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REPORT  
OF  
THE DELAWARE RIVER JOINT  
COMMISSION  
OF  
PENNSYLVANIA AND NEW JERSEY

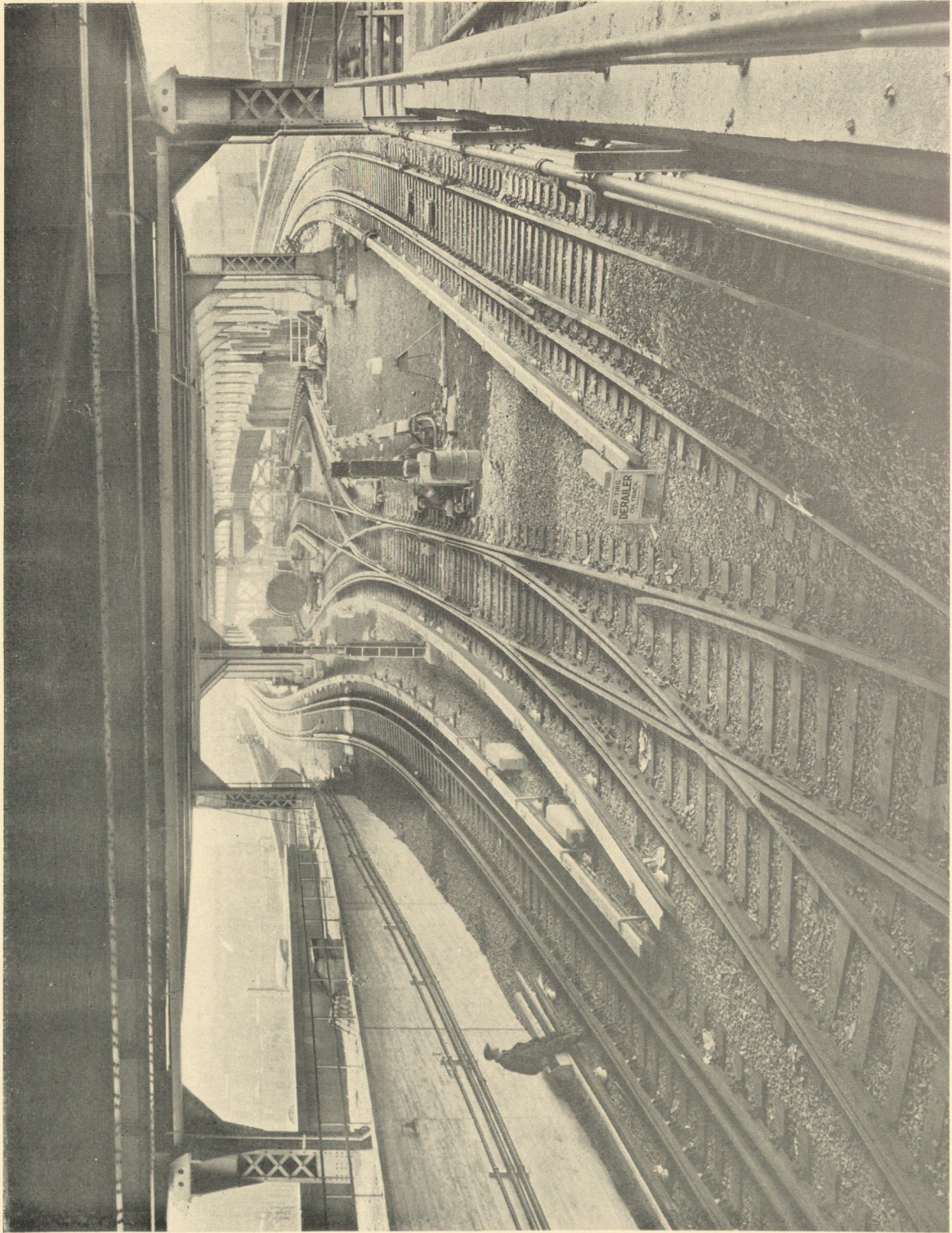
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CAR STORAGE YARD, CAMDEN

REPORT  
OF  
The Delaware River Joint Commission  
of Pennsylvania and New Jersey  
TO THE  
Legislatures of the  
Commonwealth of Pennsylvania  
and the  
State of New Jersey  
and the  
Council of the City of Philadelphia  
1935

