

# Transport Central

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## ■ COLUMN ONE

### MEMO TO MICHAEL CAFFERTY

Sir:

Please say it isn't so--your disinclination to seize the initiative in restructuring the Authority's image virtually overnight, and your willingness to let a once-in-a-lifetime opportunity slip by.

With the precedent-shattering recognition of responsibility toward public transit that the legislature has just displayed has come a rare opportunity to make a clean break with the hoary tradition that has ruled Chicago transit for such a long, long time, and it appears as if your people are going to blow it.

You must know what I'm referring to--the new equipment that could finally give the long-suffering car riders a break, but that will probably wind up being just more of the same. I'm even willing to forget the fiberglass seats--even though they represent an insult to your regular patrons--but must they be "upholstered" in that bilious jade green?

That fellow who is responsible for the "image" that your surface vehicles "project"--isn't about time for him to retire? Why must his judgment as to exterior color and graphics be accepted as gospel for the umpteenth time? Isn't twenty-odd years of the same basic color scheme enough?

Take a look at those carriers who believe in projecting a modern and visually attractive image to their customers--GO Transit, the Golden Gate Bridge District, Halifax Transit and the like. They've learned to use color and graphics effectively in 1971--broad expanses of color on clean backgrounds, and eye-appealing, starkly-modern graphics.

Look a bit closer to home--right at your own rapid transit system. SOM's new alphabet on the Ryan and Kennedy lines has earned praise from a wide spectrum of critics--inside and outside the industry. The clean lines of the Budd and Pullman cars--and their bright interiors--have gone a long way toward relieving the tedium commonly associated with riding transit.

But you're going to put the same, tired old paint job on the thousand new buses, inside and out; the same invisible, nondescript livery that shows off a CTA vehicle as anything but up-to-date, despite its chronological age. You're going to apply the same, tired old herald that was the latest thing 'way back in 1947; the same, tired old upper-case block letters that have distinguished bus--and streetcar--destination signs since time immemorial, even in the face of the striking new graphic example in your own back yard.

Both of your predecessors as Board Chairman at least distinguished themselves by presiding over at least a slight change in color and placement, even though they didn't have the advantage of a 30% renewal of the surface fleet. You have that advantage; is it going to slip by?

--RICHARD R. KUNZ



## ■ PAUL WEYRICH ■

## NICE THEORY, BUT IT DOESN'T WORK!

For several years now both the Senate and House Appropriations Committees have made a point of inquiring into the hiring practices of the Urban Mass Transportation Administration. Why, Congress wants to know, are there so few people in UMTA with prior experience in the transit industry?

Administration officials have given several answers. First, they say, if people are from outside the industry they will be more objective. Nice theory, but it doesn't work. That strikes me as making about as much sense as appointing an agnostic Bishop so he will be more objective about the church.

The transit industry is like any other industry; there is a great deal about it which is not readily apparent. As a writer and government assistant, I have been close to the subject for years. Yet, I never cease to be amazed at the practical considerations my friends in the industry raise when we discuss various projects. Some of these considerations never occurred to me; others I only half understood. I can imagine that somebody just out of Harvard or a shoe factory must have a bit of a problem understanding just how a transit system works.

Now Congress has never advocated that *all* UMTA employes have transit experience. In some areas, such as accounting, there is little need for experience at all. In capital grants, program planning, research and development and technical studies there is a crying need for a good balance between experienced and unexperienced. Those with experience bring the real world to UMTA. Those without it tend to be more innovative and prevent stagnation. About half and half would suffice.

Most of the people UMTA hires lack a practical background in transit. The program tends to suffer because of this. It is true people can learn; unfortunately, UMTA has so few who can teach.

The transportation field is littered with ten phonies for every genuine expert. Every other "expert" has some fantastic idea about how to move people. All he wants is a few million dollars and he'll show you how it's done. People are, by nature, attracted to the glamorous and like to ignore what really works. When the general public thinks of "heart specialist" it has visions of heart transplants. yet that radical solution has no bearing on 99.9% of heart trouble cases. When the general public thinks about transit, it is fashionable to mention "monorails" or "gravity trains". Such operations are unthinkable for 99.9% of America's transportation systems. UMTA needs a few more people who understand that. UMTA needs a few more people who are devoted to simple concepts like buses and rail cars. UMTA needs a few less people who get excited about computerized "dial-a-rides" and TACV's.

Administration officials also contend that people with transit experience are not hired simply because they are not available. Nice answer, but it isn't true. There *are* people available. True, a Billy Stokes or a George Krambles cannot afford to come to Washington for a GS-13 position. Nor should anyone of this caliber be asked to come, except for a top spot. There are many people who have worked a year or two for reputable consulting firms, or who have worked in the schedule department of a suburban bus company or who have had responsible positions in some of the nation's larger rail systems who would love to have the opportunity (perhaps even at a financial sacrifice) to make a contribution to the



federal program. UMTA knows the names of many of these people. Others should be sought out. Good people, even at the lower levels, are available if UMTA has a commitment to find them.

