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REPORT NO. UMTA-IT-06-0173-79-1

PUBLIC TRANSIT RISK MANAGEMENT

A HANDBOOK FOR PUBLIC TRANSIT EXECUTIVES

Fred S. James and Co. Of Virginia, Inc.  
1600 Wilson Boulevard  
Arlington, VA 22209

DECEMBER 1978

Prepared for

U.S. DEPARTMENT OF TRANSPORTATION  
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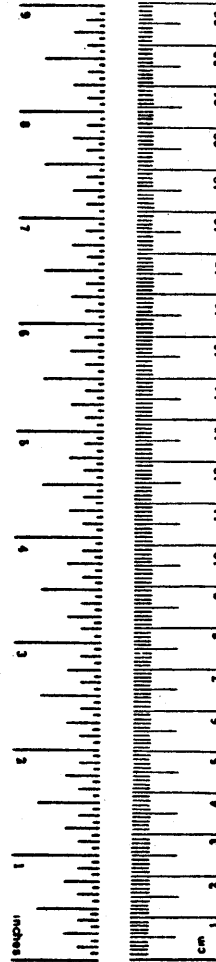
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# METRIC CONVERSION FACTORS

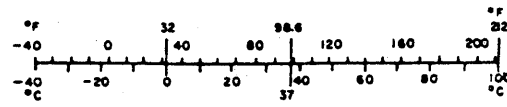
## Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
<b>AREA</b>				
in <sup>2</sup>	square inches	6.5	square centimeters	cm <sup>2</sup>
ft <sup>2</sup>	square feet	0.09	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yards	0.8	square meters	m <sup>2</sup>
mi <sup>2</sup>	square miles	2.6	square kilometers	km <sup>2</sup>
	acres	0.4	hectares	ha
<b>MASS (weight)</b>				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
<b>VOLUME</b>				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft <sup>3</sup>	cubic feet	0.03	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.76	cubic meters	m <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C



## Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
<b>AREA</b>				
cm <sup>2</sup>	square centimeters	0.16	square inches	in <sup>2</sup>
m <sup>2</sup>	square meters	1.2	square yards	yd <sup>2</sup>
km <sup>2</sup>	square kilometers	0.4	square miles	mi <sup>2</sup>
ha	hectares (10,000 m <sup>2</sup> )	2.6	acres	
<b>MASS (weight)</b>				
g	grams	0.036	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
<b>VOLUME</b>				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m <sup>3</sup>	cubic meters	36	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	cubic meters	1.3	cubic yards	yd <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



## INTRODUCTION

Every transit system has a risk management program, though many are very informal. The need for such a program becomes ever more important to today's transit manager as the number and costs of risk increase and the nature of risks becomes more complex. Risk management can show managers how to protect their company's assets and income at the most economical cost over an extended period of time.

This handbook explains in a basic way what risk management is and generally how it works. If your system's approach is currently very informal, the handbook can help you develop a more formal approach for better control. If you now have a formal risk management program, the handbook can help you review it effectively.



# PUBLIC TRANSIT RISK MANAGEMENT HANDBOOK

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# 1. WHY RISK MANAGEMENT?

Throughout the nation transit systems of all sizes have recently been faced with severe insurance problems. Premium for auto liability insurance has skyrocketed in recent years. Low levels of coverage have become increasingly expensive; excess layers have shown sharp cost increases and inflationary trends. Some insurance companies can and do cancel their transit coverages, leaving transit systems to scurry for coverage in an ever-diminishing market and/or to assume the risks themselves.

Part of this phenomenon reflects the problems insurance companies have been facing since 1971. Most are just now recovering from some of the worst years in insurance history. Higher-than-anticipated loss ratios, a plummeting stock market, and runaway inflation have depleted resources. Many non-specialty insurers have been refusing new business and reevaluating particular lines of coverage in order to better their underwriting position.

Further, transit is seen by insurers as a risk with high loss potential. People are transported in large numbers and a single accident may yield many claims. Several recent calamitous transit accidents have confirmed the worst fears of transit insurers.

One solution to this insurance situation that transit systems have employed is to assume some of the risk of potential loss themselves. Risk assumption may be accomplished through a number of means:

- deductibles - The insured pays a stated initial portion of claims. This may range anywhere from \$100 to \$100,000.
- self-insured retentions (SIR) - The insured assumes a reasonable loss level and pays the insurance company a percentage above losses for administration of the policy.
- self-insurance - The transit system assumes, and internally provides for, potential loss.
- non-insurance - The transit property assumes the risk of loss, but provides no mechanism to fund those losses. Losses are paid from the operating budget.

Some transit systems have a long history of assuming large portions of their risk. As premiums rise, and availability of coverage diminishes, more and more systems are using some form of risk assumption as a solution to their insurance needs and requirements.

Risk assumption and increased insurance costs have made transit systems more sensitive to the risk and the possible effects of loss. This is a basic change. Operation of a daily passenger service to move large numbers of people safely and on time used to be task enough. The check to the insurance company was paid

so someone else could worry about the unexpected. With increasing amounts of risk assumption, in one form or another, the emphasis shifts.

Now the transit system must concern itself with its own actions and the internal functions that may lead to loss. It must assess the contingencies, anticipate the unexpected, and fret about all the harrowing events it was paying someone else (an insurance company) to worry about.

THE INSURANCE MARKET PUSH TO RISK ASSUMPTION

The "Comparison of System Insurance Premiums and Loss Charges" below shows six transit systems which reported data on insurance premiums and losses to APTA (American Public Transit Association). These were selected because of the relationship between premium dollars paid and losses incurred. This sample provides geographic diversity and includes large and small systems. However, the large gap between premiums paid and losses incurred, while selected here to illustrate a point, is not typical.

Table 1

COMPARISON OF SYSTEM INSURANCE PREMIUMS AND LOSS CHARGES, MOTOR VEHICLE LIABILITY (\$000 Omitted)

SYSTEM LOCATION YEAR	Insurance Premiums					Total	Loss Charges					Total
	71	72	73	74	75		71	72	73	74	75	
	(\$000)						(\$000)					
WEST	34	33	33	58	37	195	3	26	28	11	4	72
SOUTH			5	20	23	48			2	.1	.5	2.6
SOUTHEAST			6	16	19	41			11	7	.3	18.3
WEST CENTRAL	33	36	26	21	74	190	2	11	19	8	13	53
EAST CENTRAL	46	46	66	100	223	481	68	0	0	0	0	68
NORTHEAST	23	26	53	39	51	192	0	0	0	0	0	0

WHY THE DISCREPANCY?

One reason for the disparity between premiums and losses cited above can be explained by the insurance company's cost of doing business. The ratio of claims to costs varies under different lines of coverage. But generally, of the premium dollar collected by the insurance firm for primary coverage of a transit risk, 60¢ (or 60% of the premium) goes to the payment of losses. Forty cents of the dollar (or 40% of the premium) goes to the insurance company's cost of operations. These operations include claim adjustment and litigation costs, sales and service expenses, overhead, taxes and profit. Thus, a transit system's premium dollar will never totally reflect its losses.

A second reason is that the premium amounts in the systems above reflect, in part, the experience of the loss pool to which the systems belong. That is, the insurance company must collect from all the companies it underwrites sufficient funds to pay the losses all those companies incur.

Not all levels of loss are "pooled." Most insurance companies charge the transit system a portion of its premium based on the system's past losses up to \$10,000 or \$20,000 each loss. These are called "primary losses." If the primary losses of an individual transit property are much lower than the average of all transit systems, the premium for primary coverage of the individual company will be lower than the average.

Losses above this \$10,000 or \$20,000 per loss level are not easily borne by an individual system, and therefore cannot be charged back entirely to the system incurring them. This is one of the reasons for the purchase of insurance: losses over a pre-established amount that would be difficult if not impossible for the transit system to pay, will be paid by the insurer if and when they occur.

However, the money to pay these higher ranges of loss must come from somewhere. The insurance company collects these losses through premium charges spread among transit systems on a pool basis. Thus, part of the discrepancy between premium and losses on the table above is accounted for by the loss pool premium these systems must bear, regardless of their individual experience.

Thirdly, the steady premium rise from year to year can be accounted for, in part, by the general insurance market crisis.

Money paid to insurers in these instances might better have been used for greater risk assumption. This possibility was not lost on the systems themselves; two switched to self-insured retention plans in 1976.

A transit system's increased role in management of risk may be dictated by any of a number of insurance problems or financial considerations, but the tools to handle the approach need not be a mystery.

#### CONTINUING COST PUSH IN OPERATIONS

Insurance market conditions, the related growth of self-insured retention plans and the cost of insurance have created the need for new expertise in the internal management of risk. Another factor that suggests transit properties could benefit from a risk management approach is the continuing push of operating costs.

Table 2 compares property damage, incidence and cost of accidents among various carrier modes. One aspect which emerges from this comparison is the high number of relatively minor accidents of the urban bus carriers which, in a year's time, develop into a substantial total cost. This is highlighted by comparison to the airlines which have a much smaller number of much more costly accidents. The implication of this display is that corrective action applied to the high number of minor accidents of bus properties can yield substantial cost savings.

Table 2 PROPERTY DAMAGE BY CARRIER MODE

ITEM	Urban Bus	Rapid Transit	Scheduled Domestic Passenger Airlines	General Aviation	Intercity Buses	Motor Vehicles
Accidents Reported/Yr	81,000 <sup>(1)</sup>	670 <sup>(1)</sup>	34	4,540	1750	16,500,000
Reported Accidents per 10 billion vehicle-miles	60,000 <sup>(1)</sup>	1,700 <sup>(1)</sup>	17.2	1,400	1,890	14,000
Property Damage						
Per Year	N/A	N/A	\$24.5M <sup>(3)</sup>	\$ 29.6M <sup>(3)</sup>	\$ 2.88M	\$5,200M
Per 10 Billion vehicle-miles	\$ 6M <sup>(1,2)</sup>	N/A	\$12.4M <sup>(3)</sup>	\$ 9.1M <sup>(3)</sup>	\$ 3.1M	\$ 4.4M
Per Accident	\$100 <sup>(1,2)</sup>	N/A	\$0.72M <sup>(3)</sup>	\$ 6,500 <sup>(3)</sup>	\$ 1,600	\$ 320

Source: Safety in Urban Mass Transportation, Battelle Labs, March 1976.

(1) Traffic accidents (2) Bus damage only (3) Aircraft hull damage only

Other data suggest that similar transit properties display quite dissimilar loss experiences. The study from which Table 3 is taken states: "Individual properties' data obtained from various sources show total claims costs running as high as 6.1% and as low as 1.5% of passenger revenues."

Table 3 compares two actual transit properties. Certain categories such as numbers of vehicles, dollars of revenue and numbers of employees, are very close in size. System A is 25% smaller than System B in Miles Operated and 20% in Number of Passengers. System B unfortunately mixes intercity transit mileage with urban transit mileage.

However, in sections III and IV of the exhibit, sections which deal with losses and the administration of internal operations concerned with loss, a disparity between the two systems emerges that is unaccounted for by differences in the numbers in Sections I and II of the exhibit. System B has achieved a ratio of Claims Cost to Passenger Revenue (1.4%), at the low point of the range of all systems.

Table 3 SYSTEM OPERATIONS, SAFETY AND LOSS COMPARISON

Comparison of two real transit system properties in a recent year

I Vehicle Type	<u>System A</u>		<u>System B</u>	
	No. of Vehicles	Miles Operated	No. of Vehicles	Miles Operated
Buses	1,529	35,898,366	963	32,573,588
Streetcars	424	8,986,483	416	11,842,752
Trolley Coaches	132	2,326,129	152	4,162,133
Subway Cars	490	14,565,703	334	22,693,554
Subtotal	2,575	61,776,681	1,865	71,271,997
Intercity Coach			211	11,503,995
TOTAL	2,575	61,776,681	2,076	82,775,992
II				
Passenger Revenue	\$ 76,158,397		\$ 78,370,759	\$ 9,978,488 I/C Coach
Passengers Carried	257,500,000		323,600,000	
No. of Employees	5,925		6,556	
III				
No. of Accidents	12,199		5,073	
No. of Settlements	7,421		2,347	
No. of Court Actions	1,421		165	
Actions Pending- End of Yr.	5,488		367	
Legal & Claims Employees	70		27	
IV				
Amounts Paid	\$3,473,602.92		\$938,367.67	
Legal & Claims Dept. Cost	\$1,190,687.93		\$317,020.87	
Claims Cost as % of Psgr. Revenue	6.1		1.4	

Source: Safety In Urban Mass Transportation, Battelle Labs, March 1976.

Tables 2 and 3 suggest that increased safety consciousness and a conscientious loss control effort yield cost savings. Neither situation suggests a need for new or costly engineering. Rather, better management of current resources seems to pay off. It is to this end that risk management addresses itself.

#### WHAT IS RISK MANAGEMENT?

Risk management offers the transit manager a method of safeguarding his company's assets and income over an extended period of time, in the soundest manner and at the most economical cost. It provides the transit system the tools to evaluate risk, make decisions on the assumption or transfer of risk and to control losses. Risk management includes these steps:

- identification, measurement and analysis of risks;
- elimination or reduction of hazards;
- assumption or insurance of the risk'
- establishment of a loss control program.

These are the basic elements of a broad, system-wide process. Risk management is referred to as a process because, unlike a simple insuring arrangement, it is not a single, annual evaluation and decision. It is an ongoing series of activities that feeds back into daily operational activities.

Risk management is system-wide because, in a support manner, it is involved in all of the activity areas of the system.

- It is a management function, requiring that managers assess, enact, and support total system efforts to ensure safety and prevent (control) losses.
- It is a financial function, which attempts to use company financial resources most effectively to prevent or meet financial loss.
- It is an operations function, acting in the support and development of operational procedures intimately bound to safety concerns. Maintenance practices and other activities of transit systems have existing safety components. Risk management analyzes, measures and extends the system's preventive practices to each and every area of company function.
- It is a personnel function, supporting and evaluating recruiting practices, skill and safety training, employee medical services and performance evaluation.

## WHO CAN USE RISK MANAGEMENT?

Anyone who tries to reduce the likelihood of a traffic accident through safety suggestions to the drivers, keeps an eye out for unsafe work practices in the shop, watches that the circuits aren't overloaded around the office coffee pot, and tries to hammer out an economical premium arrangement with his broker or agent is managing both the likelihood and cost of risk. However, what is included in the view of risk, and the scope of activities in managing risk determines the formality and sophistication of the company's risk management program.

In a small system, it is likely that the risk management program will take place in the owner/operator's head. The small system operator will not have the time or staff for large amounts of oversight, paper work, and recordkeeping. He will not have great premium volume for insurance market leverage. But he can take steps to lower his losses, look for rate breaks on his insurance through risk assumption, and informally educate his staff in loss control measures. He is managing his risk.

