

PENNSYLVANIA PUBLIC UTILITY COMMISSION

Complaint Docket No. 18925

BOROUGH OF HOMEWOOD AND BOROUGH OF BIG BEAVER

v.
PENN CENTRAL TRANSPORTATION COMPANY, DEPARTMENT
OF HIGHWAYS OF THE COMMONWEALTH OF PENNSYLVANIA,
PENNSYLVANIA TURNPIKE COMMISSION and COUNTY OF
BEAVER

ORDER

BY THE COMMISSION, AUGUST 23, 1971:

RECORDED.
INDEXED.
PUBLIC HEALTH COURT.

This matter is before us upon complaint filed May 6, 1970, by Boroughs of Homewood and Big Beaver, situate in Beaver County, alleging dangerous conditions existing at the crossing, above grade, where a public highway connecting the two contiguous boroughs crosses over and above the grade of three tracks of Penn Central Transportation Company and the Pennsylvania Turnpike, said highway being partly in Homewood Borough and partly in Big Beaver Borough.

It is alleged in the complaint that respondents, Penn Central Transportation Company and Department of Highways of the Commonwealth of Pennsylvania (now Department of Transportation of the Commonwealth of Pennsylvania), have failed to maintain and keep in safe repair and condition, as was originally constructed, the existing 16-span steel and reinforced concrete bridge and viaduct at this location and that, as a result thereof, said bridge and viaduct fail to provide adequate support for persons and vehicles passing over same and create a hazard to the life, limb and property of the public using same and located near and beneath same.

The record in this proceeding reveals that the subject crossing, above grade, was constructed under order of the Public Service Commission of the Commonwealth of Pennsylvania issued May 10, 1921, as modified April 17, 1922, at Complaint Docket No. 1971. At that time, State Highway Route 77 (Traffic Route 18) crossed, at grade, two separate legs of a triangular network of tracks comprising the intersection point of the Fort Wayne Branch and the Pittsburgh, Youngstown & Ashtabula Branch of The Pennsylvania Railroad Company, now Penn Central Transportation Company.

These at-grade crossings were eliminated and abolished in 1922 by the construction of the subject viaduct over and above the tracks on a realigned segment of State Highway Route 77, westerly of the original location, which allowed for a shorter total length of required structure. Vehicular access to the station building was provided by a side ramp leading off the main viaduct spans, eastwardly into the area encompassed by the tracks.

In 1950, construction of the western extension of the Pennsylvania Turnpike, roughly parallel to the railroad tracks in the area of the crossing, necessitated the construction of an additional three spans at the northerly end of the original viaduct, to carry State Highway Route 77 over the new limited access highway. Pennsylvania Public Utility Commission, by order issued October 16, 1950, at Application Docket No. 76051, approved the alteration of the crossing, above grade, in that manner.

The orders at C. 1971 directed the Borough of Homewood to maintain the station ramp, the Pennsylvania Highway Department to maintain the paving across the viaduct and The Pennsylvania Railroad Company to maintain the viaduct for its (then) entire length. By reason of the order issued at A. 76051, Department of Highways was directed to also maintain the paving across the additional length of viaduct, as extended, with the structural portions thereof to be maintained by Pennsylvania Turnpike Commission.

Also in 1950, Department of Highways relocated and reconstructed a three-mile long segment of State Highway Route 77 in the vicinity of the subject crossing, to a location approximately 1,500 feet easterly of the viaduct. By reason thereof, the department filed application with this Commission, at Docket A. 76076, to construct a new crossing, below grade, of the tracks of the Pittsburgh, Youngstown and Ashtabula Branch to accommodate vehicular traffic on the new segment of the highway. A review of the record and order in that proceeding issued November 20, 1950, reveals no mention of any changes or relief to be sought on behalf of the department at the subject crossing structure.

By further action before this Commission, at Complaint Docket 15932, orders thereat issued July 26, 1954 and February 28, 1955, directed that the dangerous and inadequate station ramp be barricaded and closed to all vehicular traffic as a result of deterioration and lack of proper maintenance, said ramp having required the installation of additional supporting timber bents as early as 1938.