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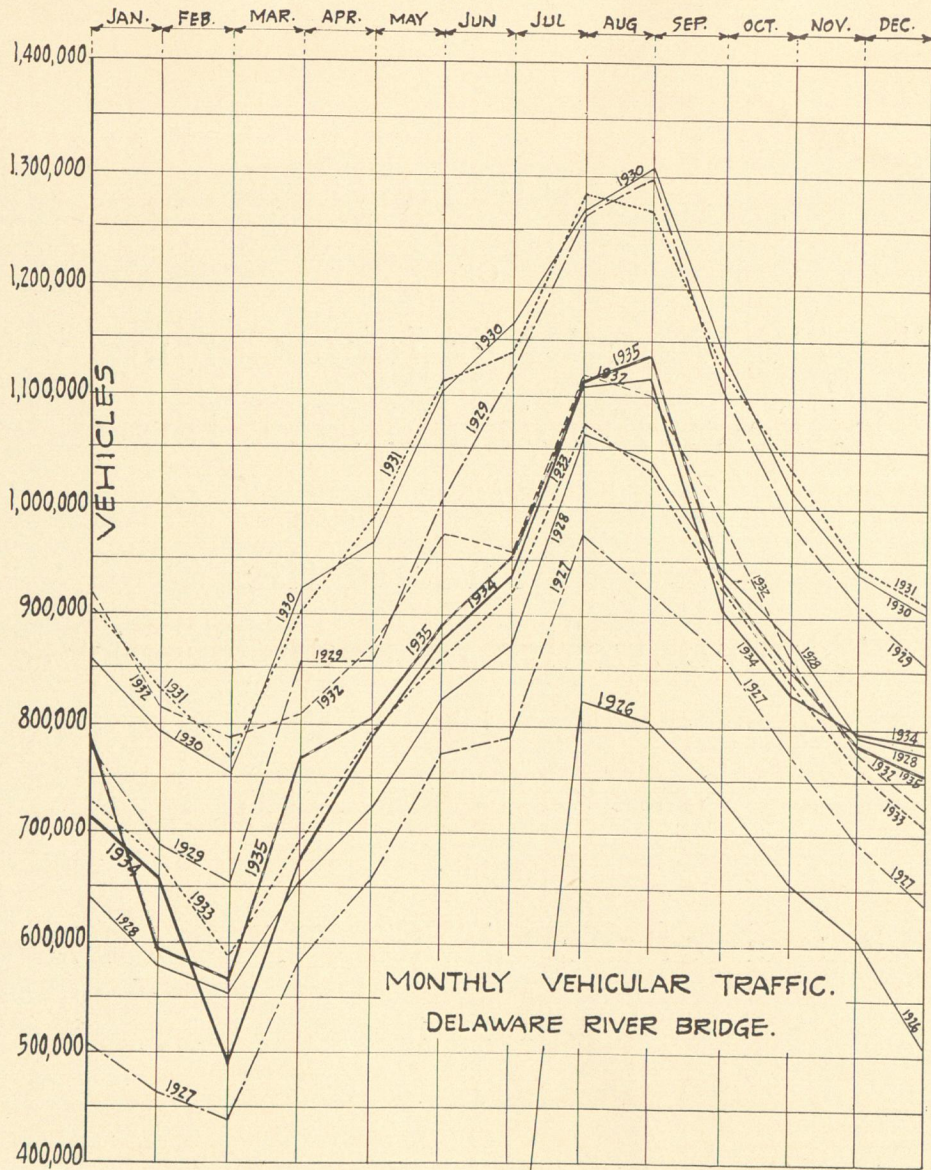
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MODJESKI, MASTERS AND CASE, INC., *Engineers*



PERIOD	TOTAL VEHICLES	TOTAL RECEIPTS	PLEASURE CARS & LIGHT TRUCKS.	BUSES	TRUCKS (HEAVY)	HORSE-DRAWN VEHICLES	HORSE & RIDER	LED ANIMALS	SPECIAL PERMITS	MOTOR CYCLES	AVERAGE VEHICLES		AVERAGE RECEIPTS		AVERAGE SUNDAY & HOLIDAY TRAFFIC	DISTRIBUTED FUNDS.				
											MONTHLY	DAILY	MONTHLY	DAILY		NEW-JERSEY	PENNA.	PHILA.	TOTAL.	
1927	8,533,201	2,435,784. <sup>46</sup>	7,270,705	1,181,163	111,460	1369	102	79	3722	24,583	716,100	23,543	202,987. <sup>03</sup>	6,673. <sup>38</sup>	35,981	1,046,360. <sup>99</sup>	523,480. <sup>47</sup>	523,480. <sup>47</sup>	2,093,921. <sup>89</sup>	
1928	9,725,470	2,827,786. <sup>83</sup>	8,246,002	1,297,733	151,583	454	96	30	565	29,207	810,456	26,572	235,648. <sup>50</sup>	7,726. <sup>19</sup>	38,096	1,224,598. <sup>40</sup>	612,299. <sup>21</sup>	612,299. <sup>21</sup>	2,449,196. <sup>82</sup>	
1929	11,615,609	3,331,754. <sup>46</sup>	10,096,414	1,313,337	170,126	391	69	8	1611	33,253	967,967	31,824	277,648. <sup>43</sup>	9,128. <sup>16</sup>	45,194	1,466,629. <sup>14</sup>	733,314. <sup>56</sup>	733,314. <sup>56</sup>	2,933,258. <sup>26</sup>	
1930	12,285,359	3,517,730. <sup>64</sup>	10,578,206	1,484,443	189,704	115	59	5	4414	28,413	1,023,780	33,658	297,144. <sup>22</sup>	9,637. <sup>62</sup>	44,768	1,508,566. <sup>57</sup>	754,283. <sup>27</sup>	754,283. <sup>27</sup>	3,017,133. <sup>11</sup>	
1931	12,308,225	3,479,337. <sup>93</sup>	10,770,393	1,278,879	225,977	31	22	1	5006	27,916	1,025,685	33,721	289,986. <sup>48</sup>	9,533. <sup>80</sup>	44,226	1,524,490. <sup>61</sup>	762,245. <sup>30</sup>	762,245. <sup>30</sup>	3,048,981. <sup>21</sup>	
1932	10,804,557	3,091,576. <sup>91</sup>	9,355,885	1,179,259	235,057	13	8	0	6561	27,774	900,379	29,520	257,631. <sup>40</sup>	8,446. <sup>93</sup>	38,011	1,310,112. <sup>54</sup>	655,056. <sup>27</sup>	655,056. <sup>27</sup>	2,620,225. <sup>08</sup>	
1933	9,886,705	2,820,018. <sup>70</sup>	8,569,299	1,032,068	250,455	22	2	2	3909	25,448	823,892	27,087	235,001. <sup>56</sup>	7,726. <sup>08</sup>	35,598	1,346,968. <sup>46</sup>	266,971. <sup>23</sup>	271,236. <sup>57</sup>	885,176. <sup>26</sup>	
1934	9,981,615	2,846,116. <sup>26</sup>	8,613,090	1,035,995	284,143	16	0	0	17164	31,249	831,801	27,347	237,176. <sup>56</sup>	7797. <sup>58</sup>	35,604					
1935	10,156,929	2,899,562. <sup>25</sup>	8,735,223	1,049,409	320,099	11	2	0	19312	32,673	846,410	27,824	241,630. <sup>27</sup>	7944. <sup>00</sup>	36,452					

