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(Editor's Note: A slow news fortnight has made it possible to present the final installment of the Palmer SkyBus testimony in its entirety; the regular editorial comment usually seen in this space has been omitted to make room for news coverage. This is the last of our special double summer [bi-weekly] issues; regular weekly production of Transport Central resumes September 6, 1971)

METRO MEMO

URBAN REPORT

■ Reading between the lines: This reporter hastens to point out that his initial impressions of the riding quality of Dayton's new Western Flyer trolley coach are not to be taken as implying any serious criticism of the unit; the somewhat juncy ride I noted has been traced to faulty shock absorbers, and WFC and City Transit are happy to report the bumps have been smoothed out. Now, if the interior could be brightened up a bit...

■ No date has been set as yet by Pittsburgh's PAT for the conversion of the three trolley lines (KNOXVILLE, BELTZHOVER and CARRICK) to motor bus operation under Phase III of the Early Action Program (see Palmer Report, elsewhere in this issue) as the uncertain arrival dates of the new equipment (scheduled to begin in mid-September) preclude any hard and fast timetable.

■ Diligent investigation has turned up the fact that yet another Chicago Transit Authority trolley coach line (#12 ROOSEVELT) is scheduled for conversion to motor bus "soon", prompting a comment by one TC reader that such action just might not be an improvement, else CTA's efficient PR system would be trumpeting said news from the rooftops. No routing changes are involved here, merely the desire to rid Kedzie barn of its sole remaining overhead route, and new buses are still a great way down the road.

■ For the umpteenth year in succession, the Toronto Transit Commission is operating special service to the Canadian National Exhibition, including three special streetcar lines (trippers from BATHURST, KING and DUNDAS)...■Champaign-Urbana's gaudily-painted fleet of T6H-4521A GMC units (would you believe a lavender bus?) is now in service, replacing the ancient fleet of older GM's operated by predecessor C-U City Lines (once NCL-owned). C-U's Mass Transit District has also acquired all of Peoria's ten TDH-4517's (two are A/C) now rendered surplus by the Mass Transit District serving that city; they will be used largely in campus services.

■ Have another interesting fact: The cost per year for CTA to maintain an air-conditioned bus is about \$350/unit, while the cost of maintaining present "soft" seats runs to but \$50-90 per bus per year; nevertheless fiberglass "cushions" are on the way in. Also, any chances for a new, modern color scheme on CTA's 1000-bus order have been dashed by the decision of Operating Manager Charles Keiser that a change in exterior livery would upset the passenger "recognition factor".

■ Last week, a report by the National Transportation Safety Board noted that rapid transit facilities in Chicago, New York and Philadelphia were "unsafe" and that federal grants be tied to the preparation of specific safety improvement

plans. According to the NTSB:

"The scope of the study was intended to include the CTA's operation, which includes new equipment and newly-constructed track. Observations were made only by riding CTA trains, since the CTA initially declined to respond to the safety board's request for accident statistics and briefings on the approaches to safety in their operations. Accident data were offered near the completion of the study but was too late to be included."

CTA's non-cooperation was considered significant by the Board in view of the provision in the Urban Mass Transportation Assistance Act of 1970 directing the federal government to guarantee safety in projects it funds. CTA officials denied the system could be considered unsafe.

■ The new North Suburban (Chicago) Transit District, formed to assist in the purchase of new commuter cars for the Milwaukee Road as well as coordinate services (as outlined in an extremely lucid and eminently sensible report) will go into business October 15; 17 suburbs are involved...■ The Springfield Mass. Transit District (IL) gets five new buses in October, to be numbered 7121-25. SMTD now is providing a limited "door-to-door" local bus service during late-evening hours in conjunction with the Illinois State Fair. District riding overall is up 30% in the three years of municipal operation...■ The Cleveland Transit System instituted numerous service cuts August 1 to help stem the flow of red ink caused by the 1970 "wildcat" strike that resulted in pay raises for operating personnel...■ Korea's capitol of Seoul is building a subway.

RAILWAY REPORT

TRACK TALK

■ The TurboTrain has begun a month-long endurance and public demonstration run that will see it cover 12,000 miles of the AMTRAK system. Regularly assigned to the New York-Boston runs, the two TurboTrains have been steadily improved since their debut. Several months ago, one unit made a round trip to Colorado, ostensibly to participate in a dedication ceremony at the Pueblo Test Track. A rail strike midway in its journey saw the Turbo stranded here in Chicago, but a decision was made to run to Pueblo anyway. The crowds that the Turbo drew on its cross-country (Yes, Virginia, there is a modern U.S. passenger train) so astounded DOT officials that it was decided to cash in on the Turbo's "charisma" as well as test the train in actual service on various runs. Hence, the new tour; the train will be used to augment regular AMTRAK trains in six corridors: Chicago-St. Louis; Chicago-Cincinnati; Los Angeles-San Diego; Buffalo-New York City; New York-Washington and Portland-Seattle as a precursor of possible regular service with similar equipment on those runs. (Watch for it in your area soon!)