Now by joint complaint filed May 6, 1970, Boroughs of Homewood and Big Beaver seek relief from alleged deteriorating conditions on the main viaduct spans. At the hearing in this matter held October 8, 1970, complainants submitted testimony through four witnesses, together with exhibits, in support of its contentions that Penn Central Transportation Company and Pennsylvania Department of Transportation, or their respective predecessors, have failed to comply with the orders directing them to maintain the crossing structure in a proper manner.

Complainants' Exhibits Nos. 1 and 2, admitted at this hearing, are maps of Beaver County (dated 1970) and of Big Beaver Borough (revised to 1968), respectively, showing the roadway systems, political subdivisions, rail lines and other cultural features in these areas. Exhibits Nos. 3A through 3Q are a series of 17 photographs showing various aspects of the existing viaduct, including piers, superstructure, roadway, curbs, sidewalks and parapets at different locations.

The president of Homewood Borough Council testified at the hearing held October 8, 1970, that the railroad line running north out of Beaver Falls branches into two lines within the borough, one segment continuing northward and one turning westward. The westerly segment, passing beneath the subject crossing structure, essentially bisects both Homewood Borough and Big Beaver Borough. According to this witness, the Homewood fire department is located at the south end of the bridge, and would be required to travel an additional five miles to service points north of the tracks, if use of the bridge is restricted.

Traffic counts conducted by the Borough indicate 976 vehicles and 75 pedestrians crossed the viaduct between 6 a.m. and 8 p.m. on September 22, 1970, and 979 vehicles and 63 pedestrians on September 24, 1970. Metered vehicular counts furnished by the county at the borough's request showed 880 vehicles on September 23; 1,105 vehicles on September 24; 1,197 vehicles on September 25; 1,052 on September 26 and 1,246 on September 27, 1970. All the latter counts, with the exception of September 23, are for 24-hour periods.

This witness testified as to his observations of the condition of the structure, averring, inter alia, that concrete deterioration has progressed to the point where steel reinforcement bars are exposed in many areas, including bottoms of main roadway beams and pier cap cantilevers; that holes have developed through the roadway in certain areas; that in 1969 a pedestrian was hospitalized after stepping into an opening which had developed at one of the numerous expansion joints; that spalling concrete and debris falling from the structure endangers people and property beneath the spans; that as early as 1943 or 1944 steel beam pier cap reinforcing was required at one location due to threatened loss of structural adequacy; that curbs, sidewalks and roadway surfacing has deteriorated to the point where patching no longer holds; that sharp, jagged pieces of metal and concrete (sic) in the area of failing expansion dams pose hazard to passing traffic; and that the department on occasion, generally due to accidents on the newer parallel section of Traffic Route 18, has used the structure as a detour or by-pass route. The witness also averred that the bulk of the conditions complained of are existent on the older portions of the viaduct for which the railroad has structural maintenance responsibility.

On cross-examination, this witness stated that, while he is not an engineer, the appearance of the structure causes concern as to its safety. In addition, the borough has patched potholes on the viaduct roadway whenever they have progressed to the point of being a potential hazard. Such repair work, in the opinion of the borough, is a responsibility of the department by reason of the outstanding orders of this Commission and/or its

predecessor body. The borough agrees that State Highway Route 77 (Traffic Route 18) formerly traversed the structure, but is not sure whether State Highway Route 04057 (Traffic Route 651, locally known as Friendship Road) also crosses the structure as it approaches the general area of the crossing from the southwest.

A second witness for Complainants, the assistant superintendent for Big Beaver Falls School District, testified that there are three elementary schools in the area of the borough surrounding the crossing site and that, in the interest of safety, it has curtailed use of the viaduct by several buses normally using same. Presently, only three 60 to 66 passenger buses are routed over the structure. Due to the additional mileage required to be traversed on the alternate routes between Homewood Borough and the Koppel Elementary School, the school district is already laboring under increased transportation costs. If the structure were not available, additional buses would have to be added to accommodate properly the students in this area. Such buses are presently costing the school district \$4,950 each, per 180-day school term. The tremendous costs of transportation make the school district keenly interested in the retention of a safe and adequate crossing.