## CONTENTS

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	PAGE
CAR STORAGE YARD—CAMDEN .....	Frontispiece
MONTHLY VEHICULAR TRAFFIC .....	4
TRAFFIC, RECEIPTS AND EXPENSES.....	6
ANNUAL REPORT .....	7
DIVISION OF OPERATING COSTS.....	10
AVERAGE VEHICLES AND RECEIPTS.....	12
DISTRIBUTION OF VEHICULAR TRAFFIC.....	13
PHILADELPHIA SUB-STATION .....	16
REPORT OF ENGINEERS (Appendix "A").....	17
NEW CAMDEN BOULEVARD .....	18, 19
DELAWARE RIVER BRIDGE HIGH-SPEED CAR .....	20
INTERIOR OF BRIDGE CAR.....	21
REPORT OF ELECTRICAL ENGINEER (Appendix "B").....	29
FINANCIAL SUMMARY .....	33
BALANCE SHEET .....	34, 35

TRAFFIC, RECEIPTS, AND EXPENSES

MONTH	1926			1927			1928			1929			1930		
	VEHICLES	RECEIPTS	EXPENSES	VEHICLES	RECEIPTS	EXPENSES	VEHICLES	RECEIPTS	EXPENSES	VEHICLES	RECEIPTS	EXPENSES	VEHICLES	RECEIPTS	EXPENSES
JAN.				466,918	148,165. <sup>.38</sup>	27,223. <sup>.07</sup>	581,945	178,184. <sup>.17</sup>	31,076. <sup>.14</sup>	691,827	207,812. <sup>.83</sup>	31,538. <sup>.35</sup>	792,291	229,672. <sup>.30</sup>	32,272. <sup>.39</sup>
FEB.				447,374	109,100. <sup>.34</sup>	30,238. <sup>.57</sup>	555,696	170,286. <sup>.61</sup>	34,370. <sup>.68</sup>	657,126	191,785. <sup>.23</sup>	29,052. <sup>.90</sup>	757,647	221,585. <sup>.92</sup>	33,531. <sup>.88</sup>
MAR.	TRAFFIC, RECEIPTS AND EXPENSES DELAWARE RIVER BRIDGE			586,441	155,743. <sup>.32</sup>	28,929. <sup>.78</sup>	657,294	195,838. <sup>.42</sup>	31,428. <sup>.52</sup>	850,894	237,825. <sup>.60</sup>	37,629. <sup>.98</sup>	921,732	282,816. <sup>.79</sup>	40,255. <sup>.69</sup>
APR.				654,243	173,375. <sup>.38</sup>	27,149. <sup>.44</sup>	728,163	215,041. <sup>.37</sup>	29,751. <sup>.49</sup>	858,784	247,119. <sup>.89</sup>	33,308. <sup>.07</sup>	970,596	283,174. <sup>.72</sup>	40,117. <sup>.85</sup>
MAY				771,344	210,816. <sup>.96</sup>	25,818. <sup>.29</sup>	829,841	235,846. <sup>.43</sup>	32,406. <sup>.28</sup>	1,002,573	281,480. <sup>.01</sup>	33,979. <sup>.39</sup>	1,105,698	319,006. <sup>.55</sup>	41,563. <sup>.36</sup>
JUN				783,223	222,513. <sup>.82</sup>	14,849. <sup>.19</sup>	871,082	257,264. <sup>.55</sup>	28,623. <sup>.81</sup>	1,126,167	328,222. <sup>.53</sup>	31,052. <sup>.08</sup>	1,163,455	320,237. <sup>.06</sup>	36,309. <sup>.72</sup>
JUL	828,647	226,532. <sup>.97</sup>	18,988. <sup>.70</sup>	975,551	264,948. <sup>.49</sup>	26,878. <sup>.44</sup>	1,063,159	294,327. <sup>.21</sup>	33,633. <sup>.08</sup>	1,268,929	353,982. <sup>.78</sup>	37,290. <sup>.47</sup>	1,272,827	370,521. <sup>.67</sup>	48,450. <sup>.44</sup>
AUG.	804,165	219,729. <sup>.09</sup>	28,567. <sup>.85</sup>	924,886	265,357. <sup>.32</sup>	28,633. <sup>.61</sup>	1,044,579	299,711. <sup>.61</sup>	32,947. <sup>.86</sup>	1,299,433	355,751. <sup>.66</sup>	38,795. <sup>.01</sup>	1,308,101	358,519. <sup>.43</sup>	44,659. <sup>.67</sup>
SEPT.	730,711	178,512. <sup>.94</sup>	21,689. <sup>.89</sup>	865,760	248,796. <sup>.87</sup>	39,549. <sup>.02</sup>	942,270	260,823. <sup>.69</sup>	29,568. <sup>.11</sup>	1,104,067	306,127. <sup>.55</sup>	30,292. <sup>.52</sup>	1,129,713	310,755. <sup>.63</sup>	39,941. <sup>.53</sup>
OCT.	655,078	184,233. <sup>.31</sup>	30,524. <sup>.96</sup>	776,505	227,107. <sup>.03</sup>	25,987. <sup>.63</sup>	881,472	257,370. <sup>.39</sup>	29,079. <sup>.68</sup>	985,086	280,407. <sup>.38</sup>	30,762. <sup>.16</sup>	1,020,625	287,963. <sup>.13</sup>	42,919. <sup>.13</sup>
NOV.	610,291	172,266. <sup>.75</sup>	27,092. <sup>.46</sup>	693,836	210,995. <sup>.04</sup>	29,566. <sup>.76</sup>	790,455	228,438. <sup>.98</sup>	30,247. <sup>.69</sup>	911,888	262,221. <sup>.55</sup>	32,445. <sup>.28</sup>	940,368	266,670. <sup>.84</sup>	49,818. <sup>.23</sup>
DEC.	508,782	128,833. <sup>.32</sup>	31,245. <sup>.61</sup>	647,120	198,864. <sup>.45</sup>	41,854. <sup>.79</sup>	779,514	234,653. <sup>.40</sup>	35,456. <sup>.67</sup>	858,835	279,017. <sup>.45</sup>	32,354. <sup>.99</sup>	902,306	266,846. <sup>.60</sup>	50,757. <sup>.64</sup>
TOTALS	4,137,674	1,110,108. <sup>.38</sup>	158,109. <sup>.47</sup>	8,593,201	2,435,784. <sup>.40</sup>	346,878. <sup>.59</sup>	9,725,470	2,827,786. <sup>.83</sup>	378,590. <sup>.01</sup>	11,615,609	3,331,754. <sup>.46</sup>	398,496. <sup>.20</sup>	12,285,359	3,517,730. <sup>.64</sup>	500,597. <sup>.53</sup>
NET RECEIPTS	946,682. <sup>.83</sup>			2,093,921. <sup>.89</sup>			2,449,196. <sup>.82</sup>			2,933,258. <sup>.26</sup>			3,017,133. <sup>.11</sup>		