Finally, some Administration officials have privately contended that it really isn't the business of Congress who UMTA hires. That is sheer nonsense, of course. I suspect the way to decrease the interest of the Congress in this subject would be for UMTA to hire more qualified people. Otherwise, the question is sure to be raised again and again.

*(National Editor/East Paul M. Weyrich is a Washington-based former newspaperman currently assisting in transportation staff work for the United States Senate.)*

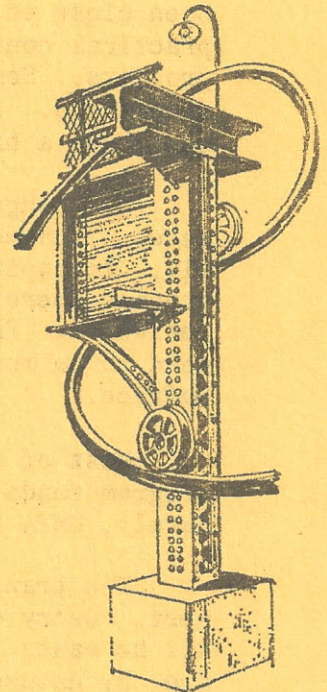
## METRO MEMO

### SHARING THE LARGESSE

■ With surprising speed, contenders for the \$200,000,000 in state funds for mass transit just voted by the Illinois legislature (TC 12 JUL 71) are lining up for their share of the aid, most with carefully-detailed applications, the better to qualify for federal funding.

Not unexpectedly, the Chicago Transit Authority was first in line, with a program of capital improvements totalling in excess of \$100,000,000 (TC 12 JUL 71). The CTA also filed for emergency debt service requirement funds of \$19,000,000 to stave off any increase in fares this year and to assist in alleviating the Authority's fiscal crisis.

Another request for \$13,900,000 was filed by the new NW Suburban Mass Transportation District for capital improvements to the West Line service of the Milwaukee Road; the road's program for improvement of its Chicago-Fox Lake and Walworth commuter line is already in progress under the aegis of the North Suburban Transportation Council. The West Line improvements call for the purchase of 25 new bi-level push-pull commuters (to add to the road's existing fleet of similar equipment); 25 SDP-45 diesel locomotives; various electrical and signalling improvements; station platform lengthenings and, most significantly, the construction of a new station serving a short extension of the commuter service west from its present terminal in Elgin. The "Almora" stop is to be located about three miles out on the line to Savanna and points west, northwest of the center of Elgin. A yard some distance further west at Almora itself will be established for overnight car storage, and negotiations are underway with the Transportation Department of the City of Elgin for local bus service to the stop, which will have ample parking facilities.



### 'L' tribute

A preliminary sketch for a proposed sculpture commemorating the "L" and made from a column and part of the elevated railway structure. This design, by Chicago artist Frank Huabeck, has not yet been formally approved and other artists will be invited to submit sketches. When completed the sculpture is to stand in front of the 50-story Mid-Continental Plaza now under construction on Wabash Avenue between Monroe and Adams streets.



Still another request for funds was filed by the financially-ailing South Suburban Safeway Lines (a Chicago suburban firm based in Harvey), for \$2,000,000 in emergency debt service retirement funds. The SSSL petition was filed in conjunction with the Chicago South Suburban Mass Transit District, the public body formed to assist in the purchase of new HighLiner cars for the Illinois Central. More requests are expected from other public and private carriers in the state, which will not be able to act upon them until the bond act is approved in court and the bonds themselves sold. Only emergency subsidy aid for the CTA will be forthcoming immediately, out of Illinois' general funds (which will be repaid after income from the bonds is received.).

*(Comment from this desk on a certain amenity that will be lacking in the 1000 new CTA buses to be financed in part by state funds; the problem referred to is present in other cities as well, but Chicago can serve adequately as an example:*

*The state of Illinois has a Parental Responsibility law that in effect makes parents liable for damage caused by their minor children. By and large, however, the law has not been adequately enforced, especially here in Chicago, and vandalism directed against public property by a small minority of children has called for across-the-board retaliation by various governmental bodies.*

*One of the results of this action has been the increasing use of vandal-proof fiberglass seats in transit buses, particularly in the larger cities. In Chicago, experimentation with the concept on portions of previous orders has resulted in the not-entirely-unexpected decision to similarly equip all future buses (but significantly not rapid transit cars) with such furniture.*

*Besides downgrading the standards of service (which, without air-conditioning on an overwhelming majority of the surface fleet are low enough already) the decision to get away from comfort is a slap in the face at the 98% of CTA riders who are perfectly law-abiding and whose mental processes do not include the idea of senseless vandalism. Particularly affected are the elderly, who always seem to be shortchanged in this society and who, by dint of not being automobile owners because of poverty or infirmity, are condemned to use public transit, where comfort, by and large, is not a part of the "game plan".*