The Mayor of Big Beaver Borough testified for Complainants, describing the type and condition of the successive rail crossings westerly of the subject viaduct, as follows:

Midvale Road (Township Road 633), at grade, approximately one-half mile west, along the tracks; allegedly unsafe due to sharp drop of grade on north side.

Aley Hill Road (Township Road 665), at grade, approximately one mile further west; allegedly more unsafe, due to sharper drop and steeper grade.

Friendship Road (State Highway Route 04057), above grade, approximately one mile further west; closed to all traffic due to deteriorated condition.

McKinley Road (Township Road 627), at grade, approximately one mile further west; allegedly unsafe due to steep approach gradient and poor sight distance.

The only railroad-highway crossing east of the subject viaduct is by way of the newer section of State Highway Route 77 (Traffic Route 18). While separated by but less than half a mile, the routing of traffic via this alternate route entails the five mile detour mentioned in previous testimony, and use of a restrictive underpass crossing structure south of the subject location. Likewise, use of any of the crossings westerly of the subject viaduct entails travel considerably in excess of the distances to same along the tracks, as evidenced by an examination of Complainant's Exhibit No. 2.

The witness further testified that, should the Homewood viaduct be closed, emergency services to citizens north of the tracks could be provided only by way of alternate routes of up to 20 miles, seriously jeopardizing the effectiveness of these operations by reason of delays in travel time. In addition, it was averred by this witness that maintenance operations by the department, both along Traffic Route 651 and on the viaduct surfacing, have been noticeably minimal.

The witnesses for both Big Beaver Borough and Borough of Homewood each disclaimed any obligations for maintenance of the viaduct structure, on the part of their respective municipalities, and denied that they should be assessed any of the costs of any improvement.

A fourth witness for Complainants, who lives adjacent to the viaduct, recounted for the record an instance occurring approximately six months prior to the hearing, when sections of concrete fell from the viaduct into her yard, narrowly missing her two little grandchildren. These concrete spalls were described as "about a foot long - two big pieces" (sic).

Respondent Penn Central Transportation Company presented testimony at the hearing held October 8, 1970 through its witness, the company's Regional Engineer of Structures, who stated that the company operates over three tracks at this location, owned by the Pittsburgh, Fort Wayne and Chicago Railway Company. Traffic on the eastbound main track consists of 15 freight and five passenger train movements daily, operated at authorized speed of 35 miles an hour; the westbound main track carries

20 freight and five passenger train movements daily, also at 35 miles an hour; while the Y connection to the Koppel secondary track has but one train movement over it, per week, at five miles an hour.

According to this witness, the structure involved provides a 23-foot wide roadway between curbs, and a five-foot pedestrian walk along the west side. Roadway alignment is basically tangent throughout the 695-foot length, except for a short section of 12-degree curve near the middle thereof. Gradients are variable along different sections thereof, but do not exceed 1.75 percent at any point. Vertical clearances are a minimum of 21 feet 5 inches above the tracks. The company admits to maintenance responsibility, with the exception of paving, for the substructure and superstructure of the original 13 southerly spans of the viaduct, and contends that these portions are structurally adequate and safe for the posted loading of 15 tons.

Several issues were probed in depth, at both direct and cross examination, among which were length of detours, original design capacity, extent of deterioration, present load-carrying capacity and the scope and extent of repairs deemed necessary. In the opinion of the company, the maximum length of detour necessary, utilizing the existing underpass south of the subject viaduct crossing, is but four and one-half miles. In addition, it is of the opinion that the spalling of concrete from the various areas of the structure is but superficial in nature, unsightly in appearance and inconsequential in its effect on the structural capacity. The steel-beam repairs made to the cap of Pier No. 8, in 1939, are considered to be permanent in nature, albeit such work was deemed necessary at that time as a result of loss of bearing beneath certain of the reinforced concrete T-beam stringers. The testimony of the company's witness was to the effect that it feels there is no danger to the users of the viaduct.