The operating managers in the medium sized system also manage their risk through educating for safer work practices, keeping a finger on costs, and trying to control losses. Time, staff, and dollars in the medium sized system are not sufficient for specializing the risk management function. Upgrading and coordinating existing functions for greater risk control will take place, most likely, in on-going, established responsibility areas.

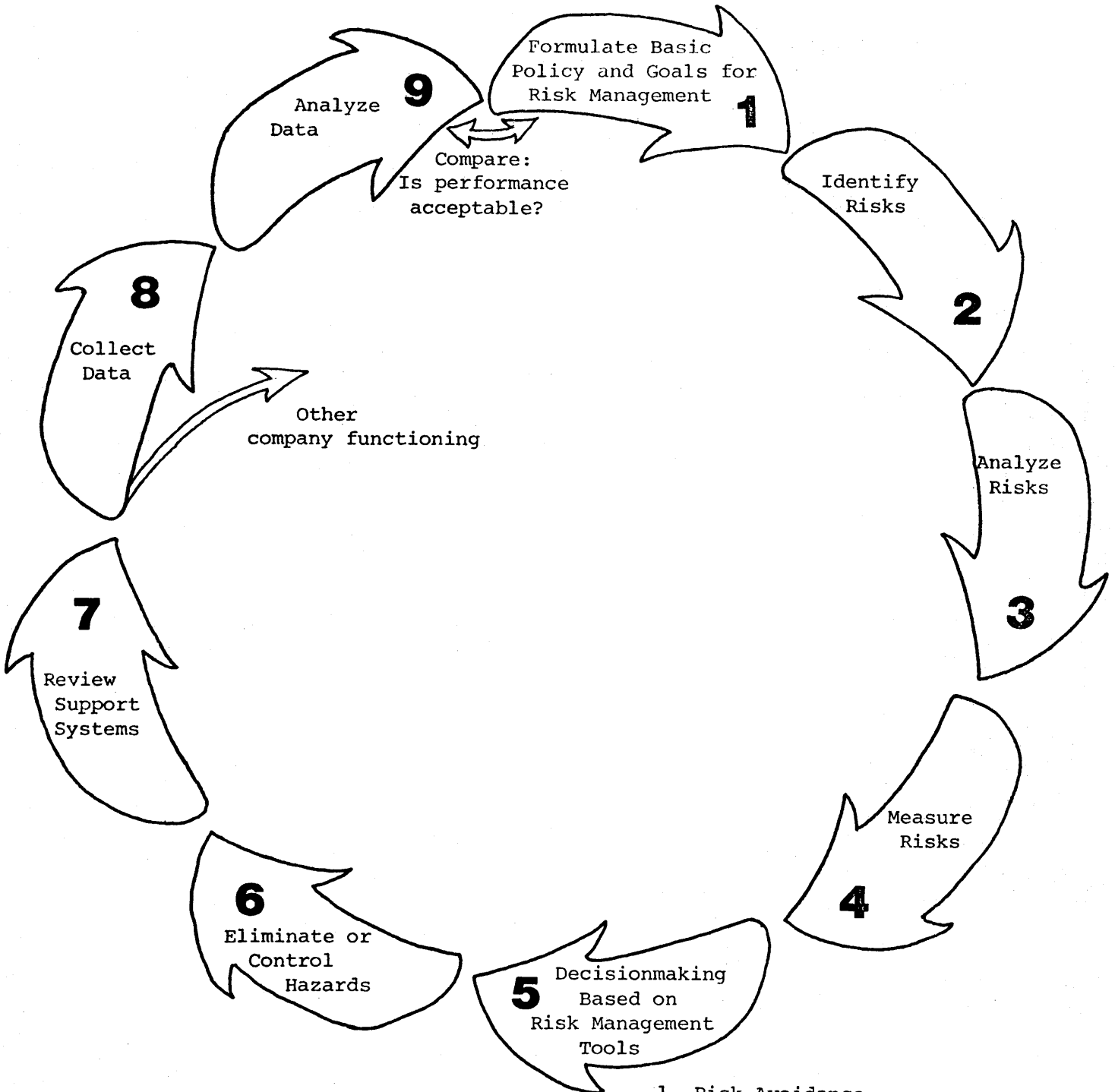
In the large, urban, transit system, safety, maintenance, training and finance areas are handled by separate departments. Because of the finer breakdown of tasks and responsibilities in the greater sized system, and because of the political nature of many urban carrier systems, risk management concerns may be fragmented. These larger systems can afford the professional expertise of a risk management consultant or an in-house risk manager. Not only will they benefit from the broadening of existing programs, but also from the coordination and efficiency of effort that a risk management program can bring.

All the instances mentioned represent a form of risk management, in the large or small system, in a formal or informal manner.



Figure 1

# The Risk Management Process



- 1. Risk Avoidance
- 2. Risk Reduction
- 3. Loss Control
- 4. Risk Assumption
- 5. Risk Transfer

## 2. THE RISK MANAGEMENT PROCESS

Risk management is a systematic approach to the problem of loss. The elements of the process are shown in Figure 1. While not every transit unit will be in a position to activate a full risk management program, the steps outlined here will suggest new goals and ways to accomplish them. As with the old motto "Think Safety," if the company can learn to "THINK RISK MANAGEMENT," the process is begun.

### STEP 1: FORMULATE BASIC POLICY AND GOALS FOR RISK MANAGEMENT.

In any process, the establishment of goals and objectives is a necessary first step. Policy and goals for risk management should be formulated and supported as high in the organizational structure as possible.

Generally, the purpose of a transit property's insuring arrangements is to financially protect against accidental losses which may keep the transit system from fulfilling its function. This remains the priority in a risk management program. In developing internal procedures to manage risk you will, in addition, want to:

- fund risk consistent with your financial resources and with optimum economies;
- effect maximum control of losses;
- protect the safety of employees, patrons and the general public;
- operate your internal risk program with maximum efficiency and effectiveness.

### DEVELOPING THE RISK PROFILE

An important element of managing risks internally is the development of what might be called a risk profile. The next three steps in the process refer to this profile:

In what areas are you subject to risk? (Step 2, Identify Risk)

What kind of activity do you have in the various areas of risk? (Step 3, Analyze Risk)

What is the financial impact of the outlined risks? (Step 4, Measure Risk)

The best source of information for a risk profile is the loss experience of your transit unit for the last five years. Analysis of this information will tell you much of what you need to know.

## STEP 2: IDENTIFY RISKS

In what areas are you subject to risk? An insurance checklist (see Appendix B) should help you determine the property elements at risk. Workers' Compensation exposures will be influenced by the company's safety performance.

Liability is one of the most unpredictable coverages in which to calculate exposure. The Operations Checklist in Appendix C should help you identify exposures which your operations create. In general, if you have a responsibility to perform an activity or service, you are also exposed to liability in that area.

Liability potential is strongly influenced by increased medical and property repair costs, by the general climate of higher plaintiff awards, and by the increased tendency of the public-at-large to bring cases to suit. The public's perception of the safety and responsibility of the individual transit system could also have a major impact on a company's liability exposure.

## STEP 3: ANALYZE RISKS

Once you have outlined the areas of risk in Step 2, begin looking for the amount of activity in these areas.

Each exposure to possible loss can be categorized according to the frequency and the severity of the occurrence. Frequency means how often a particular loss occurs. Severity refers to the amount of damage that loss incurs. Frequency and severity have four possibilities of combination; each configuration has an insurance implication. See Figure 2, page 11.

## STEP 4: MEASURING RISKS

What is the financial impact of the outlined risks? Answering this requires assigning value to potential losses. In measuring risk, it may be helpful to think of losses in two categories. Many organizations now use "foreseeable maximum loss" and "probable maximum loss" estimates for the total losses that can arise from a single occurrence.

Foreseeable maximum loss is the greatest conceivable loss assuming the failure of all preventive mechanisms.

Probable maximum loss is the worst loss to be expected under "average" conditions assuming that most, if not all, control mechanisms and procedures operate effectively.

Management should identify the sources of greatest financial impact. On property exposures, replacement or actual cash values should be assigned to all items with values checked every couple of years. This should include subjective valuations, as well as

## SEVERITY

HIGH	LOW	
<p style="text-align: center;"><u>HIGH FREQUENCY/HIGH SEVERITY</u></p> <p>This category indicates a need for protective measures, both in insurance and in safety. Workers' Compensation is a typical exposure of this type. Alternatives are transfer to an insurance carrier or self-insurance. An excess policy would necessarily be purchased for protection against severe loss if a self-insurance program is instituted.</p>	<p style="text-align: center;"><u>HIGH FREQUENCY/LOW SEVERITY</u></p> <p>In a bus system, this may be the numerous fender-bender accidents. Generally, this is an exposure that can be retained using self-insurance. However, attention should be paid to the cumulative effect of events in this category. Their total may be a drain on company resources. There may be patterns of loss that announce themselves as candidates for loss control.</p>	HIGH
<p style="text-align: center;"><u>LOW FREQUENCY/HIGH SEVERITY</u></p> <p>Examples of this exposure are the typical property perils: fire, flood, earthquake. In a transit system, this may be the infrequent, very severe accident. Transit units cannot easily absorb losses associated with these exposures. Transfer to an insurance carrier is the logical treatment.</p>	<p style="text-align: center;"><u>LOW FREQUENCY/LOW SEVERITY</u></p> <p>This class of exposure presents no significant risk, and losses should be retained by the transit system, not insured.</p>	LOW

Figure 2 FREQUENCY/ SEVERITY MATRIX

lost income or earnings or lost cash flow resulting from at least one loss too many. With respect to liability and workers' compensation coverage, frequency and severity data may be used to predict dollar loss potential.

The end result of the "risk profile" based on loss data from the past five years should be an outline of the property's "normal" losses (that is, predictable yearly loss amounts) with trend lines.

## **STEP 5: DECISIONMAKING BASED ON RISK MANAGEMENT TOOLS**

With the risk profile drawn and dollar amounts of probable loss formulated, it is time for decisionmaking. Strategies for managing risk fall into five categories. Consider one, or a combination, for each of the exposures you have outlined.

1. **RISK AVOIDANCE** - means what it says, that is, not getting involved with the risk. This may mean passing a service over to a subcontractor with hold harmless agreements, or dropping an element of service that creates burdensome exposure or loss.
2. **RISK REDUCTION** - reducing the number of opportunities for a given risk to occur. An example of risk reduction is revising work patterns to reduce repetitive tasks that are by nature hazardous.
3. **LOSS CONTROL** - reducing both the frequency and the severity of accident occurrence. It requires a thorough look at the existing safety and loss control program, often followed by an upgrading of training, procedures and enforcement.
4. **RISK ASSUMPTION** - the knowledgeable willingness to assume the financial implications of having a loss. Some types and amounts of loss are unavoidable. For some types of loss, it is not worth trading dollars with the insurance company for coverage. Frequency/severity ratings and past loss experience usually give some clue to these areas. Approaches to risk assumption include use of deductibles, retentions, and self insurance.
5. **RISK TRANSFER** - is usually the transaction of the purchase of commercial insurance, though hold harmless agreements can also effect the "transfer", of risk. The insurer pays losses to the stated amount under the policy conditions. This option can be used for loss amounts deemed unaffordable by the transit system and for excess coverage on all exposures.

## **STEP 6: ELIMINATE OR CONTROL HAZARDS**

Effective loss prevention is the best long-term method of reducing loss expenditures. The program may require the investment of considerable effort, time and money; but, done properly, it can save enormous amounts over a few years.

A loss control program within the risk management process supports and reenforces existing activities. Risk management expands prevention and safety practices to areas perhaps overlooked. A review of the tasks in Appendix A, Landmarks of a Loss Control Program, will give some indication of measures that might be instituted.

## **STEP 7: REVIEW SUPPORT PROGRAMS**

In managing its risk the transit property will become involved in activities in which it was only marginally involved in the past or that were performed for it by the insurance company's service units. A systematic approach to risk evaluation means that these areas must become internal concerns. Support programs which develop new relevance under a risk management program are: claims processing, legal services (for claims adjusting and the evaluation of liability), compilation, manipulation and analysis of data, and safety areas (which may have been handled totally under maintenance interests, previously).

If the transit unit decides to retain significant portions of its risk, these support programs will either have to be purchased from excess insurers, service organizations, or established within the existing structure of the system.

## **STEP 8: COLLECT DATA**

The risk management process in operation yields both loss control claims data. All departments will be reporting-relevant information to the risk manager for inclusion in the total program picture. The information on exposures, control or elimination of hazards, safety statistics, claims, losses, costing, financial resources and fiscal status all must be collected for evaluation of the current situation and future trends.

Some of this information will provide an important profile for other aspects of company decisionmaking. Expansion into new areas of service, capital expenditures, and employee benefit policies are all areas in which risk management data may be an aid.

## **STEP 9: ANALYZE DATA**

Periodic analysis is part of the risk management process. Analysis should measure the program's effectiveness and, from time to time, formulate new and tighter objectives for the risk program. Review is necessary to spot trends, keep a close eye on exposures, and to constantly reevaluate each step of the risk management process.

## RISK ASSUMPTION

One of the options among risk management tools in Step 5 is risk assumption. In evaluating this tool, there are some important factors to keep in mind.

Risk assumption may be funded or unfunded. That is, the transit property may set aside existing funds, or set up a mechanism to secure funds in the event of need, to cover the losses which may occur from the risks assumed. Funded risk assumption is called self-insurance.

Assumption of risk without funding is non-insurance. In such an instance, losses will be paid from the current operating budget. For small losses--the broken window, the petty theft--this may be an appropriate response. For larger losses, this is a dangerous operating mode. The cumulative effect can be disastrous.

A company contemplating self insurance should consider the following elements in accomplishing the goal of funding its risk. The funding plan should:

- provide adequate funds to cover the worst possible loss under the assumed circumstances;
- provide high stability of risk funding costs over time;
- take maximum cash flow advantages of the operations of risk funding plans;
- obtain the lowest reasonable direct cost commensurate with the funds that are made available and the services that are offered by certain funding media;

In order to assure the fiscal health of a self insurance effort *it is essential that transit systems' arrangements for retained losses be actuarially sound.* In this area professional help and guidance are indispensable.

It is also vital that reserve funds be protected from the "borrowing" of other management interests. Amounts borrowed from insurance reserve funds are seldom returned. There are arrangements which will accord this protection.

Check on the legality of risk assumption: some legal or commercial agreements may specify the purchase of commercial insurance, and a few states require the purchase of commercial insurance for workers' compensation.

