

Transportation

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Department of Justice

Statement of

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Before the

Subcommittee on Surface Transportation
Committee on Public Works and Transportation
United States House of Representatives

Concerning

The Regulation of Carriers Subject to
the Interstate Commerce Act

September 28, 1976



I thank the Subcommittee for this opportunity to present the views of the Department of Justice on the need for reform in the regulation of motor carriers subject to the Interstate Commerce Act. The reforms proposed by the Administration would provide substantial benefit to all parties concerned: truckers would enjoy expanded business opportunities; shippers would have far more options with respect to service and price; and, finally, the consuming public would receive the cost savings resulting from a more efficient transport system.

I believe the need to reform the current system of interstate motor carrier regulation is well illustrated by three episodes recently reported in the Washington press. A bankrupt interstate trucking company, out of operation for more than two months, received in excess of twenty million dollars for its operating certificates in an auction "marked by stiff bidding." 1/ Nothing of tangible value, such as trucks, terminals or real estate, was included in the auction. Mere pieces of paper, issued by the ICC, granting to their holders the right to transport goods for the "public convenience

1/ Stephen M. Aug, "Truckers Pay \$20 Million for Licenses of Associated," Washington Star, 7/12/76.

and necessity" commanded this \$20 million dollars. The operating authority for the Carolinas, southern Virginia and Northern Georgia yielded \$5.4 million alone. Why is it that the right to drive a truck, held by a company unable to meet its debts, can be worth so much?

A second incident raises a different question about federal regulation of interstate trucking. Montgomery County has recently constructed a liquor warehouse near Rockville. ^{2/} Currently, because a private road is temporarily being used to reach the facility, deliveries to it are within the Washington, D. C. commercial zone. ^{3/} However, when a new public road to the facility is completed, the facility and access to it will be outside the zone. A three-member panel of the ICC staff recently rejected a request by the county to extend the D. C. zone 0.49 of a square mile. Thus, delivery of liquor to the facility by carriers with only New York to D. C. authority, for example, will require that the shipment be unloaded within the D. C. zone, reloaded by a carrier with authority to the Rockville zone, and delivered.

^{2/} Stephen M. Aug, "If Price of Booze Goes Up, Blame It on the ICC," Washington Star, 8/18/76, p. A-3.

^{3/} Apparently, the private road connects the facility to a point within the D. C. zone.

Why should the shipper utilizing this New York carrier be required to undergo the substantial expense of an additional unload and reload? Why should the carrier be required to drive past its ultimate delivery point, into D. C., only to have the shipment sent back, toward New York, by another carrier? The ICC will have to answer that question; we cannot.

Finally, the case of a New Jersey motor carrier seems almost unbelievable. James Carter has been in the trucking business all his life, riding first with his father, and then starting his own business after World War II. ^{4/} He had built his business up to \$1.5 million in annual revenues. In 1969, he bought for \$30,000 an ICC operating certificate authorizing transport throughout the eastern United States of mannequins and display figures, and "supplies used in connection with store display." Under this authority, he transported all types of commodities, as had the previous owner of the authority, so long as they were displayed for sale in a store. Carter applied for a confirmation of his authority in 1972; naturally, other competing truckers protested his activities. The ICC recently ruled that Carter

^{4/} Stephen M. Aug, "Ruling by ICC Drives Trucker to the Wall," Washington Star, 9/8/76, p. A-7.

was operating illegally, and was "unfit" to provide the service he was already performing. How can a carrier who has been engaged in the trucking business for almost 30 years, with more than 400 customers, be found at this late date unfit to perform that service?

The true answer to these questions is painfully clear: economic regulation of the motor carrier industry by the federal government has led to a costly and often irrational transport system. The need for reform is self-evident. This Congress has already begun necessary reform of the federal regulation of railroads by its enactment of Title II of the Rail Revitalization and Regulatory Reform Act of 1976. 5/ That Act recognizes the potential for intermodal competition which the railroads themselves sought to forestall in the 1930's when they vigorously supported enactment of Part II of the Interstate Commerce Act extending regulation to motor carriers. 6/

The need for reform of economic regulation here is even more obvious than in the rail industry because the trucking

5/ Pub. L. No. 94-210 (Feb. 5, 1976) ✓

6/ Thomas Gale Moore, Freight Transportation Regulation, American Enterprise Institute for Public Policy Research, (Wash., D. C., 1972), p. 25-26.

industry possesses none of the traditional characteristics of an industry requiring regulation, such as limited resources or efficiencies of scale. The motor carrier industry simply does not require pervasive economic regulation.

The artificial barriers to entry in interstate trucking have protected existing firms from the discipline of competition, resulting in high rates and poor service. The costs of regulation, such as the monopoly value of certificates, have artificially inflated rates for shippers and product prices for the public. Service and price options offered by regulated interstate truckers have become sufficiently unattractive that increasing numbers of shippers have turned to private carriage to obtain the service they desire, even at increased cost. ^{7/} Finally, a needless waste of resources is directly caused by regulation which restricts traffic to predetermined, sometimes irrational routes, and prevents non-regulated, private or agricultural carriers from carrying regulated freight on return trips. A recent study ^{8/} shows that 25% of regulated

^{7/} A recent study done for DOT revealed that 50% of Industrial shippers are using private carriage at present. J. Richard Jones, "Industrial Shipper Survey-Plant Level," Office of Transportation Planning Analysis, Department of Transportation (Wash., D. C.: 9/75), p. 21.

^{8/} Federal Highway Administration, Annual Truck Weight Survey (1974).

trucks run empty, well in excess of any vacuum which would normally result from natural traffic imbalance or specialized trucking. This type of waste need not be tolerated: its cost is passed ultimately to the consumer, scarce resources are expended, and levels of air and noise pollution are unnecessarily raised.

This list of problems arising from the regulation of interstate trucking is incomplete; but it clearly underlines the discreet need for change. The Motor Carrier Reform Act, H.R. 10909, 9/ proposes a gradual reintroduction of competition into the motor carrier industry, while retaining some continued regulatory restraints. 10/ The Department believes that H.R. 10909 represents a balanced approach, and will produce constructive reform of interstate trucking regulation without serious disruption.

The Motor Carrier Reform Act seeks to reduce the regulatory barriers to competition in the trucking and bus industries in two principal ways: first, by increasing individual carrier rate-making flexibility; and, second, by increasing the potential for new entrants. The bill

9/ H. R. 12084 and 12793 are identical to H. R. 10909.