MONTH	1931			1932			1933			1934			1935		
	VEHICLES	RECEIPTS	EXPENSES	VEHICLES	RECEIPTS	EXPENSES	VEHICLES	RECEIPTS	EXPENSES	VEHICLES	RECEIPTS	EXPENSES	VEHICLES	RECEIPTS	EXPENSES
JAN	829,442	237,708. <sup>.20</sup>	42,951. <sup>.90</sup>	820,468	250,486. <sup>.00</sup>	34,244. <sup>.08</sup>	685,372	188,938. <sup>.59</sup>	34,950. <sup>.88</sup>	662,380	186,220. <sup>.00</sup>	33,508. <sup>.17</sup>	593,650	169,865. <sup>.25</sup>	46,115. <sup>.28</sup>
FEB	776,165	226,331. <sup>.88</sup>	33,936. <sup>.75</sup>	779,370	214,084. <sup>.61</sup>	31,123. <sup>.64</sup>	589,811	164,238. <sup>.98</sup>	32,386. <sup>.53</sup>	487,606	142,425. <sup>.85</sup>	31,940. <sup>.77</sup>	563,194	161,285. <sup>.58</sup>	35,047. <sup>.91</sup>
MAR	901,208	265,696. <sup>.60</sup>	40,195. <sup>.00</sup>	814,395	249,608. <sup>.94</sup>	34,287. <sup>.21</sup>	690,043	215,762. <sup>.65</sup>	34,754. <sup>.00</sup>	669,341	185,054. <sup>.10</sup>	33,639. <sup>.48</sup>	763,757	208,870. <sup>.88</sup>	35,624. <sup>.52</sup>
APR	990,065	262,422. <sup>.18</sup>	33,728. <sup>.00</sup>	866,749	234,520. <sup>.85</sup>	33,583. <sup>.10</sup>	798,465	215,625. <sup>.00</sup>	34,704. <sup>.98</sup>	790,844	241,834. <sup>.09</sup>	40,767. <sup>.05</sup>	806,000	247,899. <sup>.14</sup>	34,012. <sup>.79</sup>
MAY	1,112,646	321,942. <sup>.37</sup>	33,911. <sup>.98</sup>	978,457	268,284. <sup>.28</sup>	36,473. <sup>.22</sup>	855,472	258,649. <sup>.75</sup>	32,740. <sup>.80</sup>	869,626	236,545. <sup>.80</sup>	38,020. <sup>.74</sup>	882,927	240,888. <sup>.20</sup>	35,011. <sup>.07</sup>
JUN	1,136,598	339,727. <sup>.46</sup>	33,170. <sup>.30</sup>	967,446	294,010. <sup>.81</sup>	39,386. <sup>.08</sup>	924,690	260,706. <sup>.74</sup>	31,867. <sup>.37</sup>	932,743	284,546. <sup>.37</sup>	36,250. <sup>.60</sup>	960,277	260,525. <sup>.67</sup>	34,957. <sup>.14</sup>
JUL	1,275,304	335,980. <sup>.72</sup>	35,864. <sup>.41</sup>	1,124,653	297,976. <sup>.45</sup>	48,622. <sup>.12</sup>	1,066,431	288,077. <sup>.01</sup>	35,346. <sup>.06</sup>	1,116,016	299,246. <sup>.68</sup>	33,539. <sup>.93</sup>	1,117,485	330,143. <sup>.50</sup>	39,931. <sup>.04</sup>
AUG	1,270,808	364,670. <sup>.00</sup>	40,802. <sup>.97</sup>	1,101,001	301,033. <sup>.15</sup>	48,119. <sup>.61</sup>	1,042,936	280,430. <sup>.75</sup>	37,691. <sup>.60</sup>	1,116,991	300,355. <sup>.12</sup>	42,019. <sup>.39</sup>	1,132,430	305,000. <sup>.35</sup>	36,181. <sup>.98</sup>
SEPT	1,128,313	301,962. <sup>.45</sup>	31,795. <sup>.34</sup>	987,062	296,377. <sup>.72</sup>	54,119. <sup>.22</sup>	928,938	278,563. <sup>.75</sup>	29,723. <sup>.43</sup>	913,476	243,740. <sup>.10</sup>	32,723. <sup>.08</sup>	941,261	257,544. <sup>.50</sup>	38,017. <sup>.52</sup>
OCT	1,035,436	305,104. <sup>.54</sup>	33,053. <sup>.03</sup>	867,986	238,797. <sup>.05</sup>	34,882. <sup>.40</sup>	841,983	232,151. <sup>.46</sup>	40,525. <sup>.60</sup>	839,029	258,335. <sup>.70</sup>	33,573. <sup>.13</sup>	853,237	260,129. <sup>.20</sup>	40,358. <sup>.25</sup>
NOV.	940,634	259,053. <sup>.40</sup>	37,224. <sup>.76</sup>	767,317	239,476. <sup>.64</sup>	42,990. <sup>.19</sup>	758,983	207,839. <sup>.30</sup>	40,518. <sup>.66</sup>	797,395	220,515. <sup>.65</sup>	33,432. <sup>.58</sup>	786,152	218,650. <sup>.74</sup>	36,899. <sup>.10</sup>
DEC.	911,606	258,738. <sup>.13</sup>	34,222. <sup>.28</sup>	729,653	206,920. <sup>.41</sup>	33,520. <sup>.96</sup>	703,581	229,034. <sup>.73</sup>	33,306. <sup>.55</sup>	786,168	242,096. <sup>.80</sup>	39,997. <sup>.71</sup>	757,159	238,760. <sup>.30</sup>	34,989. <sup>.99</sup>
TOTALS	12,308,223	3,479,337. <sup>.93</sup>	430,856. <sup>.72</sup>	10,804,557	3,091,576. <sup>.91</sup>	471,351. <sup>.83</sup>	9,886,705	2,820,018. <sup>.71</sup>	418,516. <sup>.46</sup>	9,981,615	2,846,116. <sup>.24</sup>	429,412. <sup>.63</sup>	10,156,929	2,899,563. <sup>.25</sup>	441,146. <sup>.59</sup>
NET RECEIPTS	\$ 3,048,981. <sup>.21</sup>			\$ 2,620,225. <sup>.08</sup>			\$ 2,401,502. <sup>.25</sup>			\$ 2,416,703. <sup>.63</sup>			\$ 2,458,416. <sup>.66</sup>		