The amount of the reserve should be worked out in accordance with other financial concerns. Funding may begin with premium amounts "saved" by risk assumption. It may reflect all or portions of normal losses of the transit property. An upper limit to the fund

should also be established; annual deposits plus accrued interest will eventually bring the fund to this maximum amount. When this is accomplished, deposits should be made only to replenish yearly losses paid out.

Early in the program, a loss may occur that cannot be covered by the reserve at that time. This should not be used as an excuse to disband the program. Self insurance is a long-term method and only after a number of years can its effectiveness be evaluated.

Figure 3 on page 16, Profile of the Cash Effects of Self Insurance, shows the effect on one firm of a self insurance arrangement for workers' compensation over a five-year period. Annual deposits to the self-insurance fund are set at \$100,000. Part A of the exhibit shows the distribution of the \$100,000 the company is depositing in the self-insurance fund each year. Part B illustrates the cumulative effect of the yearly deposits as the fund grows from year to year.

In Part A, the yearly deposit is divided according to expenditures. Purchased services are shown as static amounts: Excess Insurance (to cover liability beyond that assumed by the company); Bonding fees; Service Fee, in this case to the outside firm administering the self-insurance plan (if handled internally, this would be internal cost to administer); and Legal charges.

The Benefit Payments shown in Part A (that is, claims paid out) rise steadily from year to year. This reflects the nature of claims activity: Claims generated in Year One may not be paid until Year Three or even Year Five. The larger the claim, the more likely this tail effect is to apply. So, in Part A, Benefit Payments in Year One indicate claims paid out in Year One. Benefits Payments in Year Two reflect claims paid out for Year Two plus payments made on claims generated in Year One. Year Three reflects that year, plus Year Two and Year One Benefit Payments, and so on. Loss activity, that is, the dollars of loss incurred remains relatively the same each year (the 60% average loss ratio); the difference is explained by delayed effect in the way these losses fall due for payment.

There is a cash flow benefit to this delay in the payment of claims and insurance companies use it to their advantage. The total cost of a claim is estimated in the year it is generated; the money to cover this is set aside in a reserve; the reserve is invested. When the claim is paid the reserve is dissolved, but the interest accumulated in the interim belongs to the insurer.

A similar benefit applies to the self insurer; this is illustrated in Part B. In Year One, \$44,300 of the \$100,000 deposit is paid out in expenses; \$55,700 is retained and is available for investment. In Year Two, expenses have risen to \$106,600 of the accumulated \$200,000 deposit. This reflects the fixed costs of Year One



Retained \$55,700.	Retained \$37,700	Retained \$28,700	Retained \$25,700	Retained \$22,700
Benefit Payments	Benefit Payments	Benefit Payments	Benefit Payments	Benefit Payments
Legal	Legal	Legal	Legal	Legal
Service Fee	Service Fee	Service Fee	Service Fee	Service Fee
Bond	Bond	Bond	Bond	Bond
Excess Insurance	Excess Insurance	Excess Insurance	Excess Insurance	Excess Insurance

A. DISTRIBUTION OF \$100,000 PER YEAR PREMIUM OVER 5 YEAR PERIOD  
WITH 60% AVERAGE LOSS RATIO

		Yearly Earnings		
		\$9,889		
			Yearly Earnings \$7,875	Retained Cash \$187,522
			Retained Cash \$156,947	Expenses \$329,500
		Yearly Earnings \$5,805		
		Retained Cash \$125,442	Expenses \$252,200	
	Yearly Earnings \$3,342			
	Retained Cash \$93,400	Expenses \$177,900		
Retained Cash \$55,700				
Expenses \$44,300				
First Year	Second Year	Third Year	Fourth Year	Fifth Year
Total: \$100,000	Total: \$203,342	Total: \$309,147	Total: \$417,022	Total: \$526,911

B. CUMULATIVE CASH EFFECTS OF SELF-INSURING OVER A FIVE YEAR PERIOD

FIGURE 3 PROFILE OF CASH EFFECTS OF SELF-INSURANCE OF WORKER'S COMPENSATION

Source: Gates, McDonald and Company publication.

and Year Two, the Benefits Paid in Year One on Year One losses, the Benefits Paid on Year Two losses and those paid in Year Two on Year One losses. Of the \$200,000, \$93,400 is retained. And Year Two shows earnings of \$3,342 on the retained cash, \$55,700, from Year One (6%).

The columns proceed in like manner, each representing the cumulative effect to that time. The earnings broken out at the top of the column are a yearly figure, not the cumulative amount. At the end of five years, the company has earned \$26,911 while accomplishing its self-insurance goals.

## CLAIMS MANAGEMENT

One of the support programs mentioned under Step 7, claims management, deserves a special note.

Next to the payment of the claims themselves, claims handling is the most costly element of transit insurance expense. Proper liability claims handling costs, whether done by the insurer or within the transit company, run as high as 40% of the incurred losses of transit systems.\*

The nature of transit service makes high claims expense something of an inevitability. If a claim results from an incident in the course of operation, investigation will involve the passengers (10 to 50 people), observers of the incident (on a city street, that could be quite a few), and any third parties (property owners or operators of other vehicles). The same incident could yield a dozen or more claims. As numbers of litigants rise, so do attorneys fees and court costs.

Claims management is an important aspect of the overall risk management plan. The quality of claims information, efficiencies of procedures, and coordination of the function with other departments are critical to the risk management effort.

All mishaps should be reported immediately. Information gathering should be timely; report forms should elicit the information necessary for claims, legal and loss control needs.

Procedures should be established for incidents which indicate severity. Ideally, one adjustor and/or supervisor should be on call during all shifts to visit the accident scene.

Accident report information should be dispersed in a timely manner to personnel, operations, maintenance, and safety departments. The claims department should notify adjustors, the insurer and the state, where required.

The claims department should maintain adequate files on all occurrences. File administration should be clearly defined. Formulas

\*As per conversation with W. L. Gregory, Transit Casualty Company.

for the posting of reserves should be established for each coverage area. Reserves should be posted and re-evaluated according to current information. A diary system should be maintained for reminders on items which have a time consideration. The file should include all current medical and legal information.

Where claims are handled through outside sources, skeleton files should be maintained, a liaison established and internal responsibility for administration delegated.

Overall claims reports should be formulated periodically. A daily report on new claims and current information on established claims should be compiled and circulated to departments with control interests. A monthly and/or quarterly summary including loss runs should be circulated to management and other interested departments. An annual review of claims activity and trends is a necessary part of re-evaluating risk management planning and goal setting.

The following exhibits are examples which illustrate some of the recommended claims practices. The forms are in use at the Chicago Transit Authority and are reprinted here with their permission.

Figure 4: an accident report form for collision with a vehicle, one of several different types the Authority currently uses. It is given here to illustrate the depth and breadth of information gathered.

Figure 5: one kind of monthly summary; this one breaks down frequency and distribution of accident reports for the time period. Of use to both claims and loss control functions.

Figures 6, 7, 8 and 9: illustrate the kind of comparative data that can be developed for loss control from information gathered under the claims function.

Also, the significance of the manner in which claims are settled may have escaped the transit system which transfers major portions of its risk. Insureds have the opportunity to participate in judgements about which claims should be litigated and which settled quickly. They also can and should review reserves set by the insurer on unsettled claims. Reserves affect the transit system's experience rating and the experience rating influences future premium.

The self-insured entity has the potential for greater control and understanding of its claims handling. It can and should exercise control of the claims handling activities of its in-house claims staff or independent claims adjusting firm. It can hire or fire claims administrators subject only to ratification by excess insurers. As the figures indicate, it is an area of cost that is vital to the risk management process.

One final note. It is important that the claims service firm or in-house claims administrator have expertise in transit claims adjusting. It is a unique discipline and one that requires specialized knowledge. Also, excess carriers will insist on competent claims handling and supervision.

### Risk Management Handbook Figure 4

CTA 4322 Rev. 1-43

## FOR THE INFORMATION OF THE GENERAL ATTORNEY CHICAGO TRANSIT AUTHORITY COLLISION WITH VEHICLE OPERATOR'S REPORT (All questions must be answered)


Accident report for Motor Bus  Trolley Bus  Other  SPECIFY TYPE OF EQUIPMENT

DATE OF ACCIDENT _____ 19____	DAY OF WEEK _____	TIME _____ M	STATION _____	LINE _____	DIRECTION OF BUS _____
----------------------------------	----------------------	-----------------	------------------	---------------	---------------------------


1. Was this trip a —  
 Pull In  Pull Out  Regular  Charter  Detour   
 Run No. \_\_\_\_\_ Bus No. \_\_\_\_\_ Direction of other vehicle \_\_\_\_\_

2. Place of accident: \_\_\_\_\_  
(GIVE EXACT LOCATION—SUCH AS HOUSE NUMBER OR DISTANCE TO SOME CLEARLY MARKED LINE OR POINT)  
 Speed of bus at time danger of collision first became apparent to you \_\_\_\_\_ M. P. H.  
 Speed of vehicle at time danger of collision first became apparent to you \_\_\_\_\_ M. P. H.  
 Speed of bus when first contact with vehicle occurred \_\_\_\_\_ M. P. H.  
 Speed of vehicle when first contact with bus or car occurred \_\_\_\_\_ M. P. H.

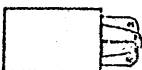
3. Cross mark exact point on Bus first touched by vehicle \_\_\_\_\_  
 Cross mark exact point on Vehicle first touched by bus. \_\_\_\_\_



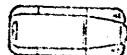
BUS



TRAILER TRUCK



TRUCK



AUTO

4. Total number of passenger. in bus \_\_\_\_\_ Total number of persons in other vehicle \_\_\_\_\_

5. Names, addresses and ages of persons injured:

CHECK WHERE PERSON WAS RIDING	
IN VEHICLE	IN BUS
Name _____ Address _____ Age _____	
Name _____ Address _____ Age _____	

6. Injuries—mention any cuts, bruises, bleeding, lameness, torn clothing, etc. \_\_\_\_\_

7. Did anyone assist injured persons from place of accident? \_\_\_\_\_ If so, How? \_\_\_\_\_  
 If carried away in auto or cab give number of same \_\_\_\_\_ Where were injured persons taken? \_\_\_\_\_  
 By whom? \_\_\_\_\_

8. Did persons appear to you to be injured? \_\_\_\_\_  
 What makes you think so? \_\_\_\_\_

9. If persons were taken to a doctor, give name and address of doctor:  
 Name of Doctor \_\_\_\_\_ Address \_\_\_\_\_

10. Kind of vehicle \_\_\_\_\_ License Number \_\_\_\_\_  
 Name of Owner \_\_\_\_\_ Address \_\_\_\_\_  
 Name of Driver \_\_\_\_\_ Address \_\_\_\_\_  
 What did driver say after the collision? \_\_\_\_\_

11. How far were you from point of accident at the time you applied your brakes to stop bus? \_\_\_\_\_  
 At this same time how far was the vehicle from the point of accident? \_\_\_\_\_

#### OPERATOR'S STATEMENT

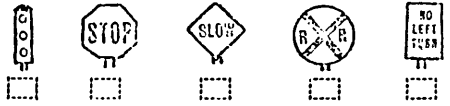
State clearly how the accident happened, what took place, and any other information you have about this occurrence.

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

Operator's Name \_\_\_\_\_ Badge Number \_\_\_\_\_  
 Date of Birth \_\_\_\_\_ PRINT NAME \_\_\_\_\_ Total Service \_\_\_\_\_ Years \_\_\_\_\_ Months \_\_\_\_\_  
 Chauffeur's License No. \_\_\_\_\_ Exp on Date \_\_\_\_\_  
 Length of service on this type of bus \_\_\_\_\_ Years \_\_\_\_\_ Months \_\_\_\_\_

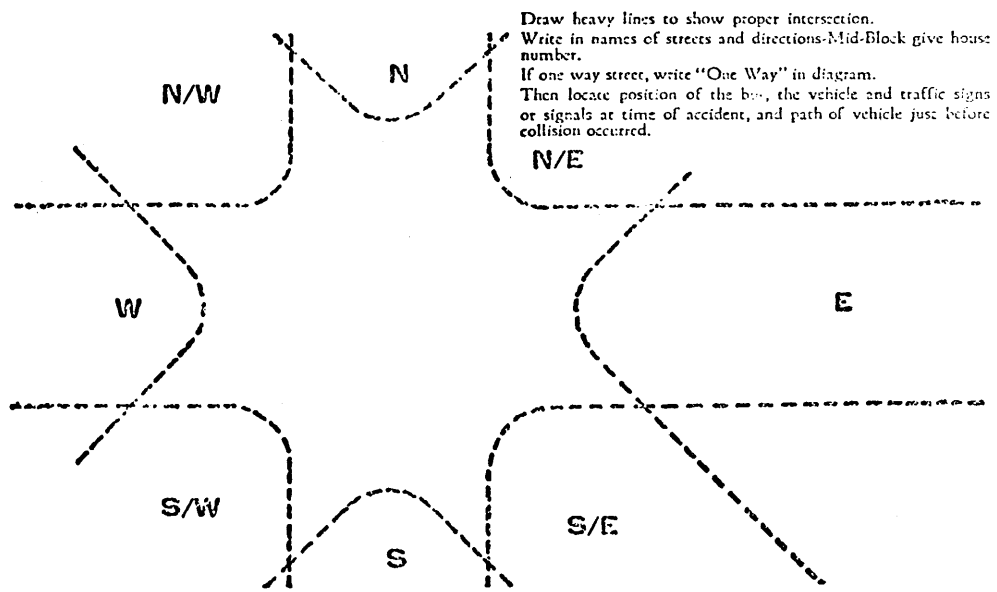
12. How far did bus run after first contact with vehicle? \_\_\_\_\_  
 How far did vehicle run after first contact with bus? \_\_\_\_\_  
 When bus stopped where was front end of bus? \_\_\_\_\_  
 \_\_\_\_\_  
 (GIVE HOUSE NUMBER OR DISTANCE TO SOME CLEARLY MARKED LINE OR POINT SUCH AS PROPERTY LINE OR CURB LINE OF CROSS STREET)  
 When vehicle stopped, where was it? \_\_\_\_\_  
 How far was right side of bus from right-hand curb at time of collision? \_\_\_\_\_
13. What, if anything, prevented the driver of vehicle from seeing bus? \_\_\_\_\_  
 What, if anything, prevented you from seeing the vehicle sooner? \_\_\_\_\_
14. What was done to warn driver of vehicle and to prevent collision? \_\_\_\_\_
15. Damage to bus \_\_\_\_\_  
 Damage to vehicle \_\_\_\_\_ What was it loaded with? \_\_\_\_\_
16. Was Police Officer present? Yes  No  Star No. \_\_\_\_\_ Did he see accident? Yes  No   
 Was violation notice issued to you? Yes  No  If Yes, Ticket No. \_\_\_\_\_ Charge \_\_\_\_\_  
 Date Notice returnable: \_\_\_\_\_ Time: \_\_\_\_\_ Place: \_\_\_\_\_  
 Did you make any statement to the Police in connection with this accident? Yes  No
17. Was place of accident lighted? \_\_\_\_\_ Were vehicle headlamps lighted? \_\_\_\_\_  
 Was the bus lighted up? \_\_\_\_\_ Was vehicle tail lamp lighted? \_\_\_\_\_  
 If collision on curve: was directional signal flashing? \_\_\_\_\_
18. Condition of weather: Day  Night  Clear  Rain  Snow  Fog
19. Condition of pavement: Dry  Wet  Snow  Sleet  Ice
20. Any defects in curb or street? \_\_\_\_\_  
 Was there anything defective about bus? \_\_\_\_\_  
 If so, what was it? \_\_\_\_\_
21. In your opinion, what was the cause of this accident? \_\_\_\_\_  
 \_\_\_\_\_

22. Crossmark type of traffic sign or signal at intersection:



23. Did bus stop before crossing intersection? \_\_\_\_\_  
 If the intersection has Stop-and-Go lights, were they operating? \_\_\_\_\_  
 If so, when you reached intersection was the light red? \_\_\_\_\_ If light was green, did you stop anyway? \_\_\_\_\_  
 Did you have the green light at the instant you crossed the building line? \_\_\_\_\_  
 Did the amber light come on after you started and before you reached center of intersection? \_\_\_\_\_

Mark by check (✓) the cards of witnesses who were in the best position to see the accident.