■ Illinois Governor Ogilvie has urged AMTRAK to restore Chicago-Quincy service dropped by the BN May 1. Western Illinois University students made regular use of the run (WIU is in Macomb), and the governor pledged state funds for restoration in time for the fall semester...■ A MetroLiner milestone: Last week the new high-speed service, begun January 16, 1969, carried its three-millionth passenger...■ The Penn Central has signed a memorandum of intent to sell its main line passenger tracks between Boston and the Rhode Island line to the Commonwealth of Massachusetts and the Massachusetts Bay Transportation Authority. The state is planning upgrading of the line and retention and expansion of passenger services.

AIRLINE ACTION

JET JOTTINGS

■ The left hand giveth, and the right hand taketh away: In the wake of legislation guaranteeing a \$250,000,000 loan to Lockheed, financially-strapped after the bankruptcy of Rolls Royce, the same Administration has ruled that engines imported from England are subject to the new 10% import tax, thus adding \$400,000 to the cost of each new TriStar jet.

■ The "Red Baron", Lufthansa, has turned IATA's careful negotiations aimed at ending the North Atlantic price war into a shambles by vetoing the fare package worked out in Montreal. The package included some simplification of the tariff structure and lower fares for those passengers willing to pay far in advance of their trips. Inasmuch as unanimous agreement is required for the cartel's proposals to become effective, one vote could kill the deal--and Lufthansa, believing the package could be even simpler, with still lower fares, did just that. In the face of this action, Air Canada and BOAC said they will reduce their fares anyway if the German flag carrier does not reconsider by the September 1 deadline, paving the way for a serious price war when applicable agreements expire next year.

■ Any air fare hikes on the horizon before November 12 have been put off as the result of the wage/price freeze, according to the CAB...■United, TWA and American have proposed certain promotional fare reductions aimed at bolstering their sagging load factors...■BOAC has sacked 100 of its trainee pilots because of a lack of positions for them in regular service, owing to the travel slump...■Air India will file a \$450 round trip individual excursion fare between the U.S. and India in a bid to increase tourism to India from the U.S...■Since U.S. carriers are not now permitted to land at Dublin, the State Department said last week that Aer Lingus, Eire's flag carrier, will not be permitted to land in New York after one year. This is the first time that the U.S. has threatened to use its retaliatory powers in such a situation; U.S. planes are permitted only to land at Shannon, on Eire's west coast, where they can board Irish planes to Dublin...■The CAB has authorized American, TWA and United to jointly reduce flights on four routes by an average of 28 per cent October 1 in the wake of declining riding; the reductions are tabbed for New York-Los Angeles, New York-San Francisco, Chicago-San Francisco and Washington-Los Angeles.

■ ADS INFINITUM

RUNNING EXTRA: A tour of the soon-to-be-discontinued Marin and Contra Costa Divisions of Greyhound's San Francisco area commute service August 28, using Mack and TDM-5103 units. Details from G.L. Squier, 189 Crestwood, Daly City CA 94015.

AVAILABLE NOW: "The Story of the Mansfield (OH) Transit Systems from 1849 to the Present", with pictures and history never before in print. There a photographs of fare forms as well as of streetcars and buses that ran in Mansfield. \$3.95, from Jeffrey R. Brashares, 825 Peaceful Path, Mansfield, Ohio 44907.

ALSO AVAILABLE: 20 remaining copies of "The Trolley Coach in Chicago: 1930-1970, composed of reprints of trade magazine articles, route and roster data. \$3 with postage from The CopyShop, 416 No. State, Chicago 60610.

TRANSIT JOURNAL

(Part III of the testimony of C. D. Palmer, opposing PAT's SkyBus grant proposal)

CONSULTANTS

The Preliminary Engineering Report is incorporated by reference in the Final Application for Capital Grants for Design, Engineering and Construction, dated March 3, 1970, Revision #2. The principal purposes of the study reported in the Preliminary Engineering Report were to evaluate the feasibility of the civil, mechanical, electrical and electronic aspects of the SkyBus and to perform the preliminary engineering, applying that concept to a specific route.

Westinghouse Electric Corporation, the originator and principal sponsor of the SkyBus concept, was named by the PAT Board as the prime contractor on the study, which was financed by Federal, State and County grants, totalling \$494,000. In other words, Westinghouse Electric was given the engagement to prove the feasibility of its own unprecedented and innovative concept, a circumstance that makes the objectivity of the study results highly suspect.

To perform the all important Systems Engineering, Westinghouse recommended Kaiser Engineers to the Executive Committee for Rapid Transit appointed by the PAT Board of Directors to oversee the overall study. No other firm of engineers was considered and Kaiser got the assignment.

Kaiser Engineers and the engineering firm of DMJM (Daniel Mann, Johnson and Mendenhall) began a feasibility study of rapid transit for Baltimore, Maryland on June 16, 1967. The final report of that study, entitled "Baltimore Region Rapid Transit System--Feasibility and Preliminary Engineering" was issued October 1968. The report recommended a rubber-tired system.