10/ For example, there would continue to be some constraints on entry, and on rate-setting by carriers. See H.R. 10909, §§ 8 and 10-12.

proposes three changes in current law aimed at achieving flexibility in pricing: limitation of the ICC's rate suspension powers; creation of a new standard by the ICC which determines the lawfulness of a carrier's rate; and limitation of the anticompetitive practices of rate bureaus. A "no-suspend" rate zone would be phased in over a three-year period. The ICC could not suspend as too high or too low any non-discriminatory rate within the zone. For rates outside the zone, the power of the ICC to suspend rate changes would be curtailed by a new standard which requires the Commission to find:

- (1) that the complainant would suffer immediate and irreparable injury if the rate change were not immediately suspended;
- (2) that the complainant would be likely to succeed on the merits; and
- (3) that suspension would be in the public interest.

A similar provision was adopted in the Rail Revitalization and Regulatory Reform Act. 11/

H.R. 10909 would also establish a new standard by which to determine the lawfulness of a carrier's rate.

11/ Pub. L. No. 94-210, § 202(e)(2).

A lawful "compensatory rate" under the bill is defined as one which equals or exceeds the variable costs of the carrier whose rate is challenged as unlawful. This standard will reward the efficient carriers and insure cost-related pricing. Since the ICC may declare unlawful those rates which are not compensatory, 12/ there is adequate protection against predatory pricing. Similar protection is provided in the Rail Revitalization and Regulatory Reform Act. 13/

Finally, to encourage rate-making flexibility, the bill would limit the anticompetitive activities of the rate bureaus. Rate-fixing agreements on single-line movements would be prohibited immediately, and agreements on rates of general applicability would be illegal three years after enactment of the bill. Moreover, rate bureaus would be prohibited from interfering with independent rate action of individual motor carriers. However, rate bureaus would be allowed to continue their other activities, such as the publication of

12/ H.R. 10909, §§ 11, 12.

13/ Pub. L. No. 94-210, § 202(b).

rates and collection of information. The bill thus eliminates the anticompetitive effects of rate bureaus, while allowing them to continue those activities that have generally been recognized as beneficial. A similar approach was taken in the rail bill. 14/

The bill would achieve its goal of liberalizing entry into interstate trucking by broadening the focus of the present entry tests and providing a new alternative test for entry. First, the ICC would be required to consider favorably any proposed service which would produce lower carrier costs, greater efficiency, better service, satisfaction of shipper preferences for different combinations of rates and services, and generally improved competition. Second, the Commission would be required to issue a certificate if the applicant demonstrated that: (1) he was "fit, willing and able;" (2) the revenue from the proposed service would cover the "actual costs" of the service; and, (3) the rate would not be discriminatory. The adequacy of existing service or the effect on existing carriers could not be considered.

The liberalized entry provisions of the Motor Carrier Reform Act would have two effects. First, it would inject

14/

Pub. L. No. 94-210, § 208(b).

competition into the setting of rates by forcing carriers in a particular market to realize that, should the rates in that market get too high in relation to costs, other firms will enter. That threat is faced by the vast majority of industrial firms in the United States, and is essential if price competition is to be maintained. Second, it would permit carriers to rationalize their services by removing inefficient backhaul and route restrictions. However, liberalized entry alone will not solve the problems of the motor carrier industry: it is only in conjunction with individual, rate-making flexibility that liberalized entry can be an effective reform.

The Administration's bill would make other salutary reforms in the regulated motor carrier industry. For example, the prohibition against private carriage among parent and subsidiary companies would be removed. In addition, mergers of motor carriers would be subject to a new pro-competitive standard of legality and to the exclusive jurisdiction of the federal courts. These and the other provisions of H.R. 10909 together are an attempt to increase efficiency and competition in the motor carrier industry. The goal is to increase price competition and to decrease government interference in an industry which, economic studies show, is well-suited for competition.

Most carriers, particularly the larger operators, have taken a position firmly in opposition to the Motor Carrier Reform Act, as well as to other regulatory reform efforts. Indeed, the head of the American Trucking Association has accused us of "trying to tear apart the finest transportation system in the world." We find this rhetoric somewhat startling. Certainly, the Administration in proposing the Motor Carrier Reform Act had no intention of "tearing apart" this nation's motor carrier industry. Quite the contrary: the intent is to improve an industry ideally suited to competition in which inefficiencies have developed as a result of forty years of government regulation.

Instead of this rhetoric, one might have expected opponents of regulatory reform to present a strong factual case for regulation. For example, they might have tried to demonstrate the high percent of traffic moving on regulated carriers, the efficiency of regulated routes, and the poor showing of the unregulated motor carrier industry when compared to the regulated motor carrier industry. But the facts do not exist to support such a case.^{15/} Instead, we hear the rhetoric of "tearing apart," of creating chaos in the industry, of entry by unsafe rookies and gypsies, and cries about loss of service to rural communities.

^{15/} See note 8 and text accompanying, supra, p. 5-6; note 7 and text accompanying, supra, p. 5; and see Jones Study, (continued next page)

We would not deny that H.R. 10909 will certainly lead to more price competition in interstate trucking. However, studies of industry costs and asset structure by DOT researchers and others indicate there is no basis for the argument that increased price flexibility will lead to chaos. A large, stable, and thriving unregulated sector of the motor carrier industry is available to rebut any such claim.

The Motor Carrier Reform Act does not provide for returning the motor carrier industry to free market status. The bill merely provides for reform of the current, illogical regulatory mess. Under H.R. 10909, there will still be proscriptions on rates and entry. For example, applicants would have to demonstrate their ability to provide necessary, different, and compensatory service.

The notion of rate wars in the trucking industry, eventually leading to the elimination of weaker lines, and the monopoly of a few carriers, we believe, is a mirage. All available evidence indicates that such a situation is very unlikely to occur. Since the small motor carrier is potentially as efficient as the large firm, there is no advantage for large firms to attempt to drive small firms

15/ (cont'd) supra, n. 7, at p. 86, stating that 46% of industrial shippers surveyed intended to increase their use of private carriage.

from the market. ^{16/} If by some chance they do succeed, other small firms will replace the exited firms as the larger firms attempt to raise rates and consequently profits overly high. Studies done by the Departments of Transportation and Agriculture indicate that the rate of entry and exit (the "mortality rate") of carriers currently exempt from ICC regulation is no greater than that experienced by similar firms in unregulated environments. This experience in the unregulated sector tends to disprove the notion of destructive competition leading to massive bankruptcies and interruptions of service if truck regulation is reformed. This notion has vitality only because of its roots in the unique experience of the Depression, when the mortality rate of business firms was generally high. At that time, repossessed trucks were available at distress sale prices to the masses of unemployed persons willing to perform any task which might produce some income. Today, trucks can cost

^{16/} It should be noted that under the current system of regulation, there is an advantage in size. American Trucking Assn. Inc., Brief And Petition, "Accounting for Motor Carrier Operating Rights," Before the Financial Accounting Standards Board of the Financial Accounting Foundation. In addition, the present system encourages predatory practices, because once the predator succeeds, he is protected from new entry competition by the regulatory scheme; with reform of entry and price restrictions, this would no longer be the case.