*Perhaps riders of the CTA fleet do not take pride in it because the company does not, and such a decision would tend to confirm such a supposition. In Milwaukee, for example, transit cushionry has reached a fine art, and the often-ample posteriors of the good citizens are well-pampered on Transport Company seats. The company, of course, has a vandalism problem, but considers the cost of repairs part of the cost of doing business, and considers its prime obligation to be a good neighbor to the community at large.*

*In the case at hand, the only cliché that seems applicable is "burning down the barn to get rid of the rats". A driver of a CTA bus is obviously not a policeman but neither is he deaf, dumb and blind, and with the new and highly-touted radio system he is not isolated either. Perhaps a little attention directed toward the protection of public property, judicious use of the multi-million dollar communications system, and stern application of the Parental Responsibility law might breed a more healthy respect for that which in reality is yours and mine, and what is really a social problem might be solved by means other than denying good citizens their just due.)*



## THE ROZEMA REPORT

### **SAN FRANCISCO: The MUNI Gets an Unpleasant Surprise**

San Francisco Municipal Railway officials, stunned by bids for new streetcars \$173,000 *per car* above estimates, were looking at their book-length set of specifications last week for ways to bring the price down.

MUNI expected that the tab for the 78-car fleet of articulated units to replace its 105 PCC streetcars would come to \$25 million, about \$320,000 per car. It sought bids widely from both North American and overseas carbuilders. But when the bid opening took place July 12, only two concerns had submitted tenders—The Rohr Corp., bidding \$38.5 million (\$493,000 per unit) and Pullman-Standard, \$39.8 million.

The German concern popularly known as DuWag submitted a "non-conforming proposal" essentially for 78 of its standard model articulated streetcars at a price tag of \$18.4 million (about \$236,000 per car) but the units it would supply have neither the top speed, acceleration rate nor amenities that MUNI and the car designer, Louis T. Klauder Associates of Philadelphia, had required.

The requirements are for a double-ended, articulated vehicle, capable of both fast acceleration and a top speed of 65 miles per hour, incorporating semi-automatic operation in tunnels, cab signalling, multiple-unit trainline couplings and the ability to take passengers both from low and car-floor-height platforms.

Some of these features are dictated by the design of the MUNI (separate from BART) subway now under construction and due to open in three to four years. The subway will have island platforms at some stations and side platforms at others, all at car-floor height. It lacks a turning loop at the inner end, so it can't be used by the single-ended PCC cars.

So a replacement vehicle is required and it will have to be something like the present MUNI/Klauder proposal. The property had expected to have the successful bidder deliver the first of its vehicles in 1973, giving it time to gain experience with the cars in surface operation before the subway actually opened. Although no announcement has been forthcoming, three possibilities exist: re-advertising the order, with essentially the same specifications; revising the specifications to eliminate certain items like air-conditioning and cab signalling; or accepting the apparent low bid from Rohr and finding the additional money.

Observers of the local transit scene are speculating (as doubtless MUNI personnel are, too) why so few bids were received and how those that were could manage to be so far above estimates. Carbuilders may have hesitated to bid on a vehicle that had requirements not previously in North American transit-car orders, like the car-floor/street-level loading capability. Other design features, like the cab signalling and overspeed control, involve known technology that has nevertheless proved difficult to implement in transit operations.

These two factors contribute to the steepness of the price, the reasoning goes, along with another—that nobody in North America has been building a standardized railcar for any operator for the past 20 years. The only continual carbuying during that time has been on the part of the New York City Transit Authority. These have been designed to be compatible with 1946-era cars at the authority's behest in order to reduce operating costs, spare parts requirements and car-assignment problems. So every other car order has become essentially a custom job at custom prices. The MUNI may have felt its proposal would be applicable to other operators like the City of Shaker Heights, SEPTA or the Toronto Transit Commission. But apparently the carbuilders didn't see it that way.

—Charles F. Rozema

## URBAN POTPOURRI

■ Alas, how the mighty have fallen: Last year local service in Danville, Illinois operated by the Bee Line (a Chromalloy/ATC property) that utilized small GMC buses was discontinued because of the inability of city and voters to agree on a subsidy program; as is customary with ATC-owned firms, standards of service were always high, even at the very end. Monday, a modicum of service returned to Danville, in



the form of five "minibuses" (actually 15-passenger stretched-out Chevrolet vans). The Danville Minibus Company operates over several routes on a typical 30-minute headway, using women drivers exclusively. Adult fare is 50¢, payable to a parking meter-type farebox just inside the front door of the "bus".