At the time, January 1969, that Westinghouse Electric, the prime contractor on the feasibility study of application of its innovative rubber-tired SkyBus technology to a revenue-producing line, it recommended Kaiser Engineers as the subcontractor on a most significant portion of the study, an engineering firm that already had recorded a preference for that sort of technology.

It was improper under the circumstances for Westinghouse Electric to have been retained in the first instance as prime contractor and the impropriety was compounded by selection of Kaiser Engineers which had previously evidenced a bias in favor of the technology Westinghouse was promoting.

Prior to, and in anticipation of approval by UMTA in June 1970 of the grant of federal funds to finance Phase A of the Early Action Program, the PAT Board selected the engineering firms to perform the Final Design and Engineering and the Construction Management of the Program. For the TERL phase of the Program, Kaiser Engineers was selected over three other equally or better qualified firms. Kaiser was selected primarily because of its familiarity with TERL on account of its having served as a principal subcontractor in the preparation of the TERL Preliminary Engineering Report.

Chronologically, this is what happened:

- 1) Westinghouse Electric advances an innovative, unprecedented concept of rapid transit.
- 2) Largely at public expense a demonstration project was constructed at South Park on which Westinghouse was the prime contractor.
- 3) MPC Corporation was employed to evaluate the demonstration project and identified a large number of areas in the technology requiring additional research and development before the concept can be considered commercially feasible.
- 4) A follow-on program was authorized, and funded mostly with public money, to carry out the research and development identified by MPC Corporation. Westinghouse was employed to carry out the program.
- 5) The follow-on program was scheduled for completion December 31, 1969. Before that time it was reduced in scope at the insistence of Westinghouse and scheduled for completion September 30, 1970, which was later extended to April 30, 1971, and now scheduled for completion in late summer 1971.
- 6) Westinghouse was employed in September 1968 to report on the feasibility of application of its untried and untested SkyBus technology to a revenue producing demonstration route.
- 7) Westinghouse, to assist in proving the feasibility of its technology, employed Kaiser Engineers which shortly prior to that time had recommended a similar technology for Baltimore, Maryland.
- 8) Before the feasibility study was completed the PAT Board made application to the U.S. Department of Transportation (DOT) for a grant to assist in Final Engineering Design and Construction of a program including employment of the rubber-tired SkyBus technology.
- 9) To provide the services for design and construction management of the adopted SkyBus route the PAT Board of Directors selected Kaiser Engineers, principally because it was uniquely qualified by reason of having been employed in the earlier study.

This cynical series of events points to Westinghouse as having, for all practical purposes, selected Kaiser to prepare the final plans, specifications and bidding documents that will reach a climax on the day Westinghouse files a project bid.

THE SOUTH PATWAY

The South PATway plan to adapt the Mt. Washington Tunnel to joint operation of buses and trolleys is impractical and introduces hazards to passengers that should be avoided. The rerouting required to accomplish the construction that joint use of the Tunnel by buses and trolleys entails is impractical. It will greatly inconvenience passengers because of the increase in travel time that the rerouting will entail and will introduce severe impediments to vehicular traffic utilizing the bypass route.

The following discussion supports these general observations: The fact that an attractive and feasible alternative is available reinforces the view that the South PATway should be shelved, if not abandoned. That alternative is provided by Library, Route 35. The Early Action Program provides for rehabilitation of the plant and equipment of Route 35 and its continuance at least until 3 years following commencement of operation of the TERL. That program should be expanded to include double-tracking on the inner end of the route, provision of parking facilities which would be available to PATway, if and when undertaken, and rehabilitation of more rolling stock to complement the increased capacity provided by the double-tracking.

THE OBJECTIVE

It is intended by PAT to construct a paved exclusive right-of-way (PATway) from the intersection of Smithfield Street and Carson Street via the Mt. Washington streetcar tunnel to a point in the vicinity of Glenbury Street--a distance of about four miles. It is also intended to continue operation of the present streetcar lines for various periods of time as follows:

Route 35 LIBRARY -- Continuously until 3 years after completion of the Transit Expressway Revenue Line (TERL), i.e., early in 1980.

Route 36 DRAKE -- Until construction of the TERL south of Washington Junction (where route 36 branches off the route of LIBRARY) requires suspension of streetcar service.

Route 42/38 DORMONT/MT. LEBANON -- Until construction of the TERL south of Neeld Avenue in the Beechview section of the city of Pittsburgh requires suspension of streetcar service, i.e., possibly early in 1973.

Route 43 NEELD AVENUE (which is a short operation of 42/38) -- Until completion of the TERL, i.e., about early 1976.

Upon completion of the PATway it is intended to divert to it those bus routes now entering the CBD via the Liberty Tubes and Liberty Bridge. It is estimated that there will be 135 peak hour vehicles operating through the Mt. Washington tunnel when the PATway to Glenbury and the TERL are completed.