\$35,000, a considerable sum for a person seeking an alternative to the unemployment rolls.

Another catastrophe predicted by the industry is that rural America will lose service if trucking regulation is reformed. We believe that a more reasonable assessment of the current level of service provided rural America and the logical impact of the entry provisions of H.R. 10909 demonstrate just the opposite. There is evidence to suggest that, under the bill, rural America would obtain more service than it currently receives. The present rate structure makes some rural freight service unattractive. By providing rate flexibility, loosening entry barriers, eliminating backhaul restrictions (thus allowing agricultural carriers the right to carry non-agricultural commodities on their return trips), service possibilities are increased. Preliminary results of a DOT study suggest that service to rural areas is now being provided by the small, specialized carriers rather than by the larger interstate carriers. Thus, the proposed reforms will not adversely affect rural service. Further, there is evidence that rural service is no more costly to provide than other types of transportation. This undercuts the argument that service to rural America requires cross-subsidization by

more lucrative routes, and suggests that with liberalized entry, the transport needs of all parts of America will be met.

Finally, any concern over the effect of the bill on safety can be easily dispelled: indeed, the likely effect of regulatory reform will be salutary. First, the bill provides for more effective safety enforcement than exists at present. Second, there is no demonstrated tie between the presence of economic regulation and safety performance: private carriers have the lowest rate of safety violations and exempt carriers the next lowest. Finally, all new entrants will be required to meet existing safety regulations. Thus, it would seem that enactment of H.R. 10909 can only lead to improvement of current safety levels.

The examples of the waste and inefficiency mentioned above should not be viewed as exceptions to a system that is working well. Certainly, these three examples are selective, but our experience with the Interstate Commerce Act and the ICC indicates these examples are illustrative of the impact of the current regulatory system on the motor carrier industry. The causes can be clearly traced to the Interstate Commerce Act and its application by the Interstate

Commerce Commission. Indeed, the primary beneficiaries of the Act admit as much in a brief submitted to the Financial Accounting Standards Board. 17/ The American Trucking Association, self-described as "the national organization of the trucking industry," 18/ petitioned the Board to change the current accounting treatment of operating rights. In arguing that operating rights should not be arbitrarily amortized, ATA set forth their analysis that admits, in a startlingly refreshing manner, the exclusionary features of the Interstate Commerce Act. The ATA begins with the obvious point that without an operating certificate, a carrier cannot stay in business under the current system. 19/ It then points to the "limited number" of operating rights currently in existence, 20/ and admits that "(v)irtually the only way for (a relatively small carrier) to obtain additional operating authorities is to buy them from other carriers. . . ." 21/

17/ American Trucking Association, Inc., Brief and Petition, "Accounting for Motor Carrier Operating Rights," Before the Financial Accounting Standards Board of the Financial Accounting Foundation.

18/ Id., Cover Letter.

19/ Id. at p. 5.

20/ Id. at p. 1.

21/ Id. at p. 6.

Such a situation can only encourage concentration, as the ATA freely admits:

The past decade has been marked by numerous acquisitions and mergers within the motor carrier industry. Ten years ago there were approximately 17,400 motor carriers of property. This number has now decreased to approximately 15,000 and industry experts project that this trend of mergers and consolidations will continue at an even greater pace in the future. 22/

The ATA is not shy in admitting the impact of the exclusionary features of the regulatory scheme, particularly in an environment of "rapidly growing public demand for motor carrier service." 23/ Operating rights, originally obtained from the ICC, have now become "the single most important asset to the motor carrier." 24/ Operating rights of Class I common carriers represent 12.4% of shareholder equity on December 31, 1972, 25/ and have recently sold for 15% to 20% of the annual revenues produced by the authority. 26/ Through 1970, more than \$300 million had been invested by the motor carrier industry on intangible assets, almost all of which represents the cost of operating authorities. 27/

22/ Id. at p. 1-2.

23/ Id. at p. 1.

24/ Id. at p. 5.

25/ Id.

26/ Id. at p. 6.

27/ Id., appendix B, p. 1.

The straightforward statements in the brief are quite helpful in understanding why the industry opposes reform of a regulatory system which restrains competition. The "chaos" the industry fears is new entrants bringing new service and price competition. Industry participants realize that they cannot restrict entry to the market without help from a pervasive regulatory scheme. Without restricted entry, the industry recognizes that rates and profits cannot be maintained at near-monopoly levels. Regulatory reform means the loss of protection, and protection is what made the certificates of even a "bankrupt" company worth millions of dollars. Without limited entry, the operating certificates of Associated Transport would never be worth \$20 million. However, as ATA recognizes, the combination of limited entry and increasing demand produces a lucrative arrangement - one that the beneficiaries, understandably enough, are loath to surrender quietly. Is it thus any wonder that regulated truckers oppose liberalized entry and rate-making flexibility? Is there any doubt of the windfall benefit to the seller of an operating certificate? Is there any doubt that the cost of such operating rights are passed on in price hikes to the consumer?

Many of us believe that the time has come to reexamine whether economic regulation serves its intended purposes,

whether such purposes are still valid in light of present economic and technological conditions, and whether the costs of regulation now outweigh any benefits. Such a reexamination is closely tied to three fundamental public objectives: the promotion of competition; the preservation of individual opportunity; and the conservation of scarce resources. We must restore our faith in competition as an economic system and force an end to the maxim that regulation tends to beget more regulation. This country was built on the private enterprise system, and it is time we returned to that system. We should allow government economic regulation of an industry only where a public need is clearly shown to exist. We believe that current regulation of motor carriers does not meet this standard and therefore should be significantly reduced.

* This is a copy of my latest paper that will be published in the next issue of PERFORMANCE

There is an article about VE in EPA in the Sept. 1976 issue of Civil Engineering Magazine.

* My own research assistant

may like to read the article about Value

analysis in the Reader's Digest Jan. 1964 issue,

"The Biggest Thing Since Man's Invention"

FUTURE COST REDUCTION POSSIBILITIES
MASS TRANSIT SYSTEM

by Vincent Lao

INTRODUCTION

The success of Value Analysis and Value Engineering (VA/VE) in industrial products is an established fact. However, VA/VE may not be as successful in the construction industry as it should be, especially when the government is involved. There are many reasons for this and some of them will be discussed in this paper.