Commenting upon various of the complainants' photographic exhibits, the witness for Penn Central Transportation Company admitted to spalling of concrete to the extent that reinforcement bars are exposed in

varying degrees at numerous locations (bottoms of slabs, along deck stringers, on pier caps and cantilever overhangs, et al). In each specific instance of such bar exposure, the ramifications or seriousness of same were dismissed by comment to the effect that adequate bond still remained, that loss of steel section has not reached critical proportions, that original over-design of certain members provides leeway for such occurrences, or that the exposed bars are but secondary stress-carrying members. It was further stated by the witness that while the spans over the tracks were inspected in 1970, the company has no record of any detailed or in-depth inspections being performed on the remaining portions of the viaduct, other than scaling of loose concrete on occasion, and hence no analytical computations of the present capacity of the structure and its component parts. The company's position regarding the 15-ton safe loading is based primarily on the results of visual investigations alone.

Inasmuch as the railroad company believes no work is necessary other than periodic scaling of loose concrete, it will not agree to do any work beyond that, nor to prepare any rehabilitation plans; and due to the financial status of Penn Central Transportation Company, its position is that it cannot agree to assume any future maintenance responsibility at this time.

A witness for Pennsylvania Turnpike Commission testified at the hearing held October 8, 1970, that said Commission constructed a three-span extension at the northerly end of the original viaduct, under order of the Pennsylvania Public Utility Commission issued October 16, 1950 at A. 76051. The Turnpike Commission admits responsibility for the maintenance of those three spans, exclusive of the roadway paving between curb lines, and contends that those portions are in excellent structural condition, as validated by annual inspections performed by Commission maintenance personnel and by independent consulting engineers retained by the Commission. The witness testified that these three northerly spans are entirely adequate to handle highway loadings but could make no comment relative to portions of the structure beyond the Turnpike Commission's responsibility.

Solicitor for County of Beaver stated for the record that the County Commissioners support the complainants in this matter and request that opportunity be afforded the county to review any engineering reports on the structure prior to submittal by it of any testimony pertinent to an improvement or allocation of costs. It is the county's contention that the railroad company should be required to submit a detailed engineering report on the condition and adequacy of the structure, which it has not done to date.

Department of Transportation of the Commonwealth of Pennsylvania (formerly Department of Highways) presented testimony through an engineer witness, who stated that no State Highway Route presently traverses the crossing structure, and hence the department has no maintenance obligation thereat. Therefore, it has no knowledge or opinion as to whether the viaduct is adequate and safe for public use.

According to this witness State Highway Route 77 (Traffic Route 18), which once crossed above the tracks of the carrier on the subject viaduct structure, was relocated to its present position easterly of said structure, upon completion of the new undergrade crossing constructed by it in 1950, at A. 76076. At some later date, circa 1954 or 1955, the old Traffic Route 18 alignment and right of way was abandoned by the department, from which time payments have been made by the department to Homewood Borough, from Liquid Fuel Tax Fund monies, for maintenance purposes on that abandoned portion lying within the confines of said borough.

Existing State Highway Route 04057 (Traffic Route 651), extending generally westwardly from the borough, now terminates at a point some 200 to 300 feet south of the south end of the viaduct, at its point of connection with Township Road 680 (the abandoned portion of 'old' State Highway Route 77).

While providing physical connection to other public highways and streets, this isolated terminus of State Highway Route 04057 is not the usual practice on Commonwealth-maintained roadways although similar situations are existent in certain locations, generally as a result of highway relocations.

Inasmuch as the department contends it has no obligation at the viaduct, it will not agree to perform any inspections, prepare any plans, do any work or pay any costs of construction or future maintenance at this location.

At the conclusion of testimony presented at the hearing held October 8, 1970, counsel for Pennsylvania Turnpike Commission moved that the complaint be dismissed, as to that Commission, in that the complaint seeks no specific relief from it as a respondent and that no testimony was adduced which placed burden upon said Commission.