PHYSICAL CONSTRUCTION

In the construction of the PATway it is planned to:

- a) Pave and ventilate the Mt. Washington streetcar tunnel so as to accommodate joint operation of buses and streetcars.
- b) Pave, with a permanent concrete slab, a right-of-way on the west side of the Saw Mill Run Valley, the major part of which is to be acquired, from the south portal of the tunnel to a point of intersection with the existing streetcar right-of-way just south of Whited Street, including the construction of a new bridge for the exclusive use of buses, across Saw Mill Run Valley, generally duplicating the present Palm Garden Bridge with ramps to West Liberty Avenue and Pioneer Avenue.
- c) Pave, with temporary blacktop, the existing streetcar track area from the aforesaid point south of Whited Street to a point in the vicinity of Glenbury Street in the Overbrook section of the city of Pittsburgh. This temporary paving contemplates installing bituminous material over the present track structure, utilizing the presently existing rails and ties. (A plan of very questionable efficacy).

With regard to the streetcar plant associated with operation of Library (35), and Neeld Avenue (43), it is planned:

- a) To replace ties and rail as required to correct deferred maintenance to which the line has been subjected since takeover by PAT in 1964 in the area from South Hills Junction to Library and from South Hills Junction to Dormont.
- b) Rehabilitate 70 streetcars on which there is considerable deferred maintenance, electrical and signal systems, create new shop and store facilities adequate for the operation of the planned service.
- c) Adjustments necessary to the joint use by Library and TERL of the route 35 right-of-way between Castle Shannon and Washington Junction.

COST ESTIMATES

In the application to UMTA as revised June 4, 1970 to reflect plan adjustments required by UMTA:

- a) The PATway portion of the project, including the tunnel paving and ventilation, was estimated to cost \$19,236,000 including escalation. The most recent estimate per Michael Baker, Jr., Engineers is \$17,827,000. (The earlier plan contemplated carrying the PATway to Fort Pitt Blvd. This has been omitted from the present plan).
- b) Included in the most recent estimate is provision of \$3,200,000 for paving and ventilating the tunnel.
- c) The streetcar plant rehabilitation to continue operation of Library and Neeld Avenue was estimated to cost \$6,552,000.

REROUTING IN RELATION TO TUNNEL CONSTRUCTION

To pave the Mt. Washington Tunnel and install the ventilation equipment it is planned to confine operation of streetcars to a single track. The operation would be reversible, that is, during the AM peak hours and until about 2:00 PM on weekdays and Saturdays cars would operate inbound through the tunnel and outbound over a bypass route hereafter described. In the PM peak and until from about 9:30 to 10:00 PM the cars would operate outbound through the Tunnel and inbound over the bypass. Between about 10:00 PM and 6:00 AM all cars would operate in both directions via the bypass.

The volume of cars that will be affected by the described routing is:

Rail Route	AM	Base	Weekday			Maximum	
			PM	Eve	Night	Saturday	Sunday
35	22	3	20	2	1	3	3 (35/36)
36	14	3	13	2	-	3	-
37	10	-	8	-	-	4	-
42/38	35	5	22	3	1	6	3
44	5	2	4	bus	-	2	bus
49	2	1	2	1	-	1	1
53	13	6	18	4	1	6	4
TOTAL	101	20	87	12	3	25	11

NOTES:

Route 53, Carrick, must be converted to bus operation prior to start of the tunnel construction work since it is not possible to operate the route, which presently utilizes the tunnel, over the bypass route due to the lack of necessary track connections.

It is not necessary to convert Knoxville, Route 44, and Beltzhoover, Route 49, to bus operation to effect the plan but the Port Authority plans to convert these routes to bus operation at the time of conversion of Carrick.

The PAT capital improvement plan, Phase III, includes a proposed purchase of 200 new buses which includes 32 buses to replace trolleys operating on the Carrick, Knoxville and Beltzhoover routes. The Phase III program has been approved by the County Commissioners, which is tantamount to a commitment of the

local share of the required funds. An application for a federal grant of 2/3 of the required funds for Phase III, i. e., \$6,966,100, is pending before UMTA. (Editor's Note: The grant was approved in July 1971).

THE TUNNEL BYPASS ROUTE

Track facilities are available to bypass the tunnel in event of some emergency that would deny access to it. This bypass is that proposed to be employed as a regular operation during the period (estimated to be one year by Baken Engineers) of installing paving and ventilation in the tunnel.

The bypass route begins at the South Hills Junction Administration Building following a route from the Tunnel yard on double track to Warrington Avenue, follows Warrington Avenue by double track to New Arlington Avenue, follows New Arlington Avenue to East Carson Street by double and single track, and follows East Carson by double track to a point of connection with the tracks leading to and from the tunnel on Smithfield Street.

The bypass route is 7,247 feet longer than the direct route through the tunnel. The present operating time between South Hills Junction and Smithfield-Carson via the tunnel is about two minutes. The increased time required to negotiate the bypass at an average speed of 12 mph is 8.5 minutes; at 10 mph is 10.6 minutes; at 9 mph is 12 minutes and at 8 mph is 13.8 minutes. (The most probable speed will average 9 mph.).