ANNUAL REPORT  
OF  
THE DELAWARE RIVER JOINT COMMISSION  
OF  
PENNSYLVANIA AND NEW JERSEY

TO THE HONORABLE: THE LEGISLATURES OF THE COMMONWEALTH OF PENNSYLVANIA AND THE STATE OF NEW JERSEY AND THE COUNCIL OF THE CITY OF PHILADELPHIA.

In 1935 Delaware River Bridge traffic increased by 1.75% and gross receipts by 1.87%. All classes of traffic, excepting horse-drawn vehicles, showed a gain. Maximum daily traffic was 61,161 on August 18th and minimum, 8,289 on January 24th. The daily average for the year was 27,824.

Comparative figures since the opening of the Delaware River Bridge on July 1, 1926 are as follows:

<i>Year</i>	<i>Traffic</i>	<i>Gross Receipts</i>	<i>Expenses</i>	<i>Net Receipts</i>
1935	10,156,929	\$2,899,563.25	\$441,146.59	\$2,458,416.66
1934	9,981,615	2,846,116.26	429,412.63	2,416,703.63
1933	9,886,705	2,820,018.71	418,516.46	2,401,502.25
1932	10,804,557	3,091,576.91	471,351.83	2,620,225.08
1931	12,308,225	3,479,337.93	430,856.72	3,048,981.21
1930	12,285,359	3,517,730.64	500,597.53	3,017,133.11
1929	11,615,609	3,331,754.46	398,496.20	2,933,258.26
1928	9,725,470	2,827,786.83	378,590.01	2,449,196.82
1927	8,593,201	2,435,784.40	346,678.59	2,093,921.89
1926 (½ year)	4,137,674	1,110,108.38	158,109.47	946,682.83

Details of traffic and receipts are shown in chart and tabular forms in this report.

Part of the increase in expenses in 1935 was due to items of construction cost of the high-speed rail transit project which were met out of toll funds. During the year, work was prosecuted vigorously on the project and, at the close, there was every indication that the line which extends the subway system of Philadelphia into Camden at a cost of \$10,000,000 would be opened in the spring of 1936. Details of progress are given in the appended reports of the engineers.

The High-Speed Line is approximately two and one-half miles long from Eighth and Race Streets, Philadelphia to its terminus alongside the Broadway Station of the Pennsylvania-Reading Seashore Lines in Camden. Stations are provided at Broadway and opposite the City Hall in Camden; and in Philadelphia at Franklin Square in addition to the previously-built station at Eighth and Market Streets. The City of Philadelphia built the Eighth Street subway several years ago as part of the Broad Street-Locust Street subway system. Passengers on the bridge line will alight at Eighth and Market Streets but the City of Philadelphia plans during 1936 to electrify the Eighth Street subway south of Market Street and the Locust Street extension to Eighteenth Street. These subway portions were built before the construction of the bridge line was begun but have not yet been equipped.