We have carefully reviewed the record in this proceeding and are of the opinion that while the record contains considerable statements of opinion regarding the adequacy - or inadequacy, as the case may be - of the existing crossing structure, the extent of deterioration, loss of section, remaining available capacity, riding qualities, maintenance responsibilities, types and effectiveness of repairs made or proposed to be made, the circumstances faced by vehicular and pedestrian traffic, the history of the structure and of the parties' actual or presumed involvements, we feel that there is a little matter of record, of definitive quality and quantity, upon which to base an opinion relating to the scope and extent of an improvement, if any, which should be ordered at this location.

We are not convinced that the general loss of concrete section, evident from observation of the structure, from roadway stringers, bearing areas, pier caps and cantilevers, and the resultant exposure, loss of bond-length and possible reduction of section of the steel reinforcement bars in significant areas of the structure, have had no detrimental effect (either in whole or in part) upon the capacity and integrity of the structure and the acceptable safety-factors of original design. We are not convinced that sufficient concrete of adequate quality remains in many areas of prime load-carrying elements, as to provide proper bond length or anchorage for those reinforcement bars subjected to major stress levels, nor can we accept the apparent dismissal of widespread exposure of stirrup bar reinforcement as insignificant, in that concrete design theory dictates the inclusion

of proper stirrup reinforcement, where required due to shear effects, and failure to provide for same or even to check the necessity for same during design would constitute a gross error of negligence or omission. The failure of such bars, provided as design requirements dictate, to function properly would be of no less consequence than the omission of same during construction. Neither are we satisfied that an adequate, conscientious program of maintenance, pursued over the years in compliance with the obligations imposed in outstanding orders of this Commission and its predecessor body, would have tolerated the progressive deterioration of the various components of the structure to their present state, including the curbs, sidewalks and roadway surface on the traveled way.

It would appear that but minimal effort has been expended in maintaining this structure and the contiguous ramp to the station area. In addition, the established need for supplemental structural systems to both portions, circa 1938 and 1939, and the subsequent closure of the ramp to vehicular traffic in 1955, suggest that more than cursory attention should be given to a determination of the overall integrity and adequacy of the viaduct at this time. Accordingly, we will order the performance of a detailed, in-depth inspection of the structure, complete, and the submittal of a comprehensive engineering report and assessment of the findings thereof, together with recommendations as to the scope and extent of any changes, alterations or repairs deemed necessary at this time to assure the safety of vehicular and pedestrian traffic using the crossing. We will also, at this time, deny the pleas and/or contentions of Pennsylvania Turnpike Commission and Department of Transportation for dismissal as respondents, until such time as a final determination of their respective responsibilities has been established; THEREFORE,

IT IS ORDERED:

1. That the instant complaint filed by Boroughs of Homewood and Big Beaver be and is hereby sustained as to the necessity for a determination of a true and realistic evaluation of the structural integrity of the crossing structure and its adequacy for public use.

2. That Trustees of Penn Central Transportation Company forthwith undertake a program of inspection-in-depth of all portions of the existing crossing structure for which it has maintenance responsibility in accordance with any outstanding orders of Pennsylvania Public Utility Commission and/or Public Service Commission of the Commonwealth of Pennsylvania, for purposes of determining the present state of condition, adequacy, integrity and safe load-carrying capacity of each individual part or component of said portions.

3. That Trustees of Penn Central Transportation Company, within nine months from date of service hereof, prepare and submit to this Commission and to each other party of record hereto, a detailed summary of the results and findings of the inspection herein ordered performed by it, together with copies of such engineering computations and assessments of the safe load-carrying capacities of the various components, adjusted to reflect existing conditions of the concrete, reinforcement bars, available bond length or any other factors pertinent thereto; and in addition, prepare and submit a detailed summary of all such work of repairs, rehabilitation, changes, alterations, relocations, reconstruction or other such measures, if any, deemed necessary, in its opinion, to be undertaken at this crossing location in order to restore said portions of the existing structure, or any part thereof, to a condition and safe load-carrying capacity as per originally designed and constructed, together with an estimate of the costs of performing same.

4. That Pennsylvania Turnpike Commission forthwith undertake a program of inspection-in-depth of all portions of the existing crossing structure for which it has maintenance responsibility in accordance with any outstanding orders of Pennsylvania Public Utility Commission and/or Public Service Commission of the Commonwealth of Pennsylvania, for purposes of determining the present state of condition, adequacy, integrity and safe load-carrying capacity of each individual part or component of said portions.