Operator's Signature \_\_\_\_\_ Date Report Made \_\_\_\_\_  
 Bus License Numbers: State \_\_\_\_\_  
 Initials of Clerk receiving report \_\_\_\_\_

TO:

Risk Management Handbook Figure 5

MONTHLY SUMMARY OF ACCIDENT REPORTS

DEC. 77 PROCESSED	TOTAL OCCURRENCES	CLAIMS		INVESTIGA- TIVE RPRTS		NON-LIABILITY			ADDL CLMNTS	CRIM FILE
		SURF	RAPID	SURF	RAPID	SURF	RAPID	TOTAL		
12-02	53	9	1	3	4	*11	1	29	-	4
12-05	153	30	6	16	2	7	4	65	2	6
12-06	47	15	-	8	-	4	-	27	2	2
12-07	93	36	-	14	2	2	1	55	1	7
12-12	140	41	2	29	8	-	-	80	14	4
12-13	81	24	1	11	1	11	1	49	5	4
12-14	48	23	-	7	-	-	-	30	2	2
12-15	78	19	3	4	4	12	-	42	2	11
12-16	55	14	-	4	-	8	1	27	-	3
12-19	133	27	1	17	3	4	1	53	3	14
12-20	51	10	-	9	2	-	-	21	2	3
12-21	61	28	-	15	1	2	-	46	1	-
12-22	90	32	-	10	4	11	3	60	5	3
12-23	70	25	-	5	-	10	1	41	3	18
12-27	132	40	3	18	7	-	-	68	5	8
12-28	30	4	-	1	-	-	-	5	-	4
12-29	94	21	1	9	2	19	2	54	5	12
12-30	36	8	1	6	1	4	1	21	-	6
<b>TOTALS:</b>	<b>1445</b>	<b>406</b>	<b>19</b>	<b>186</b>	<b>41</b>	<b>105</b>	<b>16</b>	<b>773</b>	<b>52</b>	<b>111</b>

\* THIS TOTAL INCLUDES (1) INVESTIGATIVE REPORT

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- 2 -

CHICAGO TRANSIT AUTHORITY  
SAFETY DEPARTMENT

MONTHLY PASSENGER TYPE ACCIDENT REPORT

Comparison of August, 1977 with August, 1976

Garages Listed in the Order of Their Improvement in Frequency Rate

BUS SYSTEM

<u>GARAGE</u>	<u>NUMBER OF ACCIDENTS</u>		<u>SCHEDULED MILES OPERATED</u>		<u>FREQUENCY RATE PASS. ACCIDS. PER 100,000 SCHED. MILES</u>		<u>% CHANGE IN FREQUENCY RATE</u>
	<u>1977</u>	<u>1976</u>	<u>1977</u>	<u>1976</u>	<u>1977</u>	<u>1976</u>	
Limits	0	9	329,278	335,888	-	2.7	100.0% Decrease
52nd Street	4	8	312,016	288,946	1.3	2.8	53.6% "
Archer	7	14	771,390	789,966	0.9	1.8	50.0% "
69th Street	13	13	753,865	728,634	1.7	1.8	5.6% "
Kedzie	13	12	804,596	816,816	1.6	1.5	6.7% Increase
77th Street	15	13	1,103,514	1,045,717	1.4	1.2	16.7% "
Forest Glen	10	7	852,811	783,494	1.2	0.9	33.3% "
North Avenue	9	7	854,399	876,769	1.1	0.8	37.5% "
North Park	18	14	906,612	997,042	2.0	1.4	42.9% "
Beverly	<u>7</u>	<u>5</u>	<u>421,294</u>	<u>522,004</u>	<u>1.7</u>	<u>1.0</u>	<u>70.0% "</u>
SYSTEM	96	102	7,109,775	7,185,276	1.4	1.4	No Change

JS:kf  
9-6-77



CHICAGO TRANSIT AUTHORITY  
SAFETY DEPARTMENT  
STATISTICAL STUDY OF INJURIES TO BUS OPERATORS  
WHILE INSIDE OF BUS BY AGENCY OF INJURY

<u>Agency of Injury</u>	<u>Totals</u>	1972		1973		1974	
		<u>Collision</u>	<u>Non-Collision</u>	<u>Collision</u>	<u>Non-Collision</u>	<u>Collision</u>	<u>Non-Collision</u>
Steering Wheel	96	15	24	24	11	16	6
Drivers Seat	49	11	15	-	10	4	9
Farebox	46	4	6	7	11	7	11
Drivers Side Window	37	5	6	11	6	5	4
Dash	15	5	-	6	1	2	1
Destination Sign	14	-	4	-	6	-	4
Drivers Partition	12	5	-	1	-	6	-
Windshield	9	4	-	3	-	2	-
Handbrake	8	1	3	1	-	-	3
Gearshift	6	-	2	-	2	-	2
Stanchion Bar	3	-	1	-	-	-	2
Change Tray	2	-	-	-	1	-	1
Front Stepwell	1	1	-	-	-	-	-
Heater Cover	1	-	1	-	-	-	-
Heater Fan Blade	1	-	1	-	-	-	-
Transfer Holder	1	1	-	-	-	-	-
Turn Signal	1	1	-	-	-	-	-
Long Seat	1	-	-	1	-	-	-
*No Agency Listed	<u>247</u>	<u>56</u>	<u>-</u>	<u>80</u>	<u>-</u>	<u>111</u>	<u>-</u>
Totals	550	109	63	134	48	153	43

\* Of this number 157 were described as Whiplash Injuries.  
March 28, 1975

Risk Management Handbook Figure 7

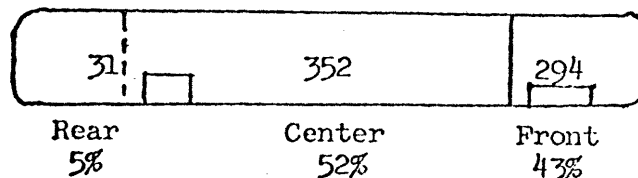
Risk Management Handbook Figure 8  
CHICAGO TRANSIT AUTHORITY  
SAFETY DEPARTMENT

FALL-ON-BOARD ACCIDENTS - BUS SYSTEM - YEAR 1976  
Reported Accidents

In 1976, CTA buses were involved in 677 fall accidents. Falls, broken down by movement of bus were:

Starting	75	
Ordinary stop	93	
Sudden stop to avoid accident	343	51%
Sudden stop to avoid light change	4	
Running	103	15%
Turning	25	
Standing falls	24	
Falls due to intoxication	<u>10</u>	
	677	

Location of Falls:



Passenger was:

Standing	351	52%
Walking	125	18%
Seated	150	22%
Sitting down	19	
Getting up	32	

Sex:

Male	133	20%
Female	472	70%
Child	26	
Unknown	46	

Seventeen accidents or 3% of total falls involved contact with glass partition.

Twenty three accidents or 3% of total falls involved contact with farebox.

Passengers carrying objects (packages, shopping bags and suitcases)  
( 3                      6                      2                      = 11)

Handicapped persons (crutches, braces and cane)  
( 2                      1                      6                      = 9)

Accident frequency rate: 0.79 accidents per 100,000 miles operated  
1.32 accidents per million passengers carried

CHICAGO TRANSIT AUTHORITY  
 SAFETY DEPARTMENT  
 PUBLIC SAFETY SECTION

TRAFFIC AND PASSENGER ACCIDENTS  
 BY DAY OF WEEK

DAYS	YEAR of 1976									
	NUMBER OF DAYS	TRAFFIC			PASSENGER			T & P TOTAL		
		ACCIDS	AVERAGE PER DAY	%	ACCIDS	AVERAGE PER DAY	%	ACCIDS	AVERAGE PER DAY	%
Sunday	52	426	8	8%	95	2	8%	521	10	8%
Monday	52	928	18	16%	174	3	15%	1,102	21	16%
Tuesday	52	821	16	15%	177	3	15%	998	19	14%
Wednesday	52	859	17	15%	184	4	16%	1,043	20	15%
Thursday	53	858	16	15%	175	3	15%	1,033	19	15%
Friday	53	1,126	21	20%	230	4	19%	1,356	26	20%
Saturday	<u>52</u>	<u>646</u>	<u>12</u>	<u>11%</u>	<u>152</u>	<u>3</u>	<u>13%</u>	<u>798</u>	<u>15</u>	<u>12%</u>
TOTAL	366	5,664	15	100%	1,187	3	100%	6,851	19	100%

Risk Management Handbook Figure 9

### 3. ASSESSING YOUR CURRENT SITUATION

The following section is structured to aid the transit manager in understanding his company's present insured status. It will give an idea of where the individual system stands relative to the performance of its coverages, the institution of risk management measures, and its participation in the assumption of risk. Worksheets accompany the topic areas to help the reader develop actual figures for his or her system.

#### EXAMINING YOUR COST OF RISK

The cost of risk can be broken out into the following categories:

1. Amounts paid in premiums to transfer risk to an insurer.
2. Costs of settlements of uninsured losses.

This figure includes losses for categories not covered, amounts that are deductible, and self-insured retentions.

3. Internal risk management administrative costs.

This figure includes:

- management time reviewing coverages with a broker;
- services purchased from actuaries, consultants, claims services, or attorneys;
- the cost of full-time, in-house risk management, plus claims or legal employees.

4. Safety and loss control program costs.

Costs of safety and loss control may be distributed among maintenance and personnel department expenditures. Other costs include:

- management time for increased safety involvement;
- salaries of safety staff;
- cost of protective equipment (both personal and environmental);
- cost of educational activities, safety meetings, first-aid training, and special facilities.

Using Worksheet 1 on the following page, you can estimate your system's cost of risk. The figures you arrive at are, of course, only a rough estimate. However, the approximation does provide some idea of the resources your company has already committed to a risk management program.

Fill in the spaces with your best estimates of costs.

	Last Year	This Year
<b>1. <u>PREMIUMS PAID TO INSURANCE CARRIERS</u></b>		
Workers' Compensation		
Liability Coverages		
Property Coverages		
Other Coverages		
Subtotal		
<b>2. <u>COSTS OF UNINSURED LOSSES FOR THE YEAR</u></b>		
<b>3. <u>INSURANCE ADMINISTRATION COSTS</u></b>		
Internal Departments or Employees		
Services Purchased		
Management Time and Expense		
Subtotal		
<b>4. <u>SAFETY AND LOSS CONTROL PROGRAM COSTS</u></b>		
Safety and Medical Departments or Employees		
Protective Equipment (individual)		
Protective Equipment (environmental)		
Training and Meetings Expenses		
Facilities, Travel, Miscellaneous		
Supervisory Time		
Management Time		
Subtotal		
TOTAL		

## EVALUATING YOUR COST OF RISK

For the Cost of Risk figures you have developed to have further relevance they must be placed in a context. Internally, what does your Cost of Risk look like compared to other operating expenses? Externally, how does your ratio compare with industry norms?

Studies of transit costs suggest that transit systems' insurance and safety costs average 4.74% of the system's operating costs.

### Worksheet 2 COST OF RISK RATIOS

To find how your figures compare to the average:

DIVIDE:

Total Cost of Risk for one year  
(from Worksheet 1)

\$ \_\_\_\_\_

BY

Total Operating Expense for the  
same year

\$ \_\_\_\_\_

COMPARE the resulting ratio  
to the industry average of 4.74%  
mentioned above.

\_\_\_\_\_ %

Another ratio of interest:

DIVIDE:

Total Cost of Risk for one year  
(from Worksheet 1)

\$ \_\_\_\_\_

BY

Total Passenger Revenue for one  
year

\$ \_\_\_\_\_

\_\_\_\_\_ %

This higher figure reflects the effect of operating subsidies.

Begin to track these two ratios as important performance measures.

## HOW MUCH LOSS CAN YOU AFFORD TO RETAIN?

Retention of loss varies considerably from system to system, and each system must make careful and thorough assessment of its financial situation before deciding on loss retentions. But a rule of thumb for what most transit systems can afford to absorb in losses is:

- .1% of the annual operating budget per loss occurrence.
- 1% of the annual operating budget for annual aggregate losses.

### Worksheet 3 EVALUATING DEDUCTIBLES

COMPARE:

Your Current Deductible per Occurrence      \$ \_\_\_\_\_

TO

.001 (.1%) of your Annual Operating Budget      \$ \_\_\_\_\_

These numbers, especially over a period of several years, should be close to identical. If not, it's time to see if your deductibles should be changed

COMPARE:

Your Annual Aggregate Deductible plus any other self insured amounts      \$ \_\_\_\_\_

TO

.01 (1%) of your Annual Operating Budget      \$ \_\_\_\_\_

The sum of your retained risk should roughly equal 1% of your operating budget. If not, consult the experts.

The "deductible per occurrence" is also known as a "straight deductible". For this type of deductible, a stated amount will be subtracted from each and every loss, no matter how large. For example, if a transit property has a \$5,000 per occurrence deductible and a hurricane hits the city doing \$45,000 of damage to transit property, that transit system will pay \$5,000. The

remainder of the loss will be paid by the insurer. Each and every loss under \$5,000 will be paid by the transit system.