The cost of the bridge line to the Commission will be, approximately, \$8,000,000 with an additional \$2,000,000 defrayed by the Federal Emergency Administration of Public Works.

The line has been leased to the Philadelphia Rapid Transit Company and the Commission will receive two and one-half cents for each passenger carried thereon. The fare will be ten cents with free transfers to the North and South Broad Street subways. The Philadelphia Rapid Transit Company has agreed to give free transfers from the bridge line to the Market Street subway until such time as the Locust Street subway is put into operation to enable passengers to reach the central business section of Philadelphia.

#### PROGRESS OF HIGH-SPEED LINE

Our engineers, Modjeski, Masters and Case, Inc., report to the Commission upon the status of the High-Speed project as follows:

The line is designed for the operation of multiple unit electrically operated trains and extends from the connection with the Eighth Street Subway at Race Street in Philadelphia diagonally across Franklin Square in two tubes to the substructure of the Delaware River Bridge approach and thence across the bridge in the two outside locations provided in the original bridge construction. On the Camden side the tracks converge downward below the surface of the ground under the bridge approach structure and turn southward into Fifth Street as a two track subway. At Federal Street the subway swings on a long curve towards the east to a location parallel and adjacent to the tracks of the Pennsylvania-Reading Railroad and terminates about 70 ft. west of Sixth Street. Beyond this point is a continuing passageway at the street level to Haddon Avenue.

To maintain vehicular traffic cut off by the construction of the High Speed Line, underpasses have been constructed in Fifth Street, Philadelphia, between Cherry Street and Callowhill Street approximately 1450 ft. in length and in Fourth Street, Camden, between Main Street and Linden Street approximately 650 ft. in length. An additional short underpass for pedestrians has been constructed on the west side of Fourth Street, Camden, below the bridge. The temporary Philadelphia underpass in Fifth Street which crossed the new tracks at grade has been abandoned, filled, and paved over.

Three passenger stations have been provided, each with platforms 550 ft. long, one in Philadelphia located in Franklin Square and two in Camden, one in Fifth Street opposite the City Hall and the other at the easterly terminus of the line at Broadway, adjacent to the Pennsylvania Railroad Station. Lighting fixtures, signs, toilet facilities, ticket booths, fences and similar facilities are being installed and the stations will be turned over to the operating company completely equipped for operation. The upper floors of the Broadway Station are at the street level and are connected by means of a moving stairway with the station platform below in addition to the usual fixed stairways, and by a covered passageway with Sixth Street and Haddon Avenue. The City Hall and Franklin Square subway stations are entirely below the street level. Numerous stairways or passages afford convenient access to and from the streets at all stations. At the southeast corner of Seventh and Race Streets, Philadelphia, and at the Plaza Club Hotel in Camden, entrance and exit stairways have been provided in the existing buildings under special agreements with their owners.

The track of the High Speed Line consists of 100-pound A.S.C.E. rail laid to standard gauge of 4 ft. 8½ in. and 150-pound top running contact rail on porcelain insulators with protection boards, laid on creosoted yellow pine ties. The track over the bridge is provided with emergency guard rails throughout. In the subway the ties are short blocks beneath each rail and are either embedded in concrete or bolted to the top flanges of steel channels embedded in concrete. The channel construction was adopted at curves and special work with the object of holding the track rigidly in place and providing a convenient method of replacement of ties. Across the bridge the ties on the approaches are of standard length, laid in ballast on a concrete slab constructed under a preliminary contract completed in 1934. Over the suspended span regular bridge construction is employed consisting of 8 in. x 9¾ in. ties bolted to the steel frame work provided in the original bridge construction. Longitudinal guard timbers bolted to the ties are provided over the suspended span. Tracks for storage of 12 cars are provided beneath the Camden approach of the Delaware River Bridge between Third and Fourth Streets.

Signaling and Interlocking Equipment is of the electro-pneumatic type similar to that in the Broad Street Subway. An innovation consists in the installation of air lines of bronze tubing.

Electric power for the operation of the High Speed Line is provided through two substations, one in Philadelphia below the bridge at Front Street and one in Camden at Fourth and Birch Streets, as set forth in the report of the Electrical Engineer.

Twenty-six steel passenger cars of a modified stream line construction and having a seating capacity of 67 passengers are under construction.

Under an agreement between the Commission and the Pennsylvania Railroad, the railroad company has cooperated in the subway construction at the Broadway Station by temporarily discontinuing its northerly track and removing its pole line interfering with the subway construction and placing the cables below ground.