■ The Mechanical Department of the IC has come up with an 11" x 17" scale drawing of its new HighLiners for modelling purposes, available free by sending a #10 envelope, stamped, to the road, Room 301A, 135 E. 11th Pl., Chicago 60605...■ Free bus service on shopping nights in Springfield (IL), subsidized by local merchants has been well received by sponsors and shoppers and may be continued for a year beyond its August termination date...■ The first five weeks or so of SMTD "Rail-Splitter" open-air bus service in that city saw a total of more than 1750 riders using the unique White (TC 28 JUN 71)...■ Pittsburgh Mayor Peter Flaherty has come out against the SkyBus, as has an Allegheny County Commissioner (see report elsewhere in this issue)...■ The city of Decatur (IL) is now subsidizing the NCL-owned Decatur City Lines, pending takeover...■ ATC's Chicago & Calumet District Transit of Hammond has been closed down by a walkout of drivers that is at least in partial sympathy with management's pleas for assistance from local municipalities...■ A free downtown bus service is now operative in Vancouver, B.C...■ Hamilton St. Ry. subsidiary Canada Coach Lines is for sale...■ Legislation permitting the construction of a rail rapid transit system in the Buffalo area and to unify seven area bus lines has been approved by the New York legislature and signed by Governor Rockefeller.

## RAILWAY REPORT

### AMTRAK ADDENDA

■ DOT is considering a plan to upgrade rail service from Boston to Miami and to Atlanta by offering financial inducements to participating roads to upgrade roadbeds and track. Expenditure of \$1,500,000,000 would insure completion of the program in time for the bicentennial of the U.S. in 1976; twelve of the original 13 colonies would be linked by the speeded-up system...■ The first of transferred cars are beginning to show up on the AMTRAK system. GM&O has received the first of ten UP units (coaches and diner-lounges in the 5500 and 5000 series) for its Chicago-St. Louis service, and dome equipment has been talked of for one run.

### OPEN TRACK

■ As this is written the North Western has settled with the UTU in its dispute as to pay and work rules. The most significant agreement permits the road to assign operating crews to runs without regard for the hoary (and obsolete) "100-mile" divisional rule, a definite first for the industry; the action sets a pattern for UTU's other negotiations as the C&NW acted alone in its bargaining...■ The ICC has held that 8 passenger trains operated by PC between New York and Chatham, N.Y. are intercity in nature, not commuter...■ The FRA has proposed its first track safety standards, to go into effect October 16. Six classifications of track are established, each with its maximum allowable speed...■ The WALL STREET JOURNAL reports that a management-labor committee has been established in a crash effort to save the Central Railroad of New Jersey, in bankruptcy for more than four years. The committee will explore ways to lift CNJ out of its financial hole.



## AIRLINE ACTION

### JET JOTTINGS

■ Judicious juxtaposition: Under a story on the domestic carriers' financial difficulties titled "Airlines' Woes Soar" CHICAGO TODAY ran another piece entitled "1,000 Passenger Jet Planned". Cause and effect?...■ American Airlines had planned to be the first domestic to introduce the DC-10 in regular service, beginning on August 17 (Chicago-Los Angeles), but United, a later starter in the race, upstaged its rival by planning its own DC-10 inaugural run one day earlier, between San Francisco and Washington/Baltimore. The McDonnell-Douglas tri-jet is a wide-bodied craft similar to Boeing's 747...■ LAN-Chile inaugurated direct air service between Santiago and Havana with a Boeing 707 run July 18.

■ An arm of the Northeastern Illinois Planning Commission voted to bar expansion of O'Hare by vetoing a \$3,000,000 DOT grant for runway expansion, in effect forcing an early decision between warring political factions on a third Chicago jetport...■ The CAB has recommended that American be authorized to operate nonstop between Chicago and Acapulco; presidential approval is still required...■ Mainland China's Premier Chou En-Lai has approved Air Canada's bid to link Vancouver to Peking or Shanghai, but many details must be worked out before flights begin...■ The CAB, in retaliation against Australian restrictions of U.S.-flag carriers in that country, has voted to bar Qantas from beginning jumbo-jet service to the U.S. in September...■ Air Canada's service linking Chicago to Canada was 25 years old July 1...■ Pan Am has discontinued 747 service between Chicago and London because of low load factors, instead substituting 707s...■ Britain has banned foreign 747 charter flights (except those of U.S. carriers) from using U.K. airports...■ Braniff has added more nonstop service between Miami and Lima, Peru.

■ Maverick Southwest Airlines (Texas) has ordered its fourth 737-200...■ TWA has withdrawn 747s from Washington-London service in favor of 707s...■ China will not purchase U.S. jets, largely for political reasons, but is looking at British jets...■ Qantas has purchased its fifth 747B...■ United has cancelled its options to buy five DC-10s, but will still purchase 22...■ A CAB examiner has recommended that New York/Washington-Latin America passengers on Pan Am and Braniff be allowed to stop over in Miami for as long as a year...■ The Board has nixed U.S. Steel's plan to buy supplemental carrier Johnson Flying Service of Missoula...■ The FAA will fund a study of the possibility of constructing an offshore jetport for New York City...■ The world's charter airlines has formed an organization to counter the wave of lower fares being offered by scheduled carriers...■ Los Angeles Airways (helicopter) is to be acquired by Golden West...■ TWA and Pan Am are talking merger.