The stretch of track on New Arlington Avenue comprises a distance of 6,184 feet, of which 1,874 feet is in double track and 4,310 feet is single track with no passing siding. This single track is located in the street in double track position, i.e., to the left of the center line of New Arlington Avenue as one proceeds up the hill from Carson Street. That is to say that streetcars proceeding on the single track down the hill are moving in the direction of vehicular traffic flow whereas streetcars proceeding on the single track up the hill toward Warrington Avenue are proceeding against the normal flow of traffic.

In the single track area the distance between the curb on the downbound side of the street and the curb rail is subject to some variation, particularly in the area of curves in the street. However, it would appear that in general this area there is a clear space of 9 feet between curb and streetcar body. Observations on the street disclose that downbound vehicles pull to the curb and stop until passage of an upbound streetcar operating on the single track.

The grade on New Arlington Avenue ranges from zero for a short 100 foot distance at Carson Street to +8.7%. Of the distance of 6,184 feet on New Arlington Avenue from Carson Street to Warrington Avenue, 2,200 feet is at grade of +8.7%, 2,520 feet at +5.2% and 700 feet at +6.9%.

The volume of cars which will operate over the bypass will initially be:

74 cars per hour in the AM peak (uphill and against the flow of traffic in the single track section)

9 cars per hour in the post-AM peak (uphill and against the flow of traffic in the single track section).

54 cars per hour in the PM peak (downhill and with the traffic flow)

Assuming that the tunnel construction work would be completed by the end of 1972, it would appear that there would be no diminution of the above stated numbers attributable to TERL construction.

PLAN TO PAVE AND VENTILATE MT. WASHINGTON TUNNEL

The Mt. Washington Street Car Tunnel is a brick masonry-lined tunnel, completed in 1904 and about 3,500 feet in length. The street railway tracks are laid on wooden ties supported by stone ballast. The tunnel is 24'0" wide and is on a 6% grade ascending to the south. The top of the arch is 20' above the top of rail. The arch is on a 12' radius which places the top of rail about 8' below the spring line. Tracks are on 10' 2-1/2" centers so that there is 22-1/2" clearance between the sides of passing streetcars and the door side of the car clears the side wall of the tunnel by 32-3/4".

The plan to pave and ventilate provides for installation of a 2" shotcrete lining of the tunnel which will narrow its width to 23'8". The present rails, ties and ballast will be removed and 13" reinforced cement concrete pavement installed in the floor of the tunnel. New 7" grooved girder rail on steel ties will be installed in the pavement floor with the tracks on 12' centers. An armored concrete curb, 10" in width and projecting 13" above the pavement floor, will be installed on each side of the tunnel and a "Rumble Strip", 1/4" high, and measuring 2' in width will be provided on the center line of the pavement surface. The "Rumble Strip" is designed to warn the driver of a bus, in this case, that he is encroaching on an area where operation is hazardous. The distance between the edge of the "Rumble Strip" and the outer edge of the above-described curb along the sides of the tunnel is 10' and is the area the plan all-locates to the proposed operation of buses.

Two alternates to the "Rumble Strip" were designed but were discarded by the PAT staff in favor of the "Rumble Strip". Alternate A provides for an armored concrete curb, 2' in width and 12" in height, centered on the center line of the roadway. On this curb there is mounted a post that measures 2' in height with a 6" x 8" box beam guard rail mounted on the top. A steel bracket mounted on top of the guard rail is also provided and extends upward 1'9", on the top of which is mounted a reflector described as a Crystal Delineator (double face).

Alternate B provides for a continuous steel barrier similar to that constructed between opposing traffic lanes on highways which is mounted on steel posts located on the center line of the roadway. The outer faces of the longitudinal members are 2' across. On top of this barrier there is mounted a steel bracket extending 1'9" at the top of which is mounted a reflector. Note that the discarded alternate designs for the median maintain a width of 10' of area allotted to bus operation, i.e., the cartway.

VEHICLE CLEARANCES

Streetcars: The planned location of the streetcar tracks places the right side of the car, which measures 100" overall, 20" from the side of the tunnel. Half of the 20", or 10", is occupied by the 13" high curb and the remaining half by the pavement floor. Between two passing cars there will be a clear space of 3' 8". Because the cars are operated in a fixed track, there is no variation in these clearance dimensions.

Buses: The buses that will operate through the tunnel measure 112" in side-to-side clearance (102" width of bus body plus 10" of extension of the side view mirrors mounted at the left and right front corners of the bus. If a bus is placed in the center of the 10' lane, the clearance between the right side bus mirror and the side wall of the tunnel is 14". Placing a bus in the center of each lane, i.e., in opposing directions, the clearance between the left side bus mirrors will be 32"

When two buses pass in opposite directions with each so placed in the roadway that their front tires are just clear of the Rumble Strip the amount of clearance between the mirrors on the buses is 6". Thus, if tow buses operating in opposing directions encroached 3+ inches on the Rumble Strip a collision would ensue.