### ALL CONTRACTS LET

The financial status of all contracts for construction and equipment of the project at the end of 1935 is as follows:

#### HIGH-SPEED TRANSIT PROJECT CONSTRUCTION ACCOUNT DECEMBER 31, 1935

<i>Contract</i>	<i>Amount of Contract and Extra Work</i>	<i>Amount Earned</i>	<i>Amount Paid</i>	<i>10% Retained</i>
1. Builders, Inc. ....	\$ 998,394.15	\$1,000,853.83	\$ 890,768.46	\$100,085.37
Extra Work .....	26,697.61	26,697.61	24,027.84	2,669.77
Totals—Contract No. 1 ...	1,025,091.76	1,027,551.44	914,796.30	102,755.14
2. Marcus Contracting Co., Inc. ...	1,373,999.06	1,287,874.61	1,159,087.14	128,787.47
Extra Work .....	16,661.24	16,661.24	14,995.12	1,666.12
Totals—Contract No. 2 ...	1,390,660.30	1,304,535.85	1,174,082.26	130,453.59
3. Triest Contracting Corp. ....	957,694.00	963,292.25	866,963.03	96,329.22
Extra Work .....	13,447.52	13,447.52	12,102.76	1,344.76
Totals—Contract No. 3 ...	971,141.52	976,739.77	879,065.79	97,673.98
4. Turner Construction Co. ....	73,615.04	73,615.04	73,615.04	} Completed \$3,292.96 Under Bid
Extra Work .....	326.40	326.40	326.40	
Totals—Contract No. 4 ...	73,941.44	73,941.44	73,941.44	
5. Allis-Chalmers Mfg. Co. ....	393,965.00	134,624.00	121,161.60	13,462.40
6. E. R. Morehouse Co., Inc. ....	735,481.45	701,380.53	631,242.47	70,138.06
Extra Work .....	3,771.25	3,771.25	3,394.13	377.12
Totals—Contract No. 6 ...	739,252.70	705,151.78	634,636.60	70,515.18
7A. Turner Construction Co. ....	75,520.20	74,502.09	67,051.88	7,450.21
Extra Work .....	1,330.76	1,330.76	1,197.68	133.08
Totals—Contract No. 7A..	76,850.96	75,832.85	68,249.56	7,583.29
7C. Turner Construction Co. ....	65,929.05	64,837.96	58,354.17	6,483.79
Extra Work .....	627.43	627.43	564.68	62.75
Totals—Contract No. 7C..	66,556.48	65,465.39	58,918.85	6,546.54
8. The J. G. Brill Co. ....	1,365,865.00	166,075.00	149,467.50	16,607.50
9. W. V. Pangborne & Co., Inc. ...	318,346.21	56,049.46	50,444.51	5,604.95
10A. Union Switch & Signal Co. ...	589,970.00	106,010.98	95,409.88	10,601.10
11. Ralph S. Herzog .....	179,518.00	49,515.18	44,563.66	4,951.52
12. Riggs Distler & Co., Inc. ....	54,700.99	10,972.33	9,875.10	1,097.23
13. W. M. Anderson Co. ....	20,219.94			
14. Westinghouse Electric Elevator Co. ....	26,950.00	6,959.16	6,263.24	695.92
15. Kaufman Construction Co. ....	47,320.00			
TOTALS—CONTRACTS ....	\$7,277,488.09	\$4,696,562.42	\$4,224,267.68	\$462,294.74
TOTALS—EXTRA WORK ..	62,862.21	62,862.21	56,608.61	6,253.60
GRAND TOTALS .....	7,340,350.30	4,759,424.63	4,280,876.29	468,548.34

EEW

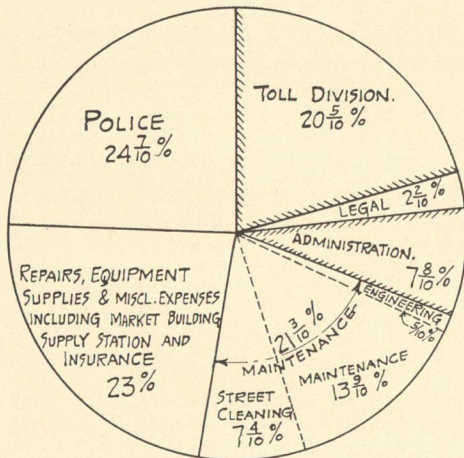
During 1935 the Commission sold 4,000 par value bonds for \$4,301,580 to finance the project. The Commission received a free grant of \$326,010.03 from the Federal Emergency Administration of Public Works under the Loan and Grant Agreement of May 4, 1934. Requisitions for additional funds, due as part of the Grant, were under consideration at Washington at the end of the year.

BONDS SOLD TO PUBLIC

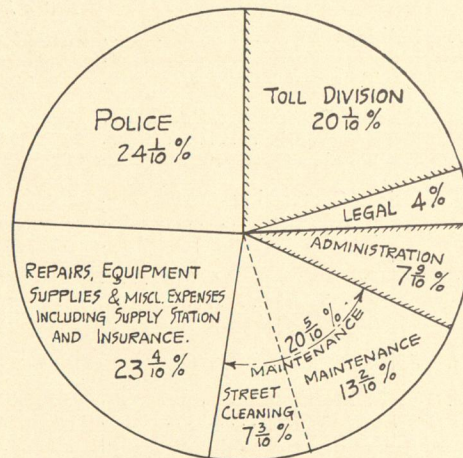
The Commission's policy of selling blocks of its bonds as funds are needed resulted in a marked saving in interest costs during construction. The favorable financial position of the Commission, as shown in the Balance Sheet appended to this report, was,

DELAWARE RIVER BRIDGE.

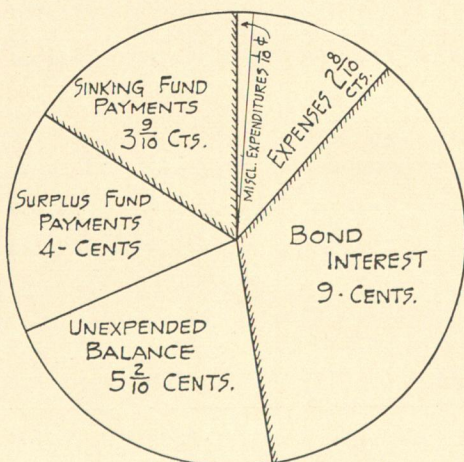
DIVISION OF OPERATING COSTS.