## BUS BRIEFS

### OVER THE ROAD

■ The wider bus (102") bill is overcoming one Congressional roadblock after another in its march toward passage...■ North Star Lines (Grand Rapids) has acquired Greyhound's rights between Holland and Petoskey (MI) via Muskegon and Ludington; service will continue on to Sault Ste. Marie...■ The NTSB has recommended that use of seat belts be made mandatory for passengers and driver on all interstate buses.



## TRANSIT JOURNAL

*(EDITOR'S NOTE: The controversy over the value and viability of the SkyBus concept as applied in Pittsburgh is certain to be a continuing one. Much heat has been generated over the proposal, and opponents and proponents have been lining up on one side or the other for many months. TRANSPORT CENTRAL's news columns have carried a number of stories about the project, and its editorial columns have waxed heavily in opposition to its Pittsburgh application. One of the more outspoken opponents of the plan has been former Pittsburgh Railways head and PAT board member C. D. Palmer. His testimony in rebuttal to that advanced by the PAT board itself in favor of the SkyBus has received little publicity, a situation we hope to remedy over the coming weeks by its publication in these pages. The testimony was read into the record by Mr. Palmer on May 6, 1971, and is excerpted in several installments beginning below:)*

### CHOICE OF TECHNOLOGY AND ROUTE

The Port Authority came into possession of the transit system it presently operates on or about March 1, 1964.

Shortly thereafter (October 1965) it employed the highly-qualified consulting engineering firm of Parsons, Brinckerhoff, Quade & Douglas (PBQ&D) to make a rapid transit study of Allegheny County at a cost of \$41,000.

While the study was in progress, the PAT board became involved in demonstration of the SkyBus concept of rapid transit sponsored by Westinghouse Electric Corporation, i.e., Phase I South Park Demonstration Project. An important objective of the demonstration was to create and test a concept of rapid transit that would involve lower capital and operating costs than a so-called steel-wheel or traditional system.

Before that concept had been evaluated and tested, and before PBQ&D had filed its report, the Board in 1967 chose to concentrate its planning on the SkyBus rubber-tired technology.

The PAT board became enamored with the notion that since the SkyBus was quiet in operation it would be more susceptible of public acceptance because its quietude would make it possible to maximize aerial construction and minimize the more costly subways. The greatest appeal of the concept, however, was that above all it was innovative.

The PAT board also pressed acceptance of the concept on the claim the Federal government was more sympathetic toward and likely to approve grants for construction of innovative rapid transit systems than for "traditional".

Since the Authority had acquired valuable private rights-of-way in its acquisition of the transit properties of the Pittsburgh Railways Company, it was not surprising that it would adopt a plan for construction of its revolutionary concept that would make maximum use of these rights-of-way.

The plan to utilize the existing rights-of-way also served a dual purpose in that it satisfied the thirst of the Board members and its management to retire



streetcars operated on these rights-of-way. Maintenance of streetcars and the plant related to their operation had been studiously and assiduously neglected from the time the Authority took over their operation.

This animosity to the trolley car also contributed to the Board's decision to choose the rubber-tired technology vs the PBQ&D-favored steel wheel.

The record [of hearings held by the Allegheny County Commissioners, held in August, 1969] will disclose that Westinghouse Air Brake Company (WABCO) at the invitation of the PAT board made a study setting forth a plan in preliminary form for modernizing the plant and rolling stock associated with the private right-of-way routes. This plan, which would have cost much less than the proposed Early Action Program [involving the SkyBus and other busways--ED] would employ the proven steel-wheel technology. It had the advantage not only of lower cost but could be implemented immediately and progressively pursued with a minimum of disruption of service continuity and established customer travel patterns.

It had, from the standpoint of the PAT board, a fatal defect. It employed the completely-proven steel-wheel technology albeit employing modern, quiet rolling stock, welded rail and the latest refinements in Automatic Train Control (ATO). Instead of full automation, however, the WABCO plan contemplated an on-board attendant to override the ATO in an emergency.

PAT witnesses in the Commissioners' hearing testified that the PAT board had studied the WABCO proposal and had concluded to pursue instead the Early Action Program. The witnesses in the Commissioners' hearing did not testify under oath. The fact is the PAT board rejected the WABCO Plan before it was presented to them.<sup>1</sup>

The statements made in the public hearings to the effect that the WABCO plan had been evaluated by the PAT board in comparison with their EAP were not true.<sup>2</sup>

The TERL [Transit Expressway Revenue Line--ED] as originally adopted by the PAT board fragmented the existing service of routes LIBRARY, DRAKE and DORMONT/MT. LEBANON in that it was substituted for the outer end of the DORMONT/MT. LEBANON route, took a center portion out of the LIBRARY line and abandoned the DRAKE line completely. True, this plan was modified at the insistence of UMTA to maintain the LIBRARY line for a period of eight and a half years but the ultimate threat to the continuity of that service remains.