Based on well documented VA/VE case studies, 10% to 20% value improvement/cost reduction possibilities would be an average for most construction projects. This means \$20 billion cost reduction per year for the \$100 billion construction industry in the U.S.A. There are cost reduction possibilities in applying the philosophy and methodology of VA/VE to construction items, equipments, operation and maintenance. However, emphasizing the philosophy and methodology of VA/VE may not be good enough when there are time constraints. Application of the "Art and Science of VE in Construction"⁽¹⁾ at the early stage of the design must also be emphasized for substantial value improvement/cost reduction possibilities.

(1) Vincent Lao, The Art and Science of VE in Construction, Society of American Value Engineers (SAVE) Proceedings 1976, page 118.

COST ESCALATION

Cost overrun is such a popular news in Washington and other big cities like New York that it is becoming a fashion for the local governments to follow. The talk about bureaucracy, inefficiency and waste in government is like a broken record that the government officials are becoming immune to it. After all, what is a million dollar or a billion dollar waste here and there? It will mean only a penny or a few dollars to the taxpayers. This is peanuts compared to what the average citizens expend every day.

Of course, no one can question how the individual uses his own money. However, the government workers are paid to make sure that public funds are put to good use instead of being wasted. Waste is a big business and it is a way-of-life in America. The practice of bribery, graft or corruption tends to dull the sensitivity of the public officials to the idea of waste in government. The elected officials should see to it that the citizen's tax money is getting its greatest value for public good. VA/VE is a new disciplinary technique which can be used to extend the value of the citizen's tax dollar.

In 1969 Congressman Larry Winn Jr. of Kansas conducted a survey concerning the effective application of VA/VE in the federal government including the Washington Metropolitan Area Transit Authority (WMATA). The Administrator of WMATA

replied and criticized Congress for not appropriating the money soon enough to beat inflation. Inflation was used as a cover-up for the other causes of the cost escalation, especially for the unnecessary cost that could have been technically controlled.

Before talking about future cost reduction possibilities for Mass Transit Systems, we must first know all about the cost escalations in order to find out where and what the cost reduction possibilities are and how they can be effectuated. According to the 1965 Report to the President, "Rail Rapid Transit for the Nation's Capital",⁽²⁾ the capital outlay for the Mass Transit System was approximately \$800 million. In February 1976, the price tag for completing the system escalated to \$5.5 billion. This is more than 587% rise in cost in 11 years. Is the rise in cost this much or are there other reasons for the cost escalation?

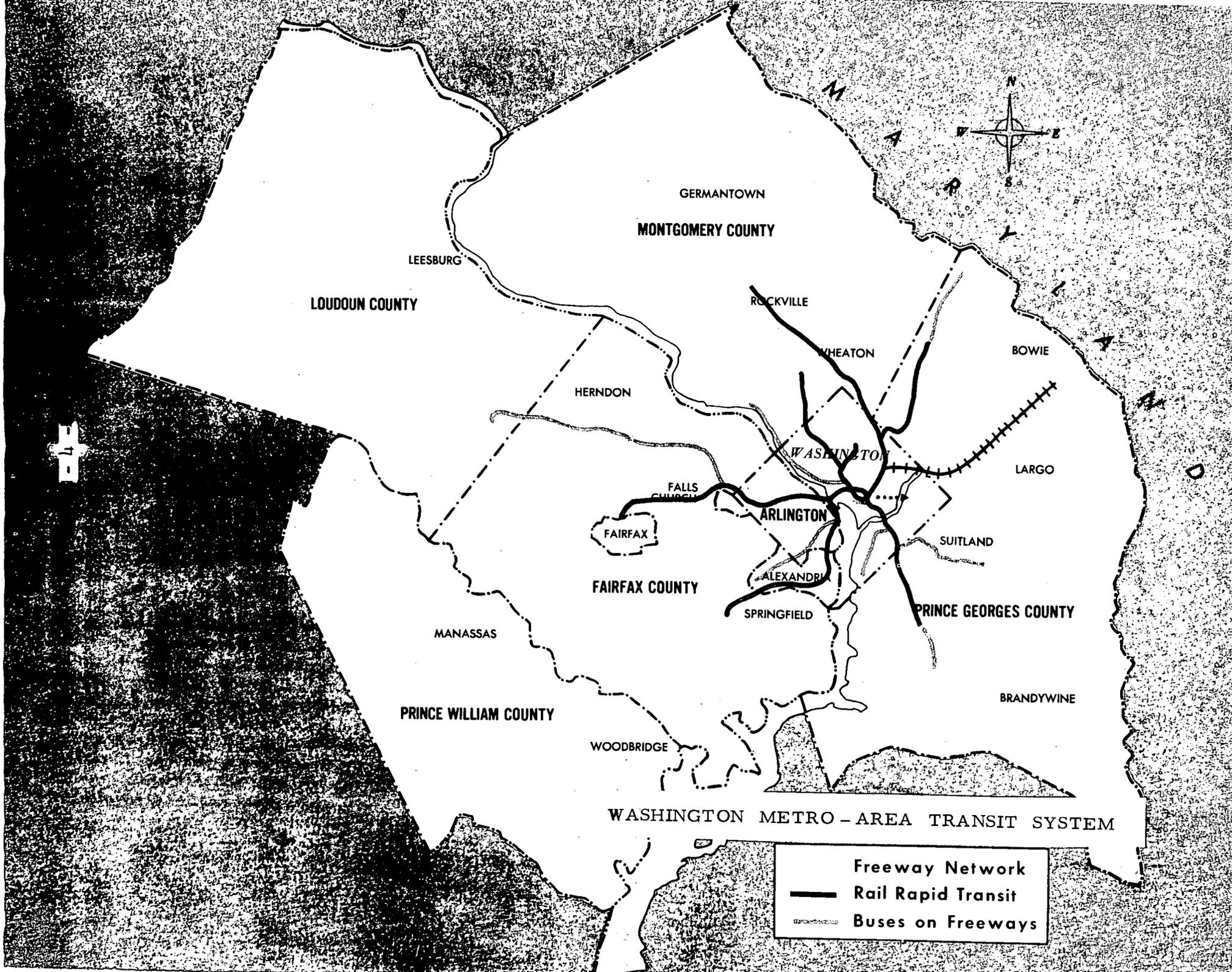
The following is a conceptual breakdown of where the major cost escalations might have come from and where the cost reduction possibilities are.