5. That Pennsylvania Turnpike Commission, within nine months from date of service hereof, prepare and submit to this Commission and to each other party of record hereto, a detailed summary of the results and findings of the inspection herein ordered performed by it, together with copies of such engineering computations and assessments of the safe load-carrying capacities of the various components, adjusted to reflect existing conditions of the concrete, reinforcement bars, available bond length or any other factors pertinent thereto; and in addition, prepare and submit a detailed summary of all such work of repairs, rehabilitation, changes, alterations, relocations, reconstruction or other such measures, if any, deemed necessary, in its opinion, to be undertaken at this crossing location in order to restore said portions of the existing structure, or any part thereof, to a condition and safe load-carrying capacity as per originally designed and constructed, together with an estimate of the costs of performing same.

6. That Borough of Homewood forthwith undertake a program of inspection-in-depth of all portions of the existing crossing structure for which it has maintenance responsibility in accordance with any outstanding orders of Pennsylvania Public Utility Commission and/or Public Service Commission of the Commonwealth of Pennsylvania, for purposes of determining the present state of condition, adequacy, integrity and safe load-carrying capacity of each individual part or component of said portions.

7. That Borough of Homewood, within nine months from date of service hereof, prepare and submit to this Commission and to each other party of record hereto, a detailed summary of the results and findings of the inspection herein ordered performed by it, together with copies of such engineering computations and assessments of the safe load-carrying capacities of the various components, adjusted to reflect existing conditions of the concrete, reinforcement bars, available bond length or any other factors pertinent thereto; and in addition, prepare and submit a detailed summary of all such work of repairs, rehabilitation, changes,

alterations, relocations, reconstruction or other such measures, if any, deemed necessary, in its opinion, to be undertaken at this crossing location in order to restore said portions of the existing structure, or any part thereof, to a condition and safe load-carrying capacity for the purposes, if any, that said portions now serve, together with an estimate of the costs of performing same.

8. That Pennsylvania Department of Transportation forthwith undertake a program of inspection of the vehicular roadway wearing surface, expansion dams and their underlying supporting elements across the entire length of the viaduct (exclusive of the station ramp), for purposes of determining the present state of condition, adequacy and integrity thereof, and for purposes of determining whether any condition exists throughout said length of viaduct which precludes or compromises the department's ability to establish and properly maintain thereon a smooth, uniform and unbroken roadway wearing surface, or which otherwise affects the safety and convenience of the traveling public (both vehicular and pedestrian).

9. That Pennsylvania Department of Transportation, within nine months from date of service hereof, prepare and submit to this Commission and to each other party of record hereto, a detailed summary of the results and findings of the inspection herein ordered performed by it; and in addition, prepare and submit a detailed summary of all such work of repairs, rehabilitation, changes, alterations, relocations, reconstruction or other such measures, if any, deemed necessary, in its opinion, to be undertaken at this crossing location in order to restore and effectively maintain the wearing surface to a safe and proper condition, together with an estimate of the costs of performing same.

10. That upon receipt of the information herein ordered submitted, this case be set for further hearing for purposes of admitting testimony and exhibits relevant to the inspections and reports, and upon the adoption of such course of action at this location as properly evolves or is indicated by the record therein developed.

11. That until such time as a final determination be made in this matter, Pennsylvania Turnpike Commission and Pennsylvania Department of Transportation shall continue to be recognized by this Commission as proper respondents to this proceeding at C. 18925.

12. That in all respects not otherwise inconsistent herewith, our prior orders in this proceeding and any other orders pertinent to the subject structure remain in full force and effect until such time as further order by this Commission shall issue which alters or amends the directives thereof; and that until such time, the party or parties named therein as responsible for maintenance of the various portions of the subject structure perform their respective obligations in such manner as to provide the optimum in convenience and safety to the traveling public.

PENNSYLVANIA PUBLIC UTILITY COMMISSION

(signed) George I. Bloom

Chairman

ATTEST:

Secretary