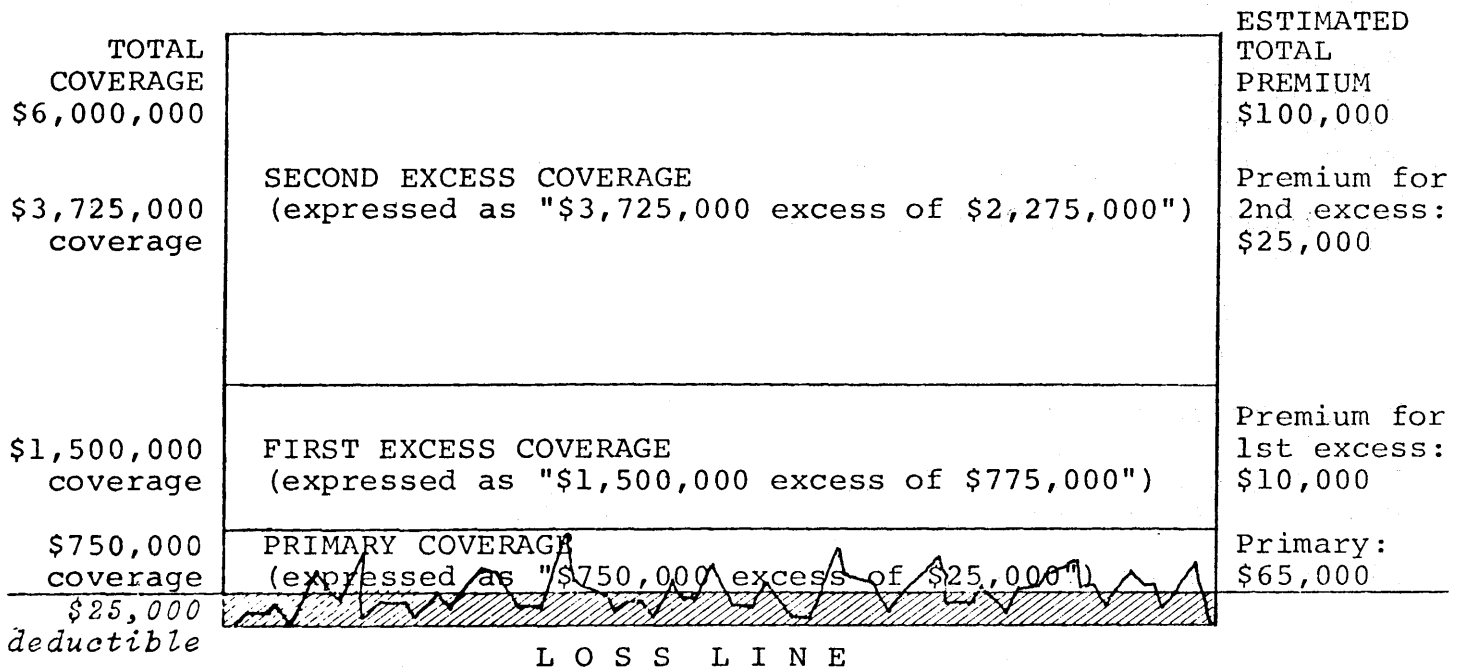
For the transit system that must live within a budget, the "annual aggregate deductible" is the desired form. No matter how many losses occur during a given year, the system's losses are limited to the agreed number of dollars. Back to our example, if the transit system has an annual aggregate deductible of \$50,000 and has ten, \$10,000 losses, after the fifth loss (the \$50,000 total), all subsequent losses will be paid in full with no deductible amounts. The deductible begins again the following year.

### UNDERSTANDING YOUR COVERAGE STRUCTURE

In order to evaluate your coverages and consider risk retention it is necessary to understand the insurance practice of "layering". Layering is a response to the need for different levels and types of insurance protection. It is formulated around the anticipated frequency and expected dollar amounts of claims.

To explain insurance layering, let's look at an example. This is the El Dorado Bus Company (name fictitious). It has 60 buses for which it purchases a total of \$6,000,000 in Auto Liability coverage. The structure of this coverage is illustrated in Figure 10 below.

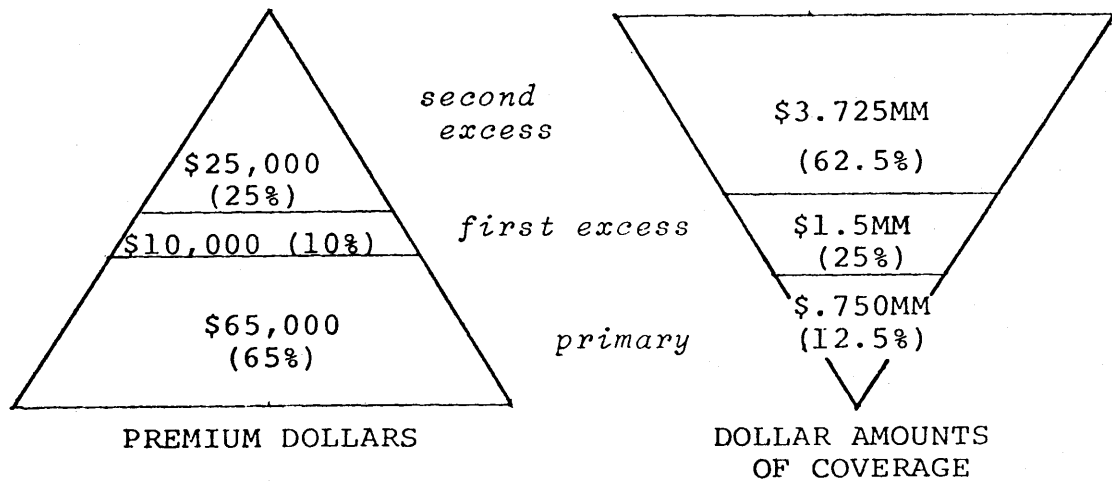
Figure 10 STRUCTURE OF AUTO LIABILITY COVERAGE: ElDorado Bus Co.





For a total of \$6,000,000 in insurance coverage, El Dorado pays \$100,000 in premium per year. Looking at the breakout of premium by layer of coverage, you can see that the greatest portion of premium (65%) goes for the primary layer of coverage, the smallest in dollar size (\$750,000) of coverage. The disproportion between premium dollars and dollar amounts of coverage is understandable when claims activity is considered.

Figure 11 REPRESENTATION OF PREMIUM VS. COVERAGE.



The primary layer of coverage will be absorbing the greatest number of claims (see the loss line on Figure 10). The insurer collects more premium for this layer of coverage because he will be paying out more in claims at this level.

The excess layer or layers cover the larger amounts for which it is prudent to insure--up to the outer limits that a single catastrophic event might incur. The odds of a loss at this level are slim, therefore premium tapers off at the higher levels.

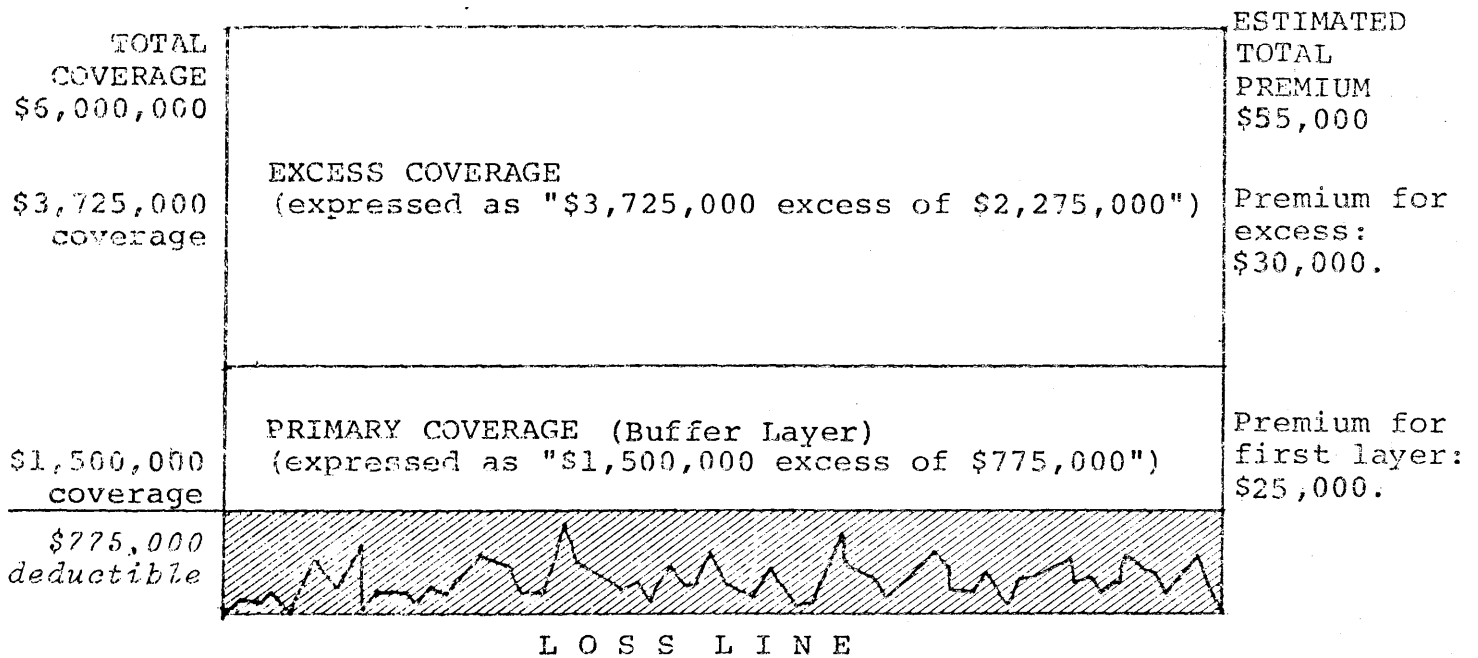
The areas to which transit properties should direct their attention in assessing coverage performance is the primary layer of coverage. The primary layer encompasses the major claims activity, the largest premium portion, and the area where positive loss control efforts will have the greatest impact in reducing losses.

### INCREASED RETENTIONS

When a transit system retains a larger share of its risk, the activity on insurance layers shifts. (See Figure 12).

El Dorado Bus Company decides to assume the risk formerly covered by the primary layer of insurance. Applying the same loss line,

Figure 12 STRUCTURE OF AUTO LIABILITY COVERAGE WITH INCREASED RETENTIONS; The El Dorado Bus Company



We can see that the bus company is now absorbing virtually all its losses.

What was formerly the First Excess becomes its Primary layer, the Second Excess becomes the Excess layer. However, in this instance, the primary insurance layer functions as an excess or buffer layer. If economic and social conditions remain stable, this layer will show low or no claims activity and will be priced at a lower rate than primary coverage closer to claims activity levels.

### WHAT IS YOUR LOSS RATIO?

An understanding of coverage layering is necessary in evaluating a loss ratio. You will want to examine the loss ratios of those layers of coverage which absorb the major portions of your claims. This will, in most cases, be the primary insurance layer, but in some instances, losses may show activity in excess layers, as well. Your insurance carrier should furnish you with a breakdown of premium dollars as they apply to the layers of coverage, plus losses under those layers.

A loss ratio is the comparison of the dollars of loss paid out in one year under a given policy to the dollars of premium for that policy for the year. (Formula: loss dollars divided by premium dollars and expressed as percent.) A transit property

which pays \$100 in premium for a specific policy and has \$60 in losses under that policy's coverage has a loss ratio of 60%.

Table 1, page 3, displays premium and loss amounts for six diverse transit properties. The loss ratios which these figures develop are displayed below.

Table 4 LOSS RATIOS OF PREMIUM TO LOSSES FROM TABLE 1

	71	72	73	74	75	Ratio from Totals
West	9%	79%	85%	19%	11%	37%
South	-	-	40%	.5%	2%	5%
Southeast	-	-	183%	43%	2%	45%
West Central	6%	31%	73%	38%	18%	28%
East Central	149%	0%	0%	0%	0%	14%
Northeast	0%	0%	0%	0%	0%	0%

The ratios fluctuate from year to year as insurers adjust premium amounts to balance losses of the individual transit property, adjust to loss pool experience and to market conditions.

(Keep in mind that the instances in Table 1 were chosen to illustrate premium to loss relationship. They are used again in Table 4 to demonstrate only how loss ratios are developed; the numbers are not to be considered typical.)

Worksheet 4 will assist you in developing your own loss ratios. The ratios, their patterns and trends can be valuable cues to action.

### WHAT THE LOSS RATIO WILL TELL YOU.

The loss ratio will give you an idea of your performance under the coverage, and the coverage's performance in your system in major policy areas. It should help you formulate questions to your broker; it can outline areas of possible risk assumption; it can suggest alternatives of coverage with which you can then bargain with insurers.

The following ranges are a rough guide to the message of your loss ratio:

<i>Policy Type</i>															
PRIMARY LAYER	WORKERS' COMPENSATION					AUTO LIABILITY					PROPERTY				
	Yr. 5	Yr. 4	Yr. 3	Yr. 2	Yr. 1	Yr. 5	Yr. 4	Yr. 3	Yr. 2	Yr. 1	Yr. 5	Yr. 4	Yr. 3	Yr. 2	Yr. 1
Deductible (\$000's)															
Losses under Deductible (\$000's)															
Premium Cost															
Claims under Policy PAID (not RESERVED including deductible)															
TOTAL CLAIMS INCURRED															
LOSS RATIO ( $\frac{\text{Total Claims Incurred}}{\text{Premium}}$ )															

Worksheet 4  
LOSS RATIO WORKSHEET

LOSS RATIO 60% TO 80% AND ABOVE: If this is a consistent pattern, your premiums have been steadily and significantly increasing. Loss ratios in this area for a single year predict sharp increases in premium for the following year. Stringent loss control measures are indicated if this ratio (and higher premium expenditures) are to be reversed.

LOSS RATIO 50% TO 60%: Your insurance is in balance with your system's loss patterns. There is opportunity for improvement, but your current condition is stable.

LOSS RATIO 50% AND LOWER: You may be able to assume greater portions of your risk. If the loss ratio is consistently below 50%, your system is demonstrating a proven ability to control its losses. This is an excellent profile to indicate greater risk retention.

LOSS RATIO FLUCTUATING FROM BELOW 50% TO 60% AND ABOVE: From a risk assumption standpoint, your system is marginal. The project now is to improve system performance and maintain a lower loss ratio.

## 4. TALKING WITH THE EXPERTS

In the preceding section you have established some tools to evaluate your system's current performance with regard to insurance. Through the worksheets you have evaluated your resources devoted to risk, your loss control performance, and formulated some intelligent questions on the structure of your coverages.

### CHOOSING A BROKER/AGENT

Choosing a broker or agent is one of the most important acts of your insurance involvement. You should have a high level of trust and confidence in the person or the individual within a firm that you choose. He or she is both your advisor and your representative to the insurance industry.