Washington Metro-Area Transit System

Cost Escalation

1976 Cost Estimates	\$5,500,000,000
1965 Cost Estimates	<u>800,000,000</u>
Cost Escalation	\$4,700,000,000 (587% ⁺)

(2) Rail Rapid Transit for the Nation's Capital, National Capital Transportation Agency, January 1965



GERMANTOWN
MONTGOMERY COUNTY

LOUDOUN COUNTY

LEESBURG

ROCKVILLE

WHEATON

BOWIE

HERNDON

WASHINGTON

LARGO

FAIRFAX

FALLS CHURCH

ARLINGTON

SUITLAND

FAIRFAX COUNTY

ALEXANDRIA

SPRINGFIELD

PRINCE GEORGES COUNTY

MANASSAS

PRINCE WILLIAM COUNTY

BRANDYWINE

WOODBIDGE

WASHINGTON METRO - AREA TRANSIT SYSTEM

	Freeway Network
	Rail Rapid Transit
	Buses on Freeways

Breakdown of the Cost Escalation			
Causes for the Cost Escalation		Cost Escalation	
Items	Description	%	\$
1	Rise in Construction Cost	150*	1,200,000,000
2	Modernization & Ignorance	130	1,040,000,000
3	Management, Politics, etc.	120	960,000,000
4	Miscellaneous Cost Escalation	27+	220,000,000
5	Unnecessary Cost	160**	1,280,000,000
	Total Cost Escalation	587+	4,700,000,000

* The rise in construction cost is approximately 235% between 1965 and 1976.⁽³⁾ Since more than half of the capital cost were committed earlier than 1976, 150% cost escalation for Item No. 1 should be sufficient for the purpose of this analysis.

** This is the unnecessary cost that can be technically controlled. It is almost 30% of the total cost escalation. This also shows that effective VA/VE can off-set Item No. 1 to alleviate if not stop inflation.

The cost escalation in Item No. 1 is due to inflation and may have been used to cover up the other cost escalations. Top management might not realize or would not admit that lack of value assurance of the money in their charge was one of the main causes of inflation. Nor would they

(3) Engineering News Record, First Quarterly Cost Round Up, March 18, 1976.

volunteer to highlight or mention the cost escalations due to Items No. 2, 3, and 4. Most likely, they would never admit that there was a cost escalation due to Item No. 5. However, the owners (users and taxpayers)⁽⁴⁾ who pay the bills and the leaders who appropriate the money should be interested to know all the reasons for the cost escalation and the possibilities for cost reduction.

COST REDUCTION POSSIBILITIES

Item No. 1: Inflation has many causes and there are many ways to slow it down. Lack of value assurance is one of the basic causes of inflation that very few people know about and much less do they know about VA/VE as a new discipline for value assurance. There is no cost reduction possibilities for Item No. 1. However, effective application of VA/VE will assure the greatest value of the investments and help slow down inflation if not stop it.

Item No. 2: Modernizing the system is sometimes necessary for long term cost reduction effect. The "ignorance" factor is due to management's lack of knowledge of VA/VE and value awareness of the short term and long term cost

(4) Because of the \$4.7 billion cost escalation, the transit riders may have to pay as much as 7 times the original estimated cost of 25¢ for local trip (\$1.75) or 55¢ for outlying areas (\$3.00) to satisfy the 1965 economic forecast. This is over and above what the taxpayers will have to pay for subsidizing the transit system in Washington, D.C.

impact of modernization. For example, the cost of automation and the additional cost for passenger comfort and convenience may be out of proportion in view of function and cost. Without proper functional and cost analysis of the additional features, it may be too late to control the cost once the initial investments are made. Effective application of VA/VE can have a short term as well as long term cost reduction possibilities for Item No. 2.

Item No. 3: Cost escalation due to mismanagement, political and other intangible factors are complex. Cost reduction possibilities on intangible factors may not be easy to accomplish technically. However, comprehensive understanding and effective application of VA/VE should produce substantial value improvements. "Empire or Toy Building" is a common practice to justify the existence of the office and its cost.⁽⁵⁾ Unfortunately, the Mass Transit System in the Nation's Capital is becoming a political football to be kicked around by the politicians. At best, it is a "make work" project for the benefit of the people who are planning, designing, constructing, operating and maintaining the system. The financial situation of the project is in a mess. Its cost effectiveness and economic viability is in great doubt. Either it will become a big "white elephant" or the taxpayers will have to continue subsidizing it.

(5) Wm. S. Gentry & Richard L. Pool, The Things I Cannot Change, Younger Viewpoint, Civil Engineering, The Magazine of Engineered Construction, July 1968.

Item No. 4: Miscellaneous cost escalation may include, but is not limited to, the cost that were not accounted for in the contingencies. In this particular case, it may include the cost of public relations, aesthetic and environmental considerations, etc. With an effective VA/VE application, greater value (tangible and intangible) of the expenditures could have been obtained with half the cost.

Item No. 5: Unnecessary cost that can be technically controlled is what VA/VE is trying to avoid. Most administrators and managers will not admit that there is such a thing as unnecessary cost. Those who are conscientious about their responsibilities may admit that unnecessary costs always exist, but they will also insist that they are doing VA/VE all the time to reduce if not totally eliminate them. The government and the A/E's claim that they are doing VE all the time as a way-of-life may be true to some extent. However, VA/VE as a way-of-life may not even scrape the tip of the iceberg. It must be applied as a special disciplinary task with its philosophy, methodology, art and science to tap the remaining VA/VE gold mine.

WMATA must have been so busy with the daily administrative duties and technical problems that it is unlikely for them to spend extra time for value assurance. Because of the complexity of the project and the time involved in preparing the contract plans, WMATA and the A/Es were pressed

for time (the project was already behind the schedule) just to finish the construction plans according to accepted design standards and specifications. How could they possibly spend extra time for innovations and in-depth design-to-cost analysis? Even if they had time to analyze the design-to-cost impact, who was going to take a SECOND LOOK (one of the important concepts of VA/VE) of the preliminary and final design plans according to VA/VE objectives? Besides, VA/VE will not be effective if it is done by the same people who are responsible for the general engineering and construction plans. This is why an outside VA/VE artist should be used.

The VA/VE artist should work with the in-house review sections. While they are reviewing the plans according to accepted standards and conventional designs, the VA/VE artist can concentrate on pinpointing and determining high value improvement potentials. The VA/VE task should not disturb or lengthen the original time table for the completion of the project. In fact, substantial cost reduction through VA/VE should shorten the time table.

This paper will try to emphasize the cost reduction possibilities by applying VA/VE as a separate disciplinary task after planning and preliminary design, final and detail design, plan preparation and construction contract award. The following example will show: Why there are cost reduction possibilities; What they are; When and Where they can be located; and How the Remaining VA/VE Gold Mine can be tapped.

