _____										
INITIAL INSTALLATION DATE _____										
MAINTENANCE RECORD										
REPLACEMENT	DATE		DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
MAINTENANCE		CLEANED								
EMERGENCY		PAINT POST								
REVISION		REPAIRED								
		NIGHT INSP.								
WRITE COMMENTS ON BACK OF CARD										

Figure 14. Sample sign inventory card to be used in Richmond District.

<u>MILE</u>	<u>SIGN</u>	<u>MESSAGE</u>	<u>DATE</u>
<u>POST</u>	<u>ST.D.</u>		
		Initial Install.	
		Maint. Repl.	
		Emer. Repl.	
		Rev. Repl.	
		Clear Coat	
		Washed	
		Post Painted	

Figure 15. Sample index card format used for signing inventory in Salem District.

0 1824

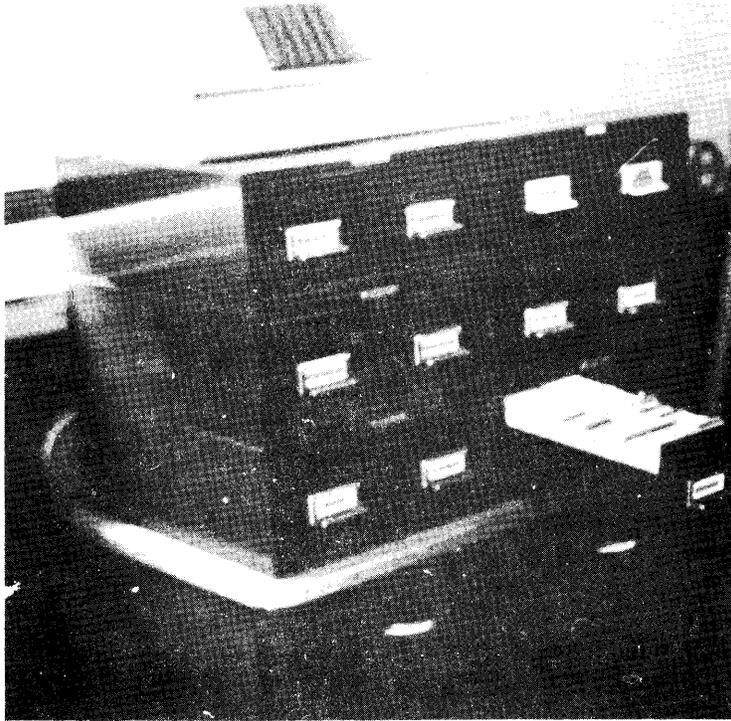


Figure 16. Filing cabinets used to store sign inventory cards in Salem District.

Staunton DISTRICT SIGNS AND SYMBOLS

COUNTY Rockbridge KEY LOGGED BY W.S.Chittum, Foreman
 ROUTE 60 TU-TOUCH UP
 STARING POINT Amherst C.L. RP-REPAINT
 DATE June 17, 1966
 RN-RENEW

SEC.	V.P.	TYPE OF SIGN	CODE	SIZE	COND.	DATE INST.	DATE WASHED	DATE CLEAR COATED	REMARKS
	17.32	Int. 631							
	17.34	Fire Station	M-18	2½' x 2½'	J	1-18-62	9-66	9-66	
	17.49	Fire Station	M-18	2½' x 2½'	J	1-18-62	9-66	9-66	

Figure 17. Example of log sheet format used for signing inventory in Staunton District.