TIMING ON TUNNEL CONSTRUCTION

It has been stated by representatives of Michael Baker, Jr., Engineers that the work of track and roadway construction in the tunnel will commence in September 1971 and be completed in one year. However, start of the work is dependent on converting streetcar routes 53 CARRICK, 44 KNOXVILLE and 49 BELTZHOVER to bus operation. The equipment, 32 buses, necessary to accomplish this conversion is provided for in so-called Phase III capital improvement program. As noted elsewhere herein the local share of the cost of Phase III has been committed but the application for the federal share is pending. As of this time (April 1971) no action has been taken on Phase III by DOT. *(Editor's Note: As noted above, the grant was approved by UMTA in July 1971).*

COMMENTS

A review of the data relative to the amount of clearance between opposing streams of buses demonstrates that the plan is not practical and indeed is unsafe. Ideally, the bus operator would be expected to operate with his bus centered on the 10' cartway and so operated there would be adequate clearance on each side. The ideal, however, would have to be achieved not in the open air but in the confines of a tunnel which, when the South PATway is fully operational, would involve operation of 135 vehicles (buses and streetcars).

Because such ideal operation may not be achieved universally by all operators, the design provides for a "Rumble Strip". In view of the volume of traffic through the tunnel, noise levels would be so high that the operator would sense encroachment on the Rumble Strip by vibration of the steering wheel rather than by sense of hearing. As has been noted, only a relatively small encroachment on the Rumble Strip will result in a collision of buses operating in opposite directions.

The plan contemplates use of the tunnel by about 100 buses in the maximum period. In the outbound direction the buses would be operating with fully opened throttles to negotiate the 6% tunnel grade. This would generate a very large volume of pollutants to be disposed of by the proposed push-pull ventilation system and, in addition, the diesel engine exhaust noise, greatly magnified in the confined space of the tunnel, would have a severe impact on the sensibilities of passengers.

Bearing in mind that in the maximum direction there will be 135 vehicles per

hour using the facility the measures by which a crippled streetcar or bus can be dealt with would be considerable. Bypassing a crippled vehicle until it could be removed would present a problem and the removal of the vehicle to restore normal two-way operation an additional problem.

Normally, crippled vehicles are at the front of the traffic stream so that pushing rather than towing is the most effective and expeditious manner of clearing the difficulty. In the proposed situation a streetcar could be following a crippled bus or vice versa. But assuming involvement of similar or like vehicles it is practical and customary for streetcars to push streetcars, but not for buses to push buses. Thus, in the case of crippled buses resort must be had to towing. Fires resulting from underinflated tires would present a severe problem to passengers directly and indirectly involved.

With respect to the use of the tunnel bypass:

The contract between the Port Authority and the United States of America (DOT) provides that Library, Route 35, be continuous during the construction of the TERL and presumptively during construction of the South PATway. The actual plan maintains continuous operation of the route but at the expense of a severe impairment of the service.

It should be apparent from the description of the bypass facility that will be employed during the year-long reconstruction of the tunnel that the service to substantial numbers of riders will be impaired. While the bypass is not objectionable as a short term emergency outlet, its use on a regular daily basis for at the least a year will be atrial for streetcar patrons and for motorists using New Arlington Avenue alike.

The most sensible and realistic plan would be to abandon the South PATway project and employ some part of that money (\$17,800,000) to additional upgrading of the Library line. Such a shift of emphasis could readily lead to making Route 35 an increased capacity facility to which could be fed not only traffic on suburban buses in the area served but also by judicious acquisition of parking lots attract motorists presently suffering the enormous congestion of the Saw Mill Run Valley.

PROVIDENCE TUNNEL VS. MOUNT WASHINGTON TUNNEL

General Seedlock has said that a tunnel similar to the Mt. Washington tunnel "has been operating for several years in Providence, Rhode Island (and) has experienced no problems regarding the clearance and passage of vehicles in opposite directions".

The Providence Tunnel is used exclusively by buses and extends between No. Main and Thayer St. It compares with the Mt. Washington tunnel as follows:

	<u>PROVIDENCE</u>	<u>PROPOSED MT. WASHINGTON</u>
Length	1,800 feet	3,500 feet
Grade	4.8 percent	6.0 percent
Width--West Portal	29 feet*	23 feet 8 inches
East Portal	25 feet	" "
Vehicles--Maximum Peak	22	135 (100 bus, 35 trolley)

--Maximum Recommended Headway	1 minute	???
Buffer Strip	None	2'4" high "rumble strip"
Sidewalk	2--max. 2'	None
Lane Width	11 feet	10 feet
Ventilation	No	Yes

*At the West Portal the Tunnel is 29 feet wide and tapers back to 25 feet in a distance of about 180 feet. In this stretch of tunnel there is a median strip occupied by columns.

The Providence Tunnel thus is wider, shorter and much less intensively used as compared to the proposed Mt. Washington Tunnel.

It will be noted that the recommended maximum headway for the Providence Tunnel is one minute. The Providence Tunnel median strip separates opposing vehicles so that there is only about 1,600 feet where the 11 foot lanes exist. A bus travelling at a very modest 20 mph would traverse this distance in 54 seconds. Thus, the probability exists that only one vehicle in each direction would occupy the Tunnel at one time. This probability is emphasized by the fact that at the maximum peak period the maximum headway of the 22 vehicles would be only slightly less than 3 minutes.