The broker should represent a competent brokerage operation, whether wholly owned or part of a larger network. Ask brokers with whom you are unfamiliar for references. Also, your state insurance department can tell you if there have been any complaints against the company.

Your choice of broker/agent should also attempt to match the kind of insurance markets available to him with those necessary for your risks. For instance, a large transit property will need a broker with international contacts.

### THE ROLE OF THE RISK MANAGEMENT CONSULTANT

A risk management consultant may be of two types: the consultant with insurance company or brokerage ties and the independent consultant. The latter is free of any connection to insurers or the placing of insurance. The independent's role is only to advise on the internal procedures of risk management.

It is not inconsistent to have both an independent risk management consultant for studies and periodic reviews and a broker; it is possible for the two to function in a complementary fashion.

An independent risk management consultant can be of great value to a transit property. In either a single evaluation or an on-going relationship, the consultant can give an objective, non-political report on your company's current status. He or she can provide the expertise to set up company functioning for risk management. The consultant's recommendations will be tailored to your firm's capacity and limitations, thus helping you use current resources to maximum advantage.

## WHAT YOUR BROKER OR AGENT CAN DO FOR YOU

Your broker/agent should keep you informed of your property's performance under the coverage placed. You should receive quarterly loss runs with commentary on trends and costs and the broker/agent's recommendations. If you are not currently receiving these quarterly coverage reports, ask for them; they are your due.

Renewals should be discussed six months (180 days) before expiration. Based on the preliminary information in your quarterly coverage reports and your company's current financial position, you and your broker should evaluate your in-force program and discuss new possibilities. Together you can identify viable alternatives for your system and establish negotiating points to be explored with the insurer. Allow 30 days for evaluation and discussion and 120 days for the marketing of coverages.

## WHAT YOU CAN DO FOR YOUR BROKER

The most important thing you can do for your broker is to tell him or her everything needed to do the job. To the private operator: don't clutch those financial statements and auditor's reports to your bosom. You have chosen a broker in whom you have confidence; now is the time to show it. Your broker is your representative in the insurance marketplace; he or she is selling your risk in a tough insurance market. Arming him with the best possible information will secure you the best possible agreements.

Periodic meetings between the broker/agent and the transit risk manager are essential to maintain a flow of information. Keep your broker/agent up-to-date on acquisitions which may affect your coverages. This will include such items as additions to the fleet, new property, leases, etc. But it is most important in the area of new contracts. Any new agreements may influence your contractual liability coverage. In fact, your broker can be a valuable resource for advice prior to the signing of new agreements or the restructuring of old ones on the most advantageous or practical means of limiting your liability.

Communication between the broker/agent and the insured is essential on all claims. But be sure to notify your broker of any claims which approach within 20% of deductible limits. Some transit properties have tried valuing major claims at or below deductible limits. This keeps the loss from showing to the insurer and therefore not affecting the premium rate. When the claim is settled, sometimes years later and at an amount exceeding the deductible, the company presents the bill to the insurer and expects payment. While this process may have some short term benefit to the transit property, the perpetrators risk having the insurance company refuse settlement.

Keep your broker or insurer informed on all activities of your loss control program. An effective loss control program with historically demonstrated results is a definite plus in negotiating with the underwriter. The institution of loss prevention systems like a safety program, a First Aid program, or property improvements such as a sprinkler system, may lower your risk quotient and thus your premium. We have mentioned informing your insurer of items which increase your exposure. Don't forget, it works the other way, too.

Finally, under certain circumstances it may be of positive advantage to your transit property to have a knowledgeable management person meet directly with the insurer. Your broker can arrange this.

The positive aspect of such a meeting is that a transit executive, fully equipped with all the facts and willing to state his case openly, may create a better impression with the underwriter than a third party usually can. The direct acquaintance can establish mutual confidence, a better negotiating atmosphere, and a better understanding of what is at risk.

The transit representative must respect and understand the underwriter's position. The outcome of negotiations between the transit risk and the underwriter must be mutually beneficial, and this should be a goal for both sides. If the transit representative is neither fully informed on his own system nor willing to negotiate in a manner respectful of the underwriter's position, the meeting will only create ripples in the insurance waters and should not be held.



## Appendix A

### LANDMARKS OF A LOSS CONTROL PROGRAM

For a loss control program to be effective, its influence should pervade the entire transit system. The following sections outline the areas, purpose, and nature of loss control activities. The level of detail at which this is carried out will depend on the size and complexity of the transit unit.

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1 Employee Hiring & Placement	A-3
2 Employee Training and Development	A-5
3 Work Rules and Practices	A-7
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5 Loss Control Management Program	A-9
6 Promoting the Loss Prevention Program	A-10
7 First Aid Program	A-12
8 Worker's Compensation Accident Investigation	A-13
9 Liability Accident Analysis	A-14
10 Worker's Compensation Accident Analysis	A-16
11 Liability Accident Analysis	A-17

## EMPLOYEE HIRING AND PLACEMENT

Good job performance is also safe job performance. This should be recognized from the outset and figure into hiring and placement procedures.

- ⇒ Determine the qualifications for every job:
  - the results for which the employee is responsible;
  - the relationships required. To whom he or she reports; with whom cooperation, coordination or communication is required, etc.
  - the requirements of the job. This may include any licenses or approvals, abilities to operate equipment, abilities to lift certain weights, a level of experience in certain types of work, etc.
  - the responsibilities that go with the job. This includes authority, care and custody matters, and the like.
  - the measurements. How is successful performance gauged?
- ⇒ Maintain a written description for each job. The personnel department and the physician who does the pre-employment physical should both have copies.
- ⇒ Hiring procedures:
  - Use application forms to obtain all pertinent data about the individual and his or her former employment. Comply with EEO rules.
  - Conduct one or more pre-employment interviews to review the job qualifications and discuss the job application. It's no good for either the system or the employee if a person is mismatched to a job.
  - Administer or require appropriate tests, licenses or certification. If there are delays, be certain there is full followup on these.
  - Require pre-employment physical for every employee. The physician should know the job requirements, the applicant's previous work history, and any governing statutes for physical examinations or qualifications.
  - Check with previous employers for references before hiring or during probationary period. Check motor Vehicle record.

⇒ Followup:

- Maintain a personnel file on each employee. Keep it current on all pertinent information about the individual including: current applicable regulations, licenses, accident history, references, medical exams, etc.
- Conduct periodic medical examinations of all employees as required by exposures and government regulations. Frequency and extent of examinations is determined by the type of work.

## EMPLOYEE TRAINING AND DEVELOPMENT

Safety is a skill. It should be taught along with other job skills. Safety should be communicated as one of the measures of good job performance.

- ⇒ Conduct pre-placement instruction in
  - company safety policy
  - employee safety responsibility
  - general system rules
  - company organization and history
  - reporting requirements
  - what to do if ill or injured on the job
- ⇒ Conduct pre-job safety instruction for all employees new to any department or work group and for each task or job performed. This should be done by the supervisor or key person in the department. Instruction should include telling, demonstrating, testing and checking.
- ⇒ Review performance of new or reassigned employees at least once in the initial 30 day period. This should include:
  - Observation of employee in work situation.
  - Interview with employee to determine his or her understanding of information presented during job instruction and ability to use it.
- ⇒ Provide skill training on all jobs with high loss potential; that is, those in which accident is likely to produce loss of life or body part or extensive loss of structural equipment or materials. Instruction should include:
  - Classroom and skill practice.
  - Text or training materials for each type of skill training provided,
  - Tests of knowledge and skill.

Provide advanced job instruction for jobs on which there is a high accident frequency, even if the accidents tend to be minor.
- ⇒ Conduct annual performance reviews of all employees in high loss potential jobs. Evaluate each person according to:
  - accidents
  - level of work proficiency

- violations of company rules
- violations of government regulations
- general attitude
- cooperation with other employees or riders

⇒ Keep a written verification of the results of initial training, on-job training, and each annual review in the individual employee personnel file.

## WORK RULES AND PRACTICES

Work safety rules, as well as enforcement policy and procedures, should be clearly worded written documents. They should be made available to employees as the situation applies. Such documentation communicates a consistency of practice and seriousness of intent.

- ⇒ Establish complete and current general work safety rules which are in accordance with prevailing company and governmental regulations.

These safety rules should be issued to all new and re-assigned employees. (A signed slip should be placed in the personnel file to indicate that rules have been read and understood by the employee.)

- ⇒ Special job safety rules should be established for jobs with danger of severe injury or loss of life, or loss of significant property or material.

Special job safety rules should be issued to new or re-assigned employees, explained, and signed for, as above.

- ⇒ Enforcement policy and procedure for safety rules should be clear to all

- It should include a written statement signed by top management.
- The procedure may also be part of a union contract or owner-operator lease agreement.

- ⇒ Review safety rules and their enforcement policy with all employees at least annually. (This should be a well-planned event.)

- ⇒ Signs and labels should be used in the work environment to provide necessary instructions or warnings.

LOSS  
CONTROL  
4

## OPERATIONS AND MAINTENANCE

Safety in transit maintenance and operations is a bread and butter issue. Most maintenance and operations procedures are already strongly safety oriented. It remains to upgrade or formalize procedures where needed and to extend loss control to areas not previously covered.

### FLEET INSPECTION

- ⇒ Operators perform pre- and post-trip or shift inspections of vehicle, using checklists provided.

The operational inspection report (of which the checklist is a part) should include a description of each deficiency or hazard found.

Describe corrective action taken (this usually is done by a mechanic, supervisor or maintenance person) for deficiencies or hazards noted.

- ⇒ Conduct a formal inspection and review of vehicles using hazard checklist at least every other month. All vehicles need not be covered at any one inspection.

This formal inspection and review should involve loss prevention specialists and departmental supervisors.

Hazards discovered at this inspection should be noted according to a hazard classification system (the degree of severity potential of each hazard, rated as high, medium, or low).

Describe corrective action to be taken on each hazard.

Loss prevention management personnel should review the corrective actions taken on high and medium severity potential hazards two weeks later.

- ⇒ Special inspections are necessary to inspect for defects not obvious with other inspection techniques. Inspection of some parts may require dismantling, placing the vehicle on a rack, or use of other techniques.

- ⇒ Results of these evaluations should be reported to executive management quarterly.

### BUILDING, EQUIPMENT AND MATERIALS INSPECTION

- ⇒ Building, equipment and materials should be subject to a similar program of inspections, hazard classification, and followup on corrective action.

## LOSS CONTROL MANAGEMENT PROGRAM

The success of a Loss Control Program depends on the support of transit management. Loss Control as a management objective should be communicated throughout the system, and be visibly supported by management policy and action, and in company communication media.

- ⇒ The loss control policy should be a written document, clearly worded and signed by the chief operating executive. It should be issued to each current and new employee.
- ⇒ Assign the responsibility to coordinate the loss control program to named persons. Allocate sufficient time for loss control coordination to be done well.
- ⇒ Delegate loss control authority, responsibility and accountability to members of management concerned with the various loss control activities.
- ⇒ Establish written loss control program procedures and distribute them to all members of management.
  - Establish standards to measure the degree of success in meeting loss control objectives.
  - Establish written objectives of the loss control activities in executive annual results plans.
  - Include loss prevention among the items regularly measured as indications of system management effectiveness.
  - Place loss control on the agenda of some of the scheduled meetings of line management.
- ⇒ To keep the policy alive and well, refer to it periodically in company directives and publications.
- ⇒ Key executives should indicate their involvement in and support of, the loss control program. The best way to do this is by personal example. Have loss prevention inspections conducted occasionally by key executives. Executives should attend or conduct at least one regularly scheduled safety meeting a year.



## PROMOTING THE LOSS PREVENTION PROGRAM

Use internal company media to communicate and revitalize safety/loss control concerns. Meetings or education sessions should be short, well-planned, and to the point.

### THE SAFETY MEETING

- ⇒ Safety meetings should be conducted with sufficient frequency to keep safety concerns fresh in employees' minds. The closer people are to potential loss situations, the more frequently they need safety orientation.
    - Office personnel might have safety meetings quarterly. Drivers and maintenance personnel safety meetings might meet weekly.
    - The best time for safety meetings is the beginning of the week, at the beginning of the day.
  - ⇒ Meetings should be planned in advance so that they are purposeful and well-conducted.
    - Good meetings are short and informative.
    - There should be a presentation of five to ten minutes, with a similar portion of time allowed for discussion.
    - Meetings can introduce new programs provide limited training and instruction, or review program results.
  - ⇒ Time, subject and attendance at meetings should be recorded.
  - ⇒ Management should indicate an interest in the loss prevention program by periodically attending or conducting safety meetings.
- 
- ⇒ New loss prevention activities which require full employee cooperation may be difficult to inaugurate. They need a carefully developed approach:
    - Inauguration should include written endorsement by key executives.
    - Promotion of the new activities should be planned in advance, with a timetable established for each promotional event.
    - Employees should be instructed in the new loss prevention activities or tasks.

- ⇒ Company accident data should be displayed prominently. Include employee workdays, accident frequency and severity frequency and severity of vehicle accidents, number of days without serious injury or loss, and comparisons of this year or month with the last.
  - Develop selected programs or themes for particular emphasis. These may be seasonal or related to a particular hazard.
  - Use existing bulletin boards or establish new ones. Place them in areas where employees frequently travel or gather: cafeteria, time clock, etc.
  - Change contents of the boards at least every month. Don't allow boards to become cluttered and out of date. Use topical material, related to transit industry concerns.
- ⇒ Safety tips can be included in pay envelopes and other information that employees receive. Loss prevention news should form part of company newsletters.
- ⇒ Be sure of your commitment to a safety incentive program; once begun these are difficult to discontinue. If you decide on an incentive or award program, or have one already instituted, review to be certain that the measurement base is equitable for all participants.

## FIRST AID PROGRAM

Part of a loss control program is being prepared to deal expeditiously with the accidents which do occur.

- ⇒ For the company's general medical needs a consulting physician should be retained. He or she should help formulate the medical program, advise on First Aid practices and be available for consultation on employee diagnosis and treatment.
- ⇒ First Aid facilities and supplies should be adequate in accordance with consulting physician's recommendations and state and federal governmental standards. Procedures for use of these First Aid facilities should be distributed to all employees and posted on Safety Bulletin Boards.
- ⇒ A fully qualified First Aid attendant should be available on all shifts. All interested supervisors should have advanced First Aid training. First Aid refresher courses should be made available to trained personnel as needed.
- ⇒ Forms or logs of First Aid actions should be simple and brief. Completion is the responsibility of First Aid attendant. Logs will be used later for accident investigations.
- ⇒ Establish procedures for serious accidents which require treatment by a physician. Include:
  - Transportation arrangements, for all shifts;
  - Medical treatment facilities, for all shifts.