REMAINING VA/VE GOLD MINE

The example shown below is to illustrate the application of VE as a Disciplinary Task from planning, preliminary and final design to plan preparations and construction contract award.

Project : I-95 (Highway Tunnel at the vicinity of the U.S. Capitol

Date : 1965 - 70 (Preliminary and Final Design)
1967 - 74 (Construction)

Total Cost : \$70 Million

VA/VE CP	Designing for Value	Value Improvement Potentials		VA/VE as a Separate Disciplinary Task
		%	\$ Million	
1	Design Assumptions (Highway geometrics)	30/0/0	21.0/0/0	Philosophy, methodology, art and science of VA/VE
2	Design Assumptions (Design load)	15/25/10	8.0/17.5/7.0	Art and science of VE
3	Types of Design	10/10/10	5.0/7.0/7.0	Art and science of VE
4	Design Configurations (incl. New Labor Bldg.)	10/10/20	5.0/7.0/14.0	Art and science of VE
5	Details, Specs., Temp. Construction, etc.	5/5/5	2.5/3.5/3.5	Philosophy, methodology, art and science of VA/VE
Total Cost Reduction Possibilities		60/50/45	41.5/35.0/31.5	Depending upon the combina- tion of VA/VECPs.

Value Improvement : \$1.5 million is the amount that is claimed to be VE as a way-of-life.

Remaining VA/VE Gold Mine : \$40.0/33.5/30.0 million which can be only tapped by applying VA/VE as a Disciplinary Task with its philosophy, methodology, art and science.

Cost of VA/VE : \$0.5 million

Net Returns : \$39.5/33.0/29.5 million (VA/VE benefit/cost ratio is approximately 60 to 80).

Note : 1. For a 40 year life, the total value improvement or savings would have been approximately \$330 million if the \$33 million was invested at 6% compounded interest.

2. Even if only \$20 million of the VA/VE gold mine could be tapped, the value improvement or savings for a 40 year life would still have been approximately \$200 million.

3. Reducing the construction cost by \$20 million would reduce construction time by at least 25% or 21 months. The delay due to the VE changes should not be more than 5,000 man-hours or 25 weeks of 5 man-40 hours/week or approximately 6 months. The completion date of the project would have been 12 to 15 months sooner.

VECPS No. 1 and 2 will be used to illustrate why the unnecessary cost exists and how the VA/VE gold mine could have been tapped. The map, photos, and sketches will show an 8-lane highway tunnel (I-95) which is almost one mile long. It crosses the Great Mall under a reflecting pool in front of the U.S. Capitol. (6)

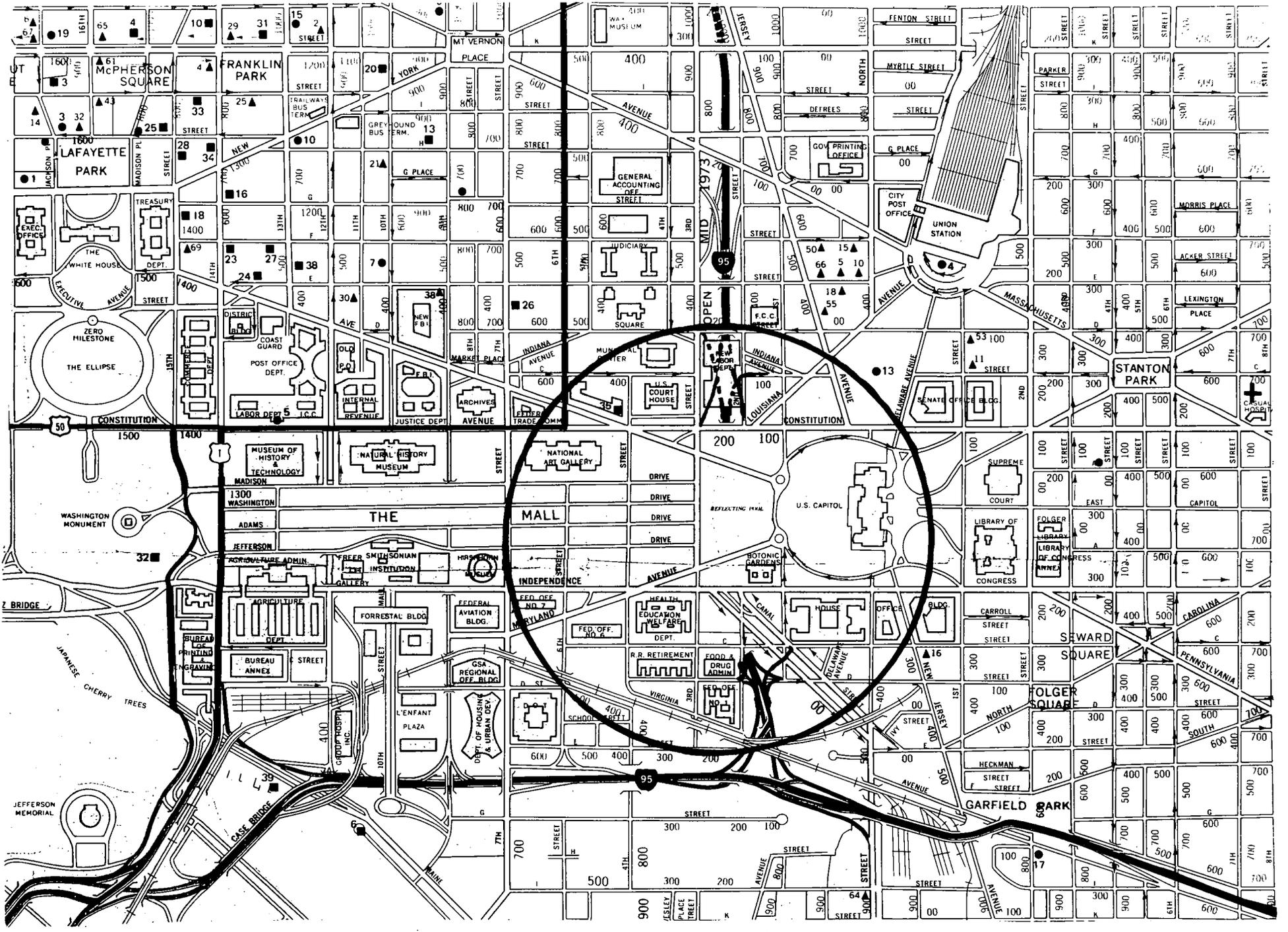
(map - see page 12)