Without laboring the matter further, it is believed to be apparent that General Seedlock and his advisors are in error in their assertion that Providence Tunnel and Mt. Washington Tunnel are "similar"

ALTERNATIVE RAPID TRANSIT PLANNING

First priority in the application of rapid transit to Pittsburgh should be accorded to the section of the city and county that extends eastwardly between the Allegheny and Monongahela Rivers. The area to the east includes the most densely populated section of city and county, is the site of the Civic Center, the Medical Center, the largest universities and colleges, and numerous other cultural facilities. Persons interested in those centers of attraction as well as those destined for the Central Business District are entirely dependent on surface transit operating on city streets. The East PATway of the Early Action Program will be attractive to only a small percentage of those it is designed to benefit largely because it discharges into the CBD in a constricted area with limited advantages of distribution of passengers.

Despite these readily acceptable facts the Port Authority has accorded first priority to the South Hills area where more than 90% of the \$228,556,000 estimated cost of the Early Action Program will be spent in an area that already has rapid transit. Whether SkyBus is with or without merit as a trunk line urban rapid transit concept is irrelevant to the fact that the Port Authority is applying it to the area of the county that needs it least.

This writer's view has consistently been that the most expeditious and the most logical plan that promises greatest return on investment in terms of improved community mass transportation service would be obtained from modernizing the existing private right-of-way service in the South Hills and construction of a new rapid transit facility to the east on a route that would serve Oakland and the most populous areas of Shadyside, Homewood, Wilkinsburg and Monroeville.

As an indication of the values existent in the South Hills private right-of-way routes, the following is a brief resumé of some of their salient features and

how they can be progressively improved and modernized:

In one corridor three routes are operating, namely Pittsburgh-Library (35); Pittsburgh-Drake (36); and Pittsburgh-Castle Shannon (37). All three use a common routing in the CBD, i.e., Grant Street and Wood Street, and a common route between the CBD and Castle Shannon. Routes 35 and 36 use a common route between Castle Shannon and Washington Junction at which point Route 35 deviates to a terminal just south of Library and route 36 to a terminal at Drake.

The routes operate over private right-of-way extending from Smithfield Street and Fort Pitt Boulevard through the Mt. Washington Streetcar Tunnel to their outer terminals. These rights-of-way are interrupted by only one significant crossing, that at Smithfield and Carson.

The Library Route 35 is 12.8 miles in length. Its average speed of operation in the peak hours on weekdays is 16.9 mph. Between the north portal of the Mt. Washington Tunnel and its outer terminus Route 35 attains an average speed of 19 mph. Although 19 mph to the inexperienced may seem to be low it is about equal to the average speed of rapid transit trains operating in the Yonge St. subway in Toronto and 16.9 miles per hour is approximately the average speed of local subway trains in New York City.

The Drake Route 36 is 10.76 miles in length and achieves an average speed in peak hours of 15.5 mph. The lower speed of this route is attributable to the fact that from Washington Junction to its outer terminus the route operates on single track with passing sidings.

The Castle Shannon Route 37 operates exclusively in the throat area between the CBD and Castle Shannon in common with Routes 35 and 36. It is 5.05 miles in length and has an average speed in the peak hours of 17.8 mph.

In a second corridor, the Dormont/Mt. Lebanon Route 42/38 operates. This line occupies a private right-of-way except through Beechview where it operates for about 4,000 feet in paved street and in Mt. Lebanon where it operates on about 3,600 feet on paved street. It is a frequent stop facility which lowers its speed in peak periods to 12 mph.

These four routes transport about 6.6 million passengers annually. The streetcars with which they are equipped total 97 and are capable of a top speed on level track of 42 mph and a maximum safe speed of 50 mph. These cars were purchased in 1947. Their body maintenance admittedly has been neglected by PAT since it took over their operation in 1964. Under the Early Action Program UMTA has insisted that Route 35 be maintained during construction of the TERL and for three years after TERL comes into operation. The program includes rehabilitation of cars correcting the deferred maintenance that has accumulated. A reasonably acceptable job of rehabilitation has been done on 12 cars under the first phase of the Early Action Program.

As stated in an earlier section of this statement, Westinghouse Air Brake Company (WABCO) at the invitation of the PAT Board and at no cost to PAT prepared a plan for modernization and improvement of the existing service and facilities of the Library, Drake, Castle Shannon and Mt. Lebanon/Dormont routes. The program was based on continuing the routes on their present alignments and progressively improving and enlarging the facilities in stages or phases.

For example, in the first phase, which could be accomplished in 2 years, it was estimated that at a cost of \$10,000,000 the following could be accomplished:

- 1) Reconstruction of 15 miles of roadbed with new, welded joint rail on new ties and new ballast.
- 2) Repair of 6 miles of roadbed, the major renewal of which could be deferred.
- 3) New passenger stations and improved parking facilities.
- 4) Elimination of 8 crossings at the more critical locations.
- 5) Refurbishing of 80 cars, adequate to correct deferred maintenance, and to maintain the situation until new, modernized rolling stock could be bought.
- 6) Improved signalling.