The application of the SkyBus technology to urban rapid transit has been considered on only one other city and that was by the Metropolitan Transit Authority of Baltimore, Maryland. The Authority in that city in arriving at a decision with respect to vehicle technology considered the rubber-tired vehicle vs conventional rail rapid transit. It had before it a study made by Kaiser Engineers and Daniel, Mann, Johnson & Mendenhall which recommended a vehicle operating on single axle rubber-tired undercarriage guidance system with smaller vehicles, i.e., SkyBus, rather than conventional rail rapid transit cars. In reaching its decision on the merits of the two technologies the Authority visited modern rapid transit systems in operation or under construction in the United States and Canada which utilized both rubber-tired and steel-wheel technology.

Based on this experience and taking all factors into account the Authority in November 1970 voted to adopt the steel-wheel technology for its rapid system. In evaluating the advantages and disadvantages of the rubber-tired technology the Authority identified only one major possible advantage and that was in the area of noise control. But, they concluded, even in that area the case was not clear-cut. Based on inspection of rapid transit systems in Europe they found that a new



steel-wheel subway in Berlin was "definitely" quieter than the rubber-tired trains in Paris, i.e., like the same type rubber-tired trains in Montreal and Mexico City.

In this writer's opinion and based on several experiences, there is no discernible difference in noise levels comparing the Toronto steel-wheel system with the Montreal rubber-tired system, both operating in subways.

#### ESTIMATED CAPITAL COSTS AND CLAIMED OPERATING COSTS OF THE T. E. R. L.

The SkyBus concept was promoted and undertaken as a rapid transit concept embracing modern technological innovation, which would have lower capital and operating costs than the conventional rail rapid transit systems in use in areas of high population density. It was specifically aimed at achieving a design applicable to medium population density urban areas.

It is apparent that the objectives of lower capital costs and operating costs of the concept are not obtainable. There is no valid or logical basis therefore to pursue the TERL as a demonstration.

The application states the Early Action Program costs will total \$228,556,000, including escalation, attributed to each of the three principal project elements and a contingency of 10% applied to the total project. Thus, TERL is estimated to cost \$162,551,000, including escalation, and by adding 10% - \$178,806,000.

The Preliminary Engineering Report presents an estimate of the capital cost of TERL to be \$162,551,000, including escalation and \$180,716,000 with contingency.

The total length of TERL is stated to be 10.6 miles, so that the estimated cost of TERL, based on \$180,716,000, is \$17,050,000 per mile.

The TERL concept is claimed to have a great advantage over "traditional", i.e., steel-wheel technology in that it is so much more quiet in operation and its unprecedentedly small cars are so much less obtrusive than aerial structures, as contrasted with the much more costly underground structures will be much more acceptable to those concerned with environmental pollution.

Thus, the design of the TERL proposes to utilize aerial and at-grade construction for 9.07 miles or 86.8% of its route mileage. It proposes to use existing tunnels for 1.2 miles on 11.5% of its route and new tunnel construction for only 0.18 miles or 1.7% of its route.

These figures are altered somewhat by the agreement with Mt. Lebanon Township Commissioners to substitute a cut-and-cover subway along Washington Road in the Township between McFarland Station and Shady Drive East, a distance of 3,000 ft.

This change, significantly, negates the contention that the diminutive, quiet-operating SkyBus cars operating on an aerial structure supported by "slim, tapering columns and long clean stringers...aesthetically pleasing" are acceptable in built-up areas--which Mt. Lebanon certainly is.

Although the residents of Beechview have not been heard, largely because of the deafness of the City planning authorities, it cannot be doubted that they have an antipathy toward the aerial structure proposed for their community.

Another advantage that the proposed alignment of TERL possesses is the extent that it utilizes existing right-of-way owned by PAT; 23,550 ft., or 4.46 miles,



which is 42% of the total TERL length. In fact, the selection of the adopted TERL route in the Early Action Program for the first application of the SkyBus technology on a fare-paying passenger route was very greatly influenced by the existence of these PAT-owned rights-of-way.

Despite the advantages of owned rights-of-way, maximum use of aerial and at-grade structures and employment of existing tunnels, it is estimated that TERL will cost \$17,050,000 per mile.

Proponents, i.e., Westinghouse Electric and PAT directors, assert without furnishing proof that the SkyBus technology is less costly to construct than "traditional" technology--steel wheel. The facts are to the contrary.

PBQ&D, whose qualifications in the field of rapid transit engineering and construction are of the highest order, compared the cost of a steel-wheel system and a comparable Transit Expressway rubber-tired system and found the latter costlier.

Recent installations of the "traditional" technology in Toronto, where a much more costly cut-and-cover subway was built on a right-of-way thru a highly developed commercial district that had to be acquired, cost but \$20,000,000 per mile.

The San Francisco BART system, which will hopefully come on stream in 1972, and which includes in addition to at-grade and aerial, subways, a tunnel under the Berkeley Hills and 5 miles of sub-aqueous tunnel under San Francisco Bay, will cost \$12,600,000 per mile.