## WORKER'S COMPENSATION ACCIDENT INVESTIGATION

While accident reports are required by state and federal agencies and insurers, the data collected provide important guidelines for and documentation of internal followup. Current hazards and exposure to future loss must be eliminated. It is important to note that the small mishap of today, left unexamined and uncorrected, may be tomorrow's major loss.

- ⇒ Investigate all recordable injuries, illnesses, and property damage losses. (OSHA and other agencies, State and Federal, specify what is a recordable incident.)
- ⇒ Use an accident investigation form for all investigations. The form should include:
  - A clear description of how the accident occurred.
  - The apparent cause.
  - The loss severity and frequency profile.
  - Description of remedial action taken, or that will be taken.
- ⇒ Keep records of accidents in accordance with OSHA, Federal and State laws. Report accidents to the governmental agencies who so require. Retain investigation reports for at least five years. The system should keep reports well-organized and readily available.
- ⇒ Distribute announcements of all major injuries, illnesses and property damage losses quickly to executive management.

Announcements may be posted on bulletin boards for internal information.
- ⇒ For accidents resulting in injury or illness causing lost workdays, death or major property loss, a management level individual should review each report for the corrective action taken. Other reports should be reviewed on a random sampling basis.

Establish a review board of one or more members of executive management and other management personnel.

  - To review each major accident;
  - To determine that real causes have been properly identified.
  - To determine that remedial action is satisfactory.

## LIABILITY ACCIDENT INVESTIGATION

Liability claims can be among the most costly a transit system must deal with. A timely, thorough, well-documented investigation can be an important factor in equitable claim settlement.

- ⇒ Investigate all incidents which include any public injury or illness.
- ⇒ Use an accident investigation form for all investigations. The form should include:
  - A clear description of how the accident occurred.
  - The apparent cause.
  - The estimated loss severity and frequency.
  - Description of remedial action taken, or that will be taken.
- ⇒ The Investigation:
  - Make sure all necessary emergency steps have been taken to prevent further injury, illness or property damage.
  - Investigate the scene of the accident as promptly as possible.
    - When practical, have the accident site kept undisturbed.
    - If this is not possible, have someone get photographs, make drawings, or take measurements.
  - Interview all witnesses one at a time and separately.
    - Reassure each witness of the investigation's real purpose.
    - Get a step-by-step initial version from the witness with minimal interruption.
    - Apply empathy: make no attempt to fix blame or find fault.
    - Be objective: indicate no fixed opinion.
    - Avoid leading questions.
    - Summarize your understandings before the witness.
    - Express sincere appreciation to anyone who helps in the investigation.

Record information accurately and in detail. Note possible appropriate actions.

- ⇒ Make a Major Incident Announcement within 48 hours for any public injuries, or for any incident involving \$500 or more of property damage. Distribute to the General Manager, department heads and the Risk Manager.
- ⇒ Review the Loss Control/Safety Program and institute or improve measures to remedy causal factors found in the accident investigation. Also,
  - Give personal reinstruction to employees involved in the incident. Temporary or permanent reassignment may be indicated.
  - Repair or replace faulty equipment.
  - Install or modify safeguards.
- ⇒ Establish a Management Review Board to review the accident for the accuracy of the description, the analysis of cause, and the corrective action taken, or to be completed (with completion dates).

## WORKER'S COMPENSATION ACCIDENT ANALYSIS

Accident analysis will develop information on the patterns, causes and cost of accidents. This information will guide loss control activities and help formulate loss control goals and policy.

- ⇒ Classify the recordable accident for its:
  - hazardous condition(s)
  - unsafe act(s)
  - nature of injury
  - accident type.

Consult American National Standard ANSI Z16.2 for information on categories or classifications. Accident information should be formulated according to OSHA rate requirements. ANSI formulations may be used for internal records, if desired. Results should be compared to prior periods.
- ⇒ Identify those accident causes which produce a significant portion of the accidents. This analysis is dependent on good and thorough accident investigation. Separate analyses into different operations exposures, e.g., passenger service, maintenance, materials storage, etc.
- ⇒ Analysis should be done quarterly for the preceding 12 month period. Results of the analyses should be reported to management.
- ⇒ Establish a cost system to be used by all departments to determine direct costs of each accident and an accident summary of all accident costs for the quarter.
- ⇒ Non-recordable accidents should also be analyzed as in items 1 to 7 above. The information needed will be contained in reports of non-recordable accident investigations.

## LIABILITY ACCIDENT ANALYSIS CONTROL

Accident analysis will develop information on the patterns, causes and cost of accidents. This information will guide loss control activities and help formulate loss control goals and policy.

### ➡ Develop accident classifications:

- by vehicle type, if a mixed mode system;
- by accident type, for example:

#### Collision:

of system-owned vehicles  
with other vehicle(s)  
with person  
with fixed object.

#### Type of collision:

head-on  
rear-end  
side swipe  
right angle

#### Passenger accident:

station accident, if rail  
falls in bus  
alighting or boarding  
disputes  
miscellaneous.

- Breakdown categories to indicate the vehicle part, equipment function or physical activity involved in the event. For example:

#### Passenger Alighting or Boarding:

- Alighting - caught/struck by doors;
- Alighting - thrown by movement of bus;
- Alighting - trip, stumble, etc., from standing bus;
- Boarding - caught/struck by doors;
- Boarding - thrown by movement of bus;
- Boarding - trip, stumble, etc., bus standing;
- Miscellaneous other and indeterminate.



⇒ Gather information on:

- Weather, road, and lighting conditions; time of day.
- Profile of third party involved; passenger, driver(s) of other vehicle(s), pedestrian(s) for information relevant to accident understanding, e.g., age, physical impairments, etc.
- Profile of driver: hours into shift, seniority, performance record.

Data may be computerized for sorting and analysis procedures.

⇒ Collate data on a monthly, quarterly and/or yearly basis.

Analyze for patterns and trends.

⇒ Coordinate with relevant departments and management for action plans.

## Appendix B

### PROPERTY RISK IDENTIFICATION CHECKLIST

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- A. Buildings owned
  - 1. Nature, use and location.
  - 2. Value, replacement and actual cash value.
  - 3. Rental value of space used.
  - 4. Income from space rented to others.
  - 5. Laws and ordinances for demolition.  
and for replacement standards.
  
- B. Buildings rented from others
  - 1. Nature, use and location.
  - 2. Value of improvements and betterments made by tenant.
  - 3. Total rent paid by tenant.
  - 4. Rental income derived from subletting space to others.
  - 5. Value of the lease (is the lease favorable?)
  - 6. Type of insurance clauses and hold.  
harmless agreements in the lease.
  
- C. All buildings and other real property
  - 1. Alterations & additions now or planned.
  - 2. Boilers in operation.
  - 3. Power machinery in operation (switchboards, motors,  
engines, generators, etc.).
  - 4. Off-site radio installations.
  - 5. Temperature or humidity controls.
  - 6. Electric or neon signs.
  - 7. Plate or ornamental glass.
  - 8. Elevators and escalators.
  - 9. Fire and other protection (sprinklers, alarms, watchmen).
  
- D. Furniture and fixtures (each location)
  - 1. Those permanently attached to the building.
  - 2. Unattached furniture, fixtures, machinery, office equipment.
  - 3. Supplies and prepaid expense items.
  - 4. Repair parts.
  
- E. Personal property belonging to others
  
- F. Personal property in the custody of others (subcontractors)
  
- G. Coins and currency (maximum amounts)
  - 1. Payroll cash (when).
  - 2. Other cash.
  - 3. Cash in custody of each bank messenger.
  - 4. Cash in custody of each truck driver or collector.
  - 5. Cash kept in safes overnight.
  - 6. Liability limit of armored car carrier.

- H. Incoming checks (maximum amounts)
  - 1. On premises.
  - 2. In safes overnight.
  - 3. In custody of each bank messenger.
  - 4. In custody of each truck driver or collector.
- I. Bank accounts (locations, amounts, uses)
- J. Securities (maximum amounts)
  - 1. In safes.
  - 2. In custody of each bank messenger.
  - 3. In safe deposit vaults.
  - 4. At other locations (specify).
- K. Valuable papers, documents, records
  - 1. Kind, location and value.
  - 2. Protection afforded.
- L. Accounts receivable
  - 1. Maximum and minimum values.
  - 2. Where account records are kept.
  - 3. How protected.
- M. Automobiles, buses, rail cars
  - 1. Ownership and value.
  - 2. Concentration in one place at time.

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Source: Staff developed. Based in part on Risk and Insurance checklists published in Governmental Finance, May 1977, P. 29, published by the Municipal Finance Officers Association, Chicago, IL.

## Appendix C

### OPERATIONS RISK IDENTIFICATION CHECKLIST

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- A. "Time element" exposures
  - 1. Payroll: key persons; "ordinary" payroll.
  - 2. Cost of fuel and tires.
  - 3. Cost of heat, light, and power.
  - 4. Trend of revenue for current year; estimate for next year.
  - 5. Maximum time required to replace facilities or equipment subject to damage.
  - 6. Percentage of revenue that would be affected by a business interruption loss.
  - 7. The availability and probable cost of substitute facilities or equipment to reduce loss of revenue in case of damage to present facilities.
  - 8. Extra expense to maintain operations following loss.
  - 9. Percentage of revenue affected by a stoppage at each such plant or location, assuming damage at only one location.
  - 10. Extent to which operations are dependent on outside sources of heat, light, or power.
- B. Service for employees
  - 1. Operation of an infirmary, or first-aid station.
  - 2. Operation of a restaurant for employees.
  - 3. Sponsorship of employee athletic teams.
- C. Operation of a medical facility or other service in which a malpractice hazard exists.
- D. Work let out under contract.
- E. Advertising signs, ticket booths, etc., owned or operated away from the premises.
- F. Liability assumed under contract
  - 1. Sidetrack agreements.
  - 2. Leases.
  - 3. Hold harmless agreements.
  - 4. Purchase orders.
  - 5. Elevator or escalator maintenance agreements.
  - 6. Easements.
  - 7. Service agreements (for or by the entity).
  - 8. Other contracts.
  - 9. Warranties.
- G. Shipments (values shipped annually and the maximum value of any one shipment, both incoming and outgoing).
  - 1. Truckmen.
  - 2. Rail, railway express, air.
  - 3. Parcel post or mail.
  - 4. Other.

H. Employees.

1. Estimated annual payroll.
2. Employees required to use or travel in aircraft.
3. Classification of employees according to duties.
4. Key individuals (individuals whose loss might seriously affect operations).
5. Directors and officers liability coverage.

I. Principal property hazards (probable maximum loss).

1. Fire and allied lines.
2. Earthquake.
3. Flood.
4. Other.

J. Data processing machines.

1. Owned or leased.
2. Protection.
3. Lease to others?
4. Disaster plan.
5. Analysis of extra expense costs.

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Source: Staff developed. Based in part on Risk and Insurance checklists published in Governmental Finance, May 1977, P. 29, published by the municipal Finance Officers Association, Chicago, IL.

## Appendix D

### GLOSSARY

accident - an unforeseen, unintended event, caused by an unsafe act, an unsafe condition, or a combination of the two.

accident frequency - rate of occurrence of accidents; e.g., the number of accidents per million hours worked.

accident severity - a measurement of the seriousness of the results of accidents; e.g., days lost per one thousand hours worked.

actual dash value - usually means the sum of money required at the time of a loss to replace the property destroyed, less depreciation for previous use.

allocated claim adjustment expenses - all expenses of an insurance company which can be separated as due to a particular claim and therefore allocated to that claim. The expenses included under this definition are:

1. expenses of company employees, other than salary and traveling expenses.
2. investigators, attorneys, adjusters fees and expenses (note: some definitions exclude fees paid to independent adjusters or attorneys for adjusting claims.).
3. medical expense for expert testimony, examination, etc. incurred for the benefit of the company and not as treatment for the injured.
4. other expert services, such as repair estimating, incurred by the company in determining its liability or effecting settlement.
5. court costs, witnesses and summonses, copies of documents.
6. stenographic services.
7. any other expense not classified as "Loss Paid."

Note: Some definitions exclude "overhead" expense.

annual aggregate deductible - a yearly accumulating dollar amount below which the insured must pay. When the limit is fulfilled, the liability becomes the insurer's.

If, for example, a transit property had a \$50,000 annual aggregate deductible and incurs twelve \$10,000 losses in

one year, the transit property would pay the first \$50,000, the insurance company all amounts above that. This form of deductible limits the amount of loss the company must stand.

business interruption insurance - insurance against loss of anticipated net profits and of necessarily continuing expenses (to the extent that such profits and expenses would have been earned had no interruption occurred) caused by interruption of business activity by a peril insured against.

casualty insurance - a class of insurance made up of a variety of subclasses, principally concerned with insurance against loss due to legal liability to third persons, but comprising several unrelated lines.

catastrophe - an event which causes a loss of extraordinarily large amount.

carrier - (in insurance terminology) the insurance company which assumes the risk in accordance with the terms of the insuring agreement.

claim - a demand for something due or believed to be due, as an insurance claim.

- a demand by an individual or corporation to recover under a policy of insurance for loss which may come within that policy. A demand by an individual against an insured for damages covered by a policy held by the insured; such claims are referred to the insurance company for handling on behalf of the insured in accordance with the contract terms.