With this modest expenditure it was estimated by WABCO that reduction in travel time from Library to Downtown of 9 minutes would be obtained. This 9 minute reduction compares with the estimated time reduction claimed for the TERL of 8 minutes from Library to Downtown with an expenditure of \$180,716,000.

The WABCO plan provided for phasing other improvements, each stage of which would be attended by betterment of service and facilities. In the first phase, for example, new rolling stock could be introduced at an estimated cost of \$9,000,000 so that for \$19,000,000 a dramatic improvement in service quality and capacity could be obtained.

Without going into the details, WABCO estimated that for an additional \$80 million it would provide for improvements in the plant in the form of a completely grade-separated right-of-way which would reduce travel time from Library to downtown by an additional 8 minutes.

This is the sort of evolutionary development of existing private right-of-way facilities that can be utilized for the indefinite future while the more pressing demands for rapid transit to the East End are being prosecuted.

One extremely advantageous aspect of the WABCO plan is that the present routings are maintained so that a continuous ride without transfer would be available to the great bulk of present patrons.

The TERL plan, on the other hand, occupies the outer portion of the Mt. Lebanon/Dormont route, occupies a mile out the center of the Library route (the outer portion of which becomes a feeder to TERL instead of a through service) and abandons the Drake route entirely. This fragmentation of the existing routes will impair rather than improve the service of the present patrons.

There is no disagreement with respect to the need for rapid transit in Allegheny county. That need can be filled earlier by preserving the advantages of the South Hills private right-of-way routes and by applying the "new money" to the Eastern Section of the county.

To obtain the public support for the magnitude of expenditures modern rapid transit entails, demonstration will be most convincing if applied to the area where greatest need and potential for improvement exists. That area is the section of the county extending eastward of the Golden Triangle.

(Following, as a part of the report, is an excerpt from a speech by Gunther M. Gottfeld, then a Senior Transportation Planner, Metropolitan Transit Authority, before the American Transit Association/Institute for Rapid Transit Rail Transit Conference, held in San Francisco April 15, 1971:)

"Although the rubber-tired system offered certain potential advantages, it also entailed certain risks. Further testing and development were required before the exact vehicle module, operating characteristics and operating subsystems

could be determined for Baltimore. There was no guarantee that the time and money spent in developing and testing the system would produce successful results. This would, of course, have delayed the implementation of the Phase I system, and have resulted in substantially higher costs because of inflation. In evaluating the advantages and disadvantages of the rubber-tires system, it appeared that the only major possible advantage in its application to the proposed Baltimore system was in the area of noise control. But even here, the case is not clear cut. On a very recent trip to Europe, the writer had an opportunity to visit a number of rapid transit systems. Based on personal observation, the new steel-wheeled subway in Berlin was definitely quieter than the much-heralded rubber-tire trains in Paris."

(And so ends the testimony of C. D. Palmer, former president of Pittsburgh Railways--and always a staunch rail advocate--and recent "retiree" from the Port Authority Transit Board. It has been presented here in three installments in basically its original form, with certain references and other extraneous matter deleted, for reasons of space and clarity; none of the meaning of the text has been changed in any fashion.

From this viewpoint, Mr. Palmer seems to have painstakingly and carefully demolished whatever case PAT might have had in favor of the SkyBus and its offshoots in the Pittsburgh area; if anything, the reader is overwhelmed by the amount of evidence condemning the proposal.

Few of Mr. Palmer's points seem to have been overstated; the facts largely speak for themselves. Of particular interest is PAT's apparent lack of concern for the safety of its riders, as evidenced by the "compartmentalization" of its passengers and the comparatively easy egress from a SkyBus car by robber or mugger, not to mention the perils of being stranded in the cold and remote South Hills.

Then, too, there is the saga of the "amazing" ten minute switch, a truly remarkable device that surely must put all steel rail fabricators to shame. Monorail in one form or another--and SkyBus is one of them--simply cannot get past the inflexibility of concrete when it comes to switching moves.

And, while some of Mr. Palmer's pessimism relative to the operation of buses in the Mt. Washington Tunnel might be discounted--accidents do happen, but not with the regularity he seems to be predicting--the mere fact that the concept of a 102" wide free-wheeling vehicle was certainly not present when the tunnel was designed and built almost seventy years ago would indicate, at least to this observer, that its design is incompatible with its projected new use.

He also makes an excellent case in favor of a shift of emphasis toward other areas of the Steel City that do not now have anything remotely approaching rapid transit, as against a questionable upgrading of a system that already exists, and that performs its job rather well. One almost suspects a conspiracy directed against the "old-fashioned" streetcar that, in spite of its inflexibility cannot be and never has been satisfactorily replaced, except by upgrading to heavy rapid transit.

It is fashionable these days to speak in glowing terms of transit exotica like the SkyBus, as if these space-age devices were the solutions to all of our mobility problems. Put simply, no one has ever come up with a successful replacement for steel wheel on steel rail, and until someone does, an untried concept like SkyBus ought not to endanger all rapid transit projects when it fails to live up to the extravagant claims of its promoters.)

--RICHARD R. KUNZ