The combination rubber-tired steel-wheel system in Montreal opened late in 1966, is 100% subway (70% in tunnel, 30% in cut-and-cover), and cost \$14,300,000 per mile.

Additionally, and significantly, there are those in the PAT organization that have no faith in the validity of the estimate of \$180,716,000 estimated to be the cost of TERL. In the area of property acquisitions alone PAT has acquired only one property, that at Milford, which is at Washington Junction, the site of the proposed TERL Bethel Park Station. In that situation PAT paid \$214,000 for a property included in the estimated TERL cost at \$14,000.

The unsupported assertion by Westinghouse Electric and by PAT board members that the SkyBus concept is less costly than "traditional" systems is just not so.

The claim that TERL will benefit the financial results of operation of PAT is predicated upon a statement that projects revenues and expenses for the South Hills Regional System for twenty years (1975-1994).<sup>3</sup> The projections are misleading and unreliable for the following reasons:

- (1) The estimates are predicated on a system comprising TERL and a feeder bus system complementing it. No charge is made for the cost of the investment required to implement the system. As a minimum, a capital charge should be included for the local share of the capital cost, i.e., net of Federal and state grants.
- (2) The estimate is predicated upon the premise that the TERL will be operated without on-board attendants and no estimate is given to reflect the contingency that such operation will prove to be unacceptable to the riders dependent upon TERL.
- (3) The feeder bus revenues and expenses are predicated on the assumption that one-third of all TERL riders will use feeder buses for varying portions of their journey.



The estimated operating cost of the feeder bus system is completely unrealistic.

Obviously, the feeder buses will require on-board attendants, i.e., operators. The estimate of Feeder Bus Expense assumes a level annual cost of operation for each of the first nine years of \$2,331,478; for each of the next eight years of \$2,404,978, up 3.2%; and for each of the next 3 years \$2,478,478, up 3.1%.

Thus, the estimate assumes that wage rates and fringe costs of bus operators and of bus maintenance employees would remain stationary for 9 years, rise only \$73,500 for the next 8 years, and rise only \$73,500 for the last 3 years. Such an unrealistic estimate not only attests to the lack of qualification of its author but makes all other elements of the estimate equally suspect and unreliable.

Parsons, Brinckerhoff, Quade & Douglas made a study of the comparative operating cost of a Transit Expressway system vs. a steel-wheel system and concluded that the former was more costly.

#### TRAVEL TIME VIA TRANSIT EXPRESSWAY REVENUE LINE VS. PRESENT

Rapid transit must provide savings in travel time to be meaningful and of value to the patron who relies on mass transit. Saving in travel time is an important inducement to attract to public mass transit those who rely on private transport. The Transit Expressway Revenue Line (TERL) will not provide significant benefits in the form of reduced travel time to present patrons of routes TERL will replace.

Savings in travel time are only meaningful if calculated from origin to destination. By this test, the travel times claimed for TERL for all present patrons of PAT's LIBRARY route (35), DRAKE route (36) and DORMONT/MT. LEBANON route (42/38) provide them with no significant time saving and in certain important instances will result in an actual increase in travel time.

The TERL station location in the Downtown Triangle CBD is responsible for a large amount of the lack of time saving. The Downtown distribution route of the TERL concentrating on the proposed Midtown Plaza Station and the proposed Penn Central Park station, only 1,600 feet distant, is ill-conceived and is so inconvenient to passenger destinations in the CBD as to negate the modest time savings claimed of the TERL.

The CBD alignment adopted for TERL was not favored by PBQ&D and was included in that firm's studies only because it was recommended to do so by the City Planning Commission. The downtown distribution alignment paralleling and in proximity of Market Street and Wood Street favored by PBQ&D was one which would be accepted to be the most desirable and meritorious by anyone conversant with travel patterns. It should be understood that the great preponderance of the patrons on routes 35, 36 and 42/38 come from bedroom communities and are destined for the CBD. They are presently distributed in the CBD at frequent stops along Grant, Smithfield and Wood Streets.

It is a brisk 7-minute walk from the intersection of Fifth Avenue and Smithfield Street in the heart of the Golden Triangle to the TERL Midtown Plaza station located near the present site of the Plaza Building at the intersection of Sixth Avenue and Fifth Avenue. The time required to walk from this inconvenient station location negates almost completely the claimed savings in travel time of TERL to Midtown Plaza from relevant TERL stations.



<u>STATION</u>	<u>TIME SAVING CLAIMED IN MINUTES</u>
Beechview	4
Dormont	7
McFarland	8
Mt. Lebanon	(Not Indicated)
Castle Shannon	8
Washington Junction (Bethel Park)	8

Furthermore, the claimed time savings would apply only to patrons who board existing transit service at TERL stops which are at or near present stops.