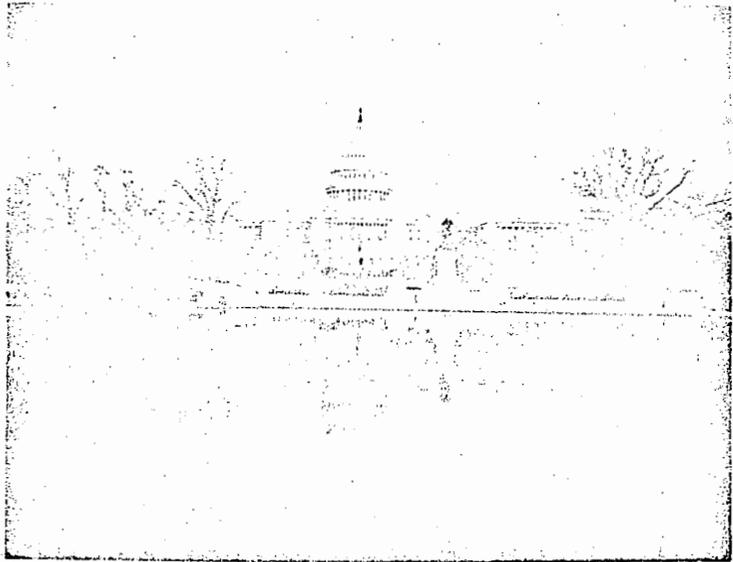
This tunnel was at the preliminary and final design stage when the then Director of the Bureau of Public Roads testified in the U.S. Senate that they have been doing VE all the time as a way-of-life. (7) But he may not have been aware of the rich VA/VE gold mine that was to be buried and abandoned in this tunnel. This tunnel is only a stone's throw from where the Director was speaking. The remaining VA/VE gold mine could only be tapped by applying the philosophy, methodology, art and science of VA/VE as a special disciplinary task.

(photos - see page 13)

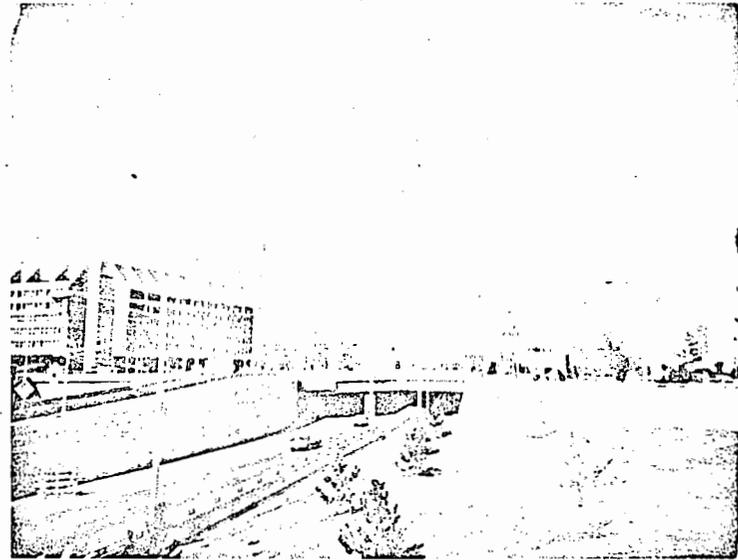
(6) U.S. Senate Hearing on VE, August 1 & 2, 1967, page 80, paragraph 4, Senator Cooper's comments concerning this tunnel.

(7) Ibid., page 73, last paragraph





HIGHWAY TUNNEL
UNDER THE REFLECTING POOL



SOUTH PORTAL
OF THE TUNNEL

For VA/VECP No. 1, applying functional and cost analysis of the traffic patterns would have shown that a 4-lane tunnel was sufficient for the through traffic. However, for practical considerations, a 6-lane tunnel would have been the best solution. This tunnel is located in the CBD⁽⁸⁾ of Washington, D.C., which was the zero point of the Origin and Destination (O & D) study. Reversing the ramps at both ends of the tunnel would have automatically eliminated two extra lanes in the tunnel. This would also have resulted in a better traffic circulation and highway safety⁽⁹⁾ because there will be no weaving traffic inside the tunnel. The sketches below will help explain the situation.

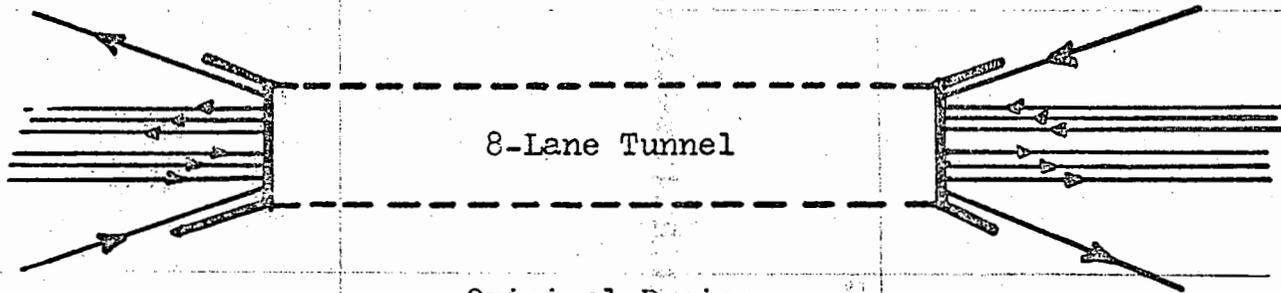
(sketches;- see page 15)

Eliminating two lanes in the tunnel would have reduced construction cost by as much as \$21 million. This would also have reduced millions of dollars of construction cost for the New Labor Department Building at the north end of the tunnel.⁽¹⁰⁾

(8) Central Business District. The main business in Washington D.C. is government and the tunnel is located between the U.S. Capitol and the Federal Triangle (government offices).

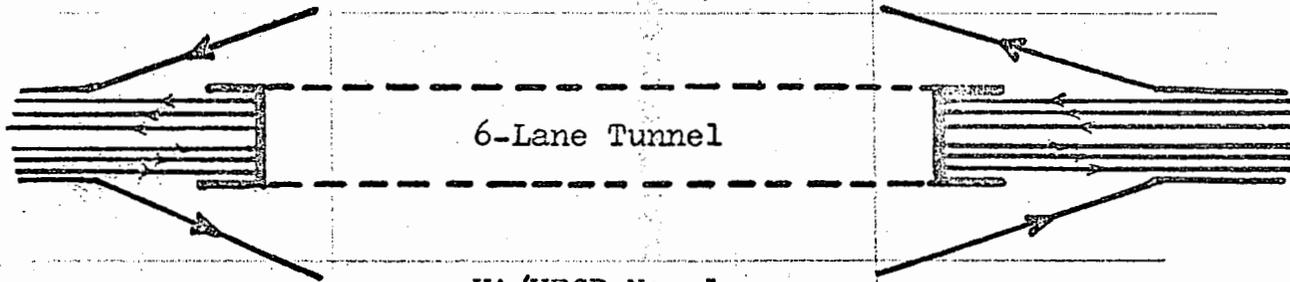
(9) Vincent Lao, Value Analysis - Highway Safety and Costs, 1974 SAVE Proceedings, page 68.