- the estimated or actual amount of a loss.

claimant - individual asserting a right or presenting a claim for a suffered loss. One who makes or presents a claim.

claim reserve - an amount of money set aside by an insurance company to cover projected costs of a claim in, or subject to, litigation.

claims agent - individual authorized by an insuring underwriter to pay a loss or losses.

coverage - the extent of the insurance afforded under an insurance contract. Often used to mean insurance or insurance contract.

cost-plus insurance - a method of developing insurance premiums in which the standard premium is adjusted in direct relation to losses reported under the policy. See retrospective rating and retention.

cross liability - the interaction of insurance companies to determine responsibility between or among claimants in a suit.

deductible - a stipulated amount of possible loss in the insuring agreement to be assumed by the insured.

deductible per occurrence (same as "straight deductible") - a stated dollar amount of loss which for each occurrence will be borne by the insured.

employer's liability insurance - protects an employer against the claims for damages which arise out of the injuries to employees in the course of their work. A worker's compensation policy insures the employer against liability under state compensation laws. Employer's liability insurance provides protection in cases not covered by the compensation law.

excess insurance - insurance provided to achieve a level of coverage not afforded by primary form; insurance covering after the loss exceeds the coverage of other insurance; coverage beyond the limits of the primary policy (ies).

experience rating - determination of the premium rate for an individual risk partially or wholly on the basis of the risk's own experience. Applies to Workers' Compensation and Liability Insurance.

exposure - the state of being exposed to the chance of loss; the degree or condition of what is at risk.

full coverage - insurance against the full amount of any loss up to the amount of the insurance, without deduction.

guaranteed cost insurance - insurance coverage wherein premiums are established at the outset of the policy negotiation based on actuarial data, and do not vary during the policy term.

hazard - a condition or situation that causes or increases chance of loss, or that may influence the extent of a loss.

hold-harmless agreement - a contract under which legal liability of one party for damages is assumed by the other party to the contract. An agreement to release another from legal responsibility (when that other party, for legal reasons, might be considered liable) for loss or damage caused by one's own acts or negligence.

incident - an action or occurrence likely to have future ramifications or consequences (especially in the area of damages or liability).



incurred losses - dollar amounts paid out in claims plus dollar amounts held in reserve by the insurance company on any given policy.

indemnification - the repayment or compensation in money or kind for a sustained loss.

indemnity - security against hurt, loss or damage. Replacement, repair, or payment of value of a loss.

insurance - a contract whereby one party undertakes to guarantee another against loss by a contingent event.

insurance broker - an insurance broker ordinarily is a solicitor of insurance who does not represent insurance companies in a capacity as agent but places orders for coverage with companies designated by the insured or with companies of his own choosing. Broker is frequently incorrectly used to designate an agent of more than one insurance company.

insurance market - the group of insurance companies considered markets for the placement of insurance risks.

insurance marketing - the process of placing the coverages of a particular insurance package with suitable carriers.

insurance production - the generation of customers and premiums for the insurance company: what would be considered the sales aspect of other businesses.

liability - the state of being bound or obliged in law or equity; a responsibility. Exposure to a certain contingency of an undesired character.

liability - an obligation, usually financial; the probable cost of meeting an obligation.

liability, contingent - liability for damages arising out of the acts or omissions of others, not employees nor agents.

liability, contractual - an obligation assumed by contract to pay damages for which another is legally liable. See Hold-Harmless Agreement.

liability, legal - an obligation enforceable at law.

liability, insurance - insurance against loss due to liability; covers both damages and expenses connected with alleged or actual liability.

liability insurance, bodily injury - insurance against loss due to claims for damages because of bodily injury (including death) to persons not employees.

liability insurance, comprehensive general - insurance against loss due to all claims against the insured for damages arising from his business promises or operations (except those arising from motor vehicles away from the premises and other stated exclusions).

liability insurance, contractual - insurance against loss under a contractual liability agreement.

liability insurance, employers - insurance against loss due to claims for damages by employees for bodily injuries (including death); excludes liability under workmen's compensation laws.

liability insurance, property damage - insurance against loss due to claims for damages because of injury to others' property.

liability insurance, protective - insurance against loss due to claims for damages due to contingent liability.

limit, aggregate - the maximum amount of damages that the insurer will pay under a contract, or section of a contract, during the contract period.

limit, basic - the limit of liability for which the basic rate on a liability insurance contract is quoted. For example, in bodily injury liability insurance, \$10,000 in respect of one person, and \$20,000 in respect of one accident or occurrence; in property damage liability insurance, \$5,000 in respect of one accident or occurrence.

limit, excess - a limit higher than the basic limit.

limit of liability - the maximum amount of damages that the carrier will pay on behalf of the insured; elsewhere the maximum amount payable in case of a loss.

line - a kind of insurance; the maximum amount of loss on a particular sort of risk to which an insurer will expose itself; an amount of insurance.

loss - the basis for a claim for indemnity or damages under the terms of an insurance policy. Any unintentional diminution of quantity, quality, or value of property. With reference to policies of indemnity, this term means a valid claim for recovery thereunder. In its application to liability policies, the term refers to payments made on behalf of the insured.

loss control - revising and organizing the patterns of preventive, productive, and administrative activities to minimize loss.

loss conversion factor - a percentage added to incurred losses to cover general claim investigation and adjustment expenses.

loss experience - dollar amounts of loss incurred during policy period.

loss ratio - the percentage of losses to premiums. The proportion which losses incurred bear to the earned premiums.

loss reserve - that portion of the assets of an insurance company kept in a readily available form to meet probable claims provided for the payment of losses which have been incurred but not yet due.

losses paid - the amount of loss for which money has been disbursed by the insurer.

losses incurred - total losses, whether paid or unpaid, sustained by an insurance company under a policy or policies.

manual rate - refers to the cost of a unit of insurance protection as quoted in the rating manual; or, those rates developed by the application of a recognized rating plan. A manual rate is developed for specific classes which are believed to have similar types of risk. For each such class, rates are developed which reflect actuarially adjusted loss experience in that class.

manuscript policy - an insurance policy custom written to cover the special needs of an insuring situation.

maximum foreseeable loss - the greatest conceivable loss assuming the failure of all preventive mechanisms.

non-admitted insurer - an insurer not licensed and thereby recognized by some insurance department of a state or country.

non-insurance - having no contractual, agreement for the coverage of accidental losses. Differs from self-insurance in that with non-insurance there is no internal funding for possible losses.

partial loss - a loss of less than the entire value of property. A loss to the insurer of less than the face amount of the contract.

policy dividend - a distribution to a policy holder of a portion of the premium not utilized by the insurance company in the payment of claims or the meeting of expenses.

premium - the sum paid for a policy of insurance.

premium earned - the amount of the premium which has been paid for in advance that has been "earned" by virtue of the fact that time has passed without claim. A three-year policy that has been paid in advance and is one year old would have only partly earned the premium.

premium, estimated - a provisional premium subject to final adjustment on ascertainment of the necessary facts.

premium, minimum - the lowest consideration for which an insurer will insure a risk for a specified period.

premium, pure - the portion of the premium rate calculated to enable the insurer to pay losses and, in some cases, allocated claim expenses.

premium, unearned - that part of the premium applicable to the unexpired part of the policy period. See also Premium, earned.

premiums written - the entire amount of premium on policy contracts written by an insurer.

premium rate - the price per unit of insurance.

primary insurance layer - the insurance coverage which first applies in a given situation, judged by policy dollar amounts. Excess insurance covers amounts above this primary level.

probable maximum loss - PML - the worst loss to be expected under "average" conditions assuming that most if not all control mechanisms and procedures operate effectively.

proof of loss - a formal statement of a claim for payment of a loss made by an insured to an insurance company.

protection - term used interchangeably with the word "coverage" to denote the insurance provided under the terms of a policy.

rating, retrospective - a method of rating that adjusts the final premium of risk in accordance with the experience of that risk during the term of the policy for which the premium is paid.

rating, schedule - making or modifying the premium rate for an individual risk on the basis of the physical conditions which affect the probability of loss.

rating bureau - an organization that classifies risks and promulgates rates, usually on the basis of statistical data compiled by the Bureau or of inspection of risks made by it; these rates are used by members.

reinsurance - an agreement between two or more insurance companies by which the risk of loss is proportioned. Thus the risk of loss is spread and a disproportionately large loss under a single policy does not fall on one insurance company. Reinsurance is the acceptance by an insurer of all or part of the risk of loss of another insurer. The former is then called the "reinsurer." An insurance company issuing an automobile liability policy with a \$100,000 limit per accident may reinsure its liability over the first \$10,000. Reinsurance is accomplished through treaty agreements between insurers. See below for types of treaties.

reinsurance treaty, automatic - an agreement between an insurer and a reinsurer in which the reinsurer automatically (that is, without review) assumes a pre-established portion of the liability of all policies the insurer writes which meet the terms of the reinsurance treaty.

reinsurance treaty, facultative - an agreement between an insurer and a reinsurer in which the risks are submitted to the reinsurer for his acceptance or rejection. If the risk is accepted, it is reinsured in accordance with the terms of the treaty.

reserve - funds of an insurance company or self insurance for the purpose of meeting obligations as they fall due. A liability set up by an insurer for a particular purpose.

retention, self insured (SIR) - The insured assumes a reasonable limit of losses and pays the insurance company a percentage above losses for administration of the policy.

retention - a form of cost-plus pricing of insurance which amounts to self-insurance. The insured assumes all losses and pays the insurance company a percentage above losses for administration of the policy.

risk - a person or thing insured. Uncertainty as to the outcome of an event when two or more possibilities exist.

risk assumption - the knowledgeable willingness to take upon oneself the financial implications of having a loss.

risk management - the process of planning, organizing, directing, and controlling the resources and activities of an organization to minimize the adverse effect of accidental losses on that organization and keep those losses to the least possible cost.

safety - is a system characteristic having to do with the system's ability to prevent or minimize occurrence of property damage and/or injuries or fatalities to people

who are interacting with the system in some manner - passengers, public, employees, or bystanders.\*

safety group - a grouping of homogeneous risks, coupled with the application of loss control, with the intention of developing premium dividends.

self-insurance - the insuring of oneself by the establishment of cash reserves. High deductibles form a kind of self-insurance.

straight deductible - a stated dollar amount of loss which for each occurrence will be borne by the insured.

Example: A transit company has a straight deductible of \$5,000. It would pay up to the first five thousand of any and all claims. The number of times it can pay up to \$5,000 is limited only by the number of claims themselves. For contrast, see annual aggregate deductible.

subrogation - the right of an insurance company to recover from a third party the amount paid under the policy.

Example: Builder A is constructing a portion of subway. His insurance includes coverage for Builder's Risk. A high-rise apartment building is being constructed adjacent to the subway site. Builder B on the apartment project drives a piling through the subway tunnel wall. Builder A's insurer covers A's damages. In turn, through the subrogation process, Builder A's insurer may institute action against Builder B to recover damages to Builder A.

surplus lines insurance - insurance normally subject to state regulation as to rate and form, written by a non-admitted insurer in accordance with the surplus line laws of the relevant state.

system safety - is based on precepts of risk management, life-cycle applicability, and organizational effectiveness.

Risk management, in this context, involves identifying the hazards and assessing the risk in a system and then making decisions based on established safety performance goals and on cost-benefit considerations as to controlling the hazards or accepting the risks involved.

Life-cycle applicability means that system safety programs are to be applied to the entire system throughout its life cycle - not simply to a limited portion of the system believed to be safety sensitive because of previous accident experience.

\*From Safety in Urban Mass Transportation, Batelle Labs, USDOT, Washington, DC, 1976.

Organizational effectiveness recognizes that system safety, as a management approach, requires safety engineering techniques to be integrated in an organizational form with authority/responsibility alignments dedicated to producing data to support effective decision making concerning safety issues.\*

third party - a person other than the principals (in this case first and second parties are the insurer and the insured).

third party insurance - protection for the insured against liability arising out of bodily injury to others or damage to their property.

third-party action - an action brought by a defendant in one action against another party, e.g., an injured, workman, a sub-contractor. The sub-contractor may institute "third party proceedings" against the principal contractor if he feels such a principal contractor is basically liable for the loss.

underwriter - one who determines a risk's desirability and plans programs of insurance. A person or company engaged in the insurance business.

underwriting profit - that portion of the earnings of an insurance company that comes from the function of underwriting. It excludes the earnings from investments either in the form of income from securities or sale of securities at a profit. The remainder is found by deducting incurred losses and expenses from earned premiums.

workers' compensation - insurance, prescribed by statute in most states, which protects an employer against an employee's job-connected injury or death, the law stipulating the amount of the settlement via scheduled benefits.

\*From Safety in Urban Mass Transportation, Batelle Labs. USDOT Washington, DC, 1976.

APPENDIX E

BIBLIOGRAPHY

RISK MANAGEMENT TOPICS

The following titles are available from the Risk and Insurance Management Society (RIMS), 205 East 42nd Street, New York, NY 10017.

BOOKS:

Decision Analysis; A Primer for Risk Managers by Mark R. Greene. "Here is an explanation of such tools as linear regression analysis, decision trees, probability distribution and various mathematical models and techniques." Price: \$4.50.

Guidelines for Developing an Insurance Manual by Douglas I. Craven. "This comprehensive source book is designed to aid the development of your own insurance manual. It is divided into indexed sections such as: Statement of Policy, Property, Liability, Workers' Compensation, Bonds, Group Insurance Contracts, Legal Actions, etc. Each section suggests what should be included and how the material might best be organized. The manual, published in 1975, is adaptable to expansion or contraction without loss of continuity." Price: \$40.00; \$25.00 RIMS members.

Practical Risk Management Application by Edward W. Siver. "Originally a series of articles in Risk Management magazines in 1973, the 35-page booklet is a practical guide to organizing, implementing and maintaining a risk and insurance management program." Price: \$2.00.

Self Assumption, Self Insurance, and the Captive Insurance Company Concept by Edward P. Lalley. "The pros and cons of various risk financing methods are debated in this 20-page monograph published in 1975." Price: \$3.50.

A Theoretical and Practical Approach to Risk Management by Tom C. Allen and Richard M. Duvall. "Based on a series of articles developed for Risk Management (magazine) in 1971, this 40-page booklet considers measurement and classification of risk, risk treatment and selection of deductibles." Price: \$4.00; \$3.00 RIMS members.

REPRINTS:

"Avoid Losses Through Risk Management" by F. X. McCahill, Jr. Reprinted from the May-June 1971 issue of Harvard Business Review. Price: \$.50.



"Everything You Always Wanted to Know About Broker Services Internationally."

"Five brokerage executives answer queries on how their firms provide services to clients with risks outside North America. Alexander & Alexander, Frank B. Hall, Fred. S. James, Johnson & Higgins and Marsh & McLennan describe their capabilities worldwide." Price: \$1.00.

"Governmental Risk Management."

"Self-insuring workers' compensation, property conservation, loss control, the availability of in-house expertise and bid specifications are the topics of this 16-page reprint from Risk Management's November, 1974 issue." Price: \$1.00.

"Reducing Insurance Costs Through Risk Management" by Edward S. Hansen.

Reprinted from the November 1969 issue of Financial Executive. Price: \$.50.

MAGAZINE:

Risk Management; The Journal of the Professional Risk Manager.

"The monthly publication of the Risk and Insurance Management Society fosters the development and application of risk management principles and tools to protect corporate assets. Insurance selection, risk funding techniques, safety and loss prevention, employee benefits administration and new legislation are among the topics covered." Subscription price: \$15.00.

From the Risk Management Publishing Company, 2030 East Broadway, Tucson, Arizona 85719.

BOOK:

Governmental Risk Management Manual by Nestor R. Roos and Joseph S. Gerber and contributing authors.

"The Manual is a comprehensive analysis of the field of governmental risk management at all levels of government such as Township, Town, City, County, State, School and other districts . . . New legislation, legal decisions and new insurance policy forms require continuous updating of reference data. To meet this need the manual is to be offered on a subscription basis and updated with periodic supplements and newsletters . . . . The price of the manual is \$75.00 for the first year subscription and includes 6 supplements and 6 newsletters. The renewal price is \$60.00 and will include 6 supplements and 6 newsletters which will continue to update your original material."

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