In this sort of comparison, account must be taken of the frequency of present stops outside the CBD in relation to the infrequency of the TERL stations. Taking as an example, the McFarland Road station which is 4,050 feet inbound from the Mt. Lebanon station: Between McFarland station and Mt. Lebanon station there are three stops now available to board and alight from Route 42/38 streetcars. The stop at Florence Way which is about midway between the proposed TERL stations is a brisk 9-minute walk to the McFarland station site. A heavily patronized stop now located at Bower Hill Road is a brisk 6-minute walk to McFarland Road.

A passenger now boarding at Bower Hill Road and destined to Fifth and Smithfield would under the TERL plan have an increase in travel time of about 5 minutes instead of a claimed saving of eight minutes.

In the aggregate the TERL will not benefit the Mt. Lebanon patrons of route 42/38 and in fact will make their service more time-consuming and less attractive than the service now available to them.

The Engineering Report claims a time saving of 7 minutes from the proposed Dormont station to downtown Pittsburgh. No comparison is shown relating to proposed Shiras station. The distance between TERL Dormont and TERL Beechview is 5,900 ft. At the present time, streetcar operation in this stretch is substantially uninterrupted. Taking this into account, the claimed saving in time from Dormont (7 minutes) in comparison with Beechview (4 minutes) is incredible. Logically, the time saving from Dormont would bear a closer relationship to the Beechview time saving of 4 minutes than the claimed 7 minutes.

However, it is certain that the residents of the city of Pittsburgh who would use the proposed TERL Shiras station and the proposed TERL Beechview station would experience a lengthening of travel time to CBD in comparison with present service.

#### FEATURES OF TERL BEARING ON PASSENGER SAFETY

(In this section discussion will be limited to those features of the vehicles, their on-board equipment and the roadway structures that bear on passenger safety.)

##### VEHICLES

- The vehicle will be unattended.
- The vehicle will be bidirectional and equipped with 4 doors--two on each side.
- The vehicle doors are equipped with sensitive edges so that a train cannot move until all doors are safely closed and locked.
- Each door is equipped with an emergency lever which when activated will bring the vehicle or train to an immediate halt and override all locking mechanisms thus enabling the doors to be pushed open.



- The floor of the car is 2 feet 11 inches above the roadway.
- Each vehicle is a complete unit operable singly or in train with no access from car to car when operated in train.
- Each vehicle will be provided with either a hand set or a speaker box with push-to-talk button allowing any passenger to speak to Central Control.
- Forty of the 145 vehicles required to equip the system will be equipped with television cameras so that a picture from a single vehicle train will be transmitted to the passenger station it is approaching. This, it is claimed, will provide continuous surveillance for single vehicle trains operating in the off-peak and night hours.

## ROADWAY

- The great proportion (87%) of TERL will be constructed at-grade and aerial.
- The adopted design of the at-grade structure (3.64 miles) incorporates precast reinforced concrete box stringers, 15" wide by 33" deep, spanning center concrete piers spaced at 40 foot centers. The roadway slabs, 5" deep by 22" wide, will be cast on top of the stringers. Diaphragms spaced at 15' maximum centers will be cast in place to brace the pair of stringers of each span and provide support for the guide beam and power conductors. The roadway slab surface is 5 feet above ground level. Between the two roadways it is planned to place a galvanized steel walkway grating supported by and at the grade of the roadway slabs.
- The aerial structure (5.43 miles) will be employed where grade profile of the roadway is 8' to 105' above ground line. It will employ steel I-Beams instead of concrete stringers used in the at-grade sections and steel diaphragms. Otherwise, the principal difference between aerial and at-grade is that the former will be supported at span ends by a single slim, tapered column and the latter by concrete piers.

By way of summary, 25,000 lineal feet of aerial double roadway are located 8 to 40 feet above ground surface, 1800 lineal feet are 40 to 60 feet above ground surface and 1700 lineal feet are 60 to 105 feet above ground surface.

The distance between roadways is such that the outsides of the outside tires of the vehicle are almost precisely at the outer edge of the roadway slab. Thus, except at stations, escape from the vehicle from doors on its outside would involve a sheer drop of from about 8 feet to about 108 feet when account is taken of the 2'11" height of the vehicle floor above the roadway.

This hazard may seem remote except for the fact that activating the emergency door operating lever balances all doors so that under panic conditions and in darkness some passengers might seek egress or be forced out of open doors on the right side of the vehicle into space.

The principal hazard in the design, however, centers around the use of the walkway in the evacuation of a disabled train. Egress from the vehicle to the walkway involves a step down of 2'11" to the level of a 3'6" walkway with trains operating normally at 2-minute intervals on the adjoining roadway. These evacuations would be under emergency and conceivably panic conditions. The evacuations could take place on structures as high as 105 feet above ground level.

The stretch of TERL from the South Portal of the Wabash Tunnel to the site of the proposed Beechview station involves about 8,000 feet of aerial and at-grade structure. Aerial structures in this stretch, involving heights of from 95 feet to 105 feet above ground line, have spans of 1,900 feet, 1,800 feet and 1,200 ft.