(10) VECP No. 4 would have reduced the cost of this building further. The details of these ideas cannot be illustrated in this paper.



8-Lane Tunnel

Original Design



6-Lane Tunnel

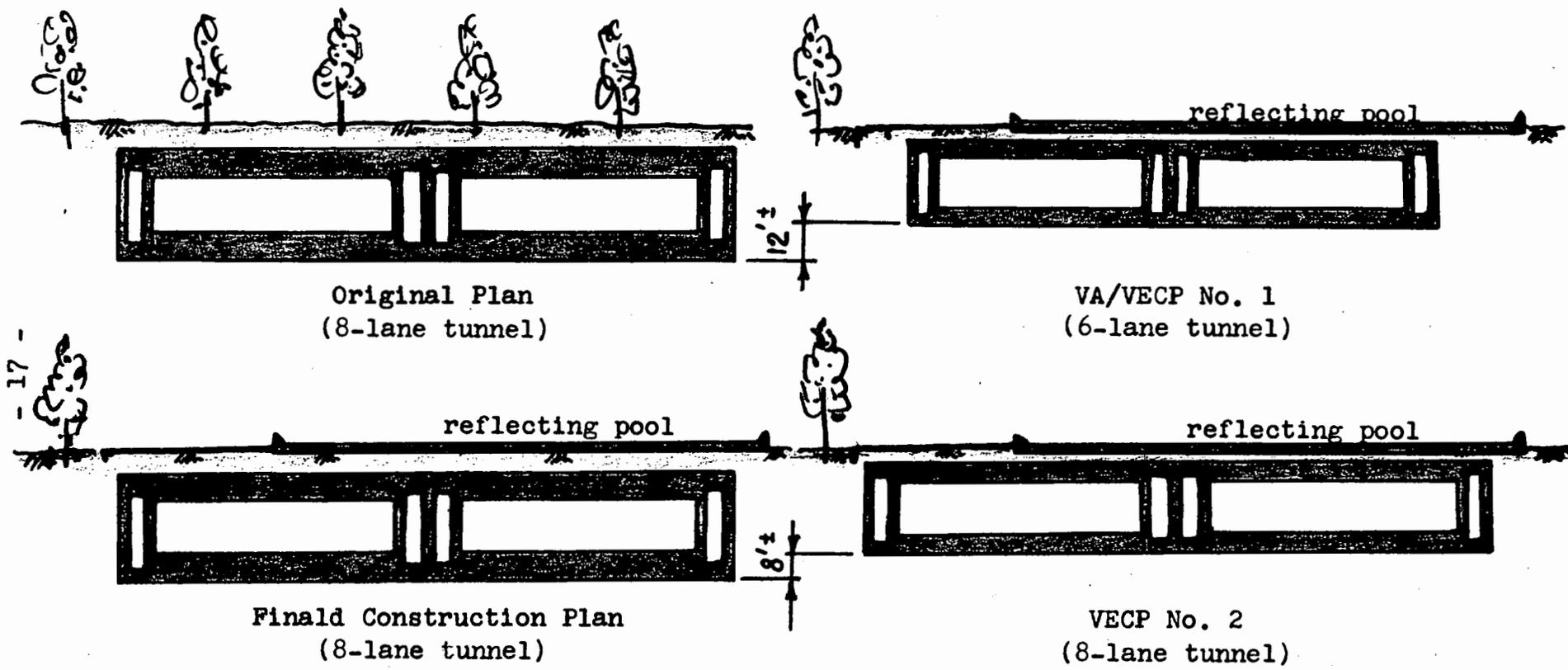
VA/VECP No. 1

During the early design of this tunnel, an 8-foot earth cover was to be put on top of it for the trees along its path. This was the plan that the A/E used to prepare the construction drawings. Halfway during the final design of the tunnel, the U.S. Park Service and the D.C. Highway Department agreed on a plan to put a reflecting pool on the Mall, and it happened to be on top of the tunnel where the trees were supposed to be. Probably no one knew about the original design load because of the trees. If someone did, he may not have the design-to-cost sensitivity to realize the tremendous cost reduction if the design load was reduced to half its original assumptions.

If there was a special VA/VE task in the government (D.C. or FHWA) to apply the art and science of VE, the VE gold mine in VECP No. 2 could have been easily tapped. If VECP No. 2 was implemented, the cost reduction would have been approximately 25% of the original cost or \$17.5 million. The cost of redesign and changes in the contract plans would not be more than \$100,000. Reducing the construction cost would reduce the construction time and more than off-set the time needed to change the construction plans.

(Tunnel Sections - see page 17)

TUNNEL CROSS SECTIONS



After seeing these examples, someone might think that the A/E must have been so ~~stupid~~ ^{shortsighted} not to catch this oversight. Yet, even if the A/E knew, he could not have the inclination to suggest a change because of the logistics of preparing the construction plans. After all, the design and the contract plans were more than half finished. Besides, will he be compensated accordingly for extra work because of the changes. How about his deadlines and commitments on other jobs? The D.C. Highway Department or FHWA should have caught this oversight if they had someone in charge to review the plans according to VA/VE objectives.

VECP No. 2 may look simple because everything has been pointed out. Since cost reduction is automatically accomplished by reducing the design load, someone might wonder whether this is all what VA/VE is all about. However, he may not realize that VA/VECPs No. 1 and 2 or any of the other VA/VECPs were never discovered and developed because VA/VE was not applied as a separate disciplinary task. He may not even know that effective VA/VE is more than just a way-of-life. It involves application of its philosophy, methodology, art and science.

CONCLUSION

If VA/VE is effectively applied, substantial value improvement/cost reduction is possible for major construction projects. The total cost reduction possibility shown in the example is more than twice the average cost reduction that was mentioned in the Introduction of this paper. The art and science of VE is for speed, visibility and credibility. It will help expedite the determination, development and evaluation of the VECs and enhance more cost reduction possibilities. Applying the art and science of VE need not delay the completion of the project. In fact, the project can be completed earlier according to the amount of work eliminated and the construction time saved as a result of VA/VE. However, without special authority and responsibility to effectively pursue and follow up VA/VE objectives as a separate disciplinary task, the remaining VA/VE gold mine/cost reduction possibilities will never be tapped.