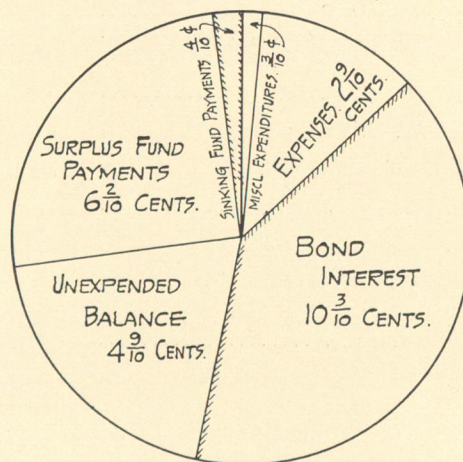
FOR YEAR 1934.



FOR YEAR 1935.



FOR YEAR 1934



FOR YEAR 1935.

WHERE THE BRIDGE QUARTER GOES.

undoubtedly, one of the chief factors in obtaining premiums from the banking syndicates which purchased its bonds in competitive bidding after advertising. The Commission elected to dispose of its bonds to the public rather than to the Federal Emergency Administration of Public Works because of the greater premium to be obtained. During 1935, sales of Commission bonds were made as follows:

<i>Date</i>	<i>Amount Sold</i>	<i>Price</i>	<i>Amount Received</i>	<i>Purchaser</i>
January 18—	\$2,000,000 @	108.279—	\$2,165,580—	Graham, Parsons and Company
October 20—	\$2,000,000 @	106.8 —	\$2,136,000—	Yarnall and Company
	<u>\$4,000,000</u>		<u>\$4,301,580</u>	

Thirty-four arrests were made on the bridge in 1935; ten fires were extinguished; one fatal traffic accident occurred and a workman employed by a contractor on the transit project died from injuries as a result of falling from the bridge.

The Delaware River Joint Commission takes this opportunity of inviting the Legislatures of Pennsylvania and New Jersey and the Council of the City of Philadelphia to inspect the bridge and to go into the details of operation at any time.

Respectfully submitted,

THE DELAWARE RIVER JOINT COMMISSION

GEORGE H. EARLE, *Chairman*

J. HAMPTON MOORE

CHARLES A. WATERS

FRANK E. BALDWIN

THOMAS B. SMITH

RICHARD WEGLEIN

WILLIAM H. FOLWELL

J. WILLISON SMITH

JOHN B. KATES, *Vice-Chairman*

FRANK L. SUPLEE

I. NORWOOD GRISCOM

LUCIUS E. HIRES

ARTHUR C. KING

BARTON F. SHARP

ALFRED COOPER

A. MATLACK STACKHOUSE

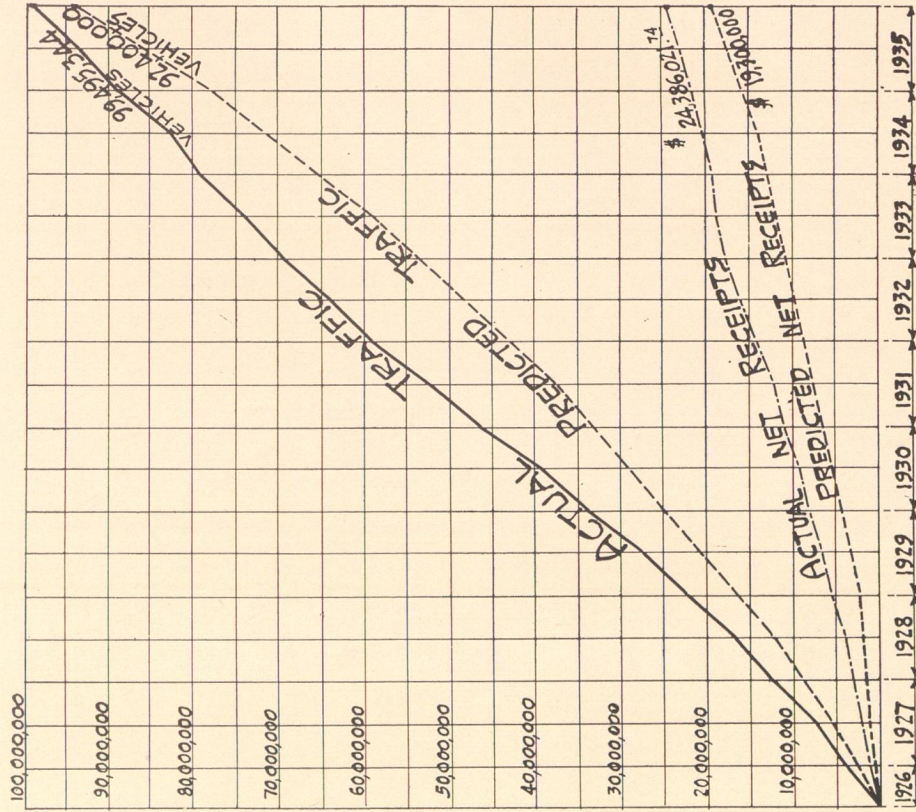
JOSEPH K. COSTELLO, *General Manager*

December 31, 1935.



DISTRIBUTION OF VEHICULAR TRAFFIC.  
ACROSS THE DELAWARE RIVER.  
(AMONG FERRIES & BRIDGES WITHIN 10 MILES OF THE DELA. RIVER BRIDGE)  
FOR YEAR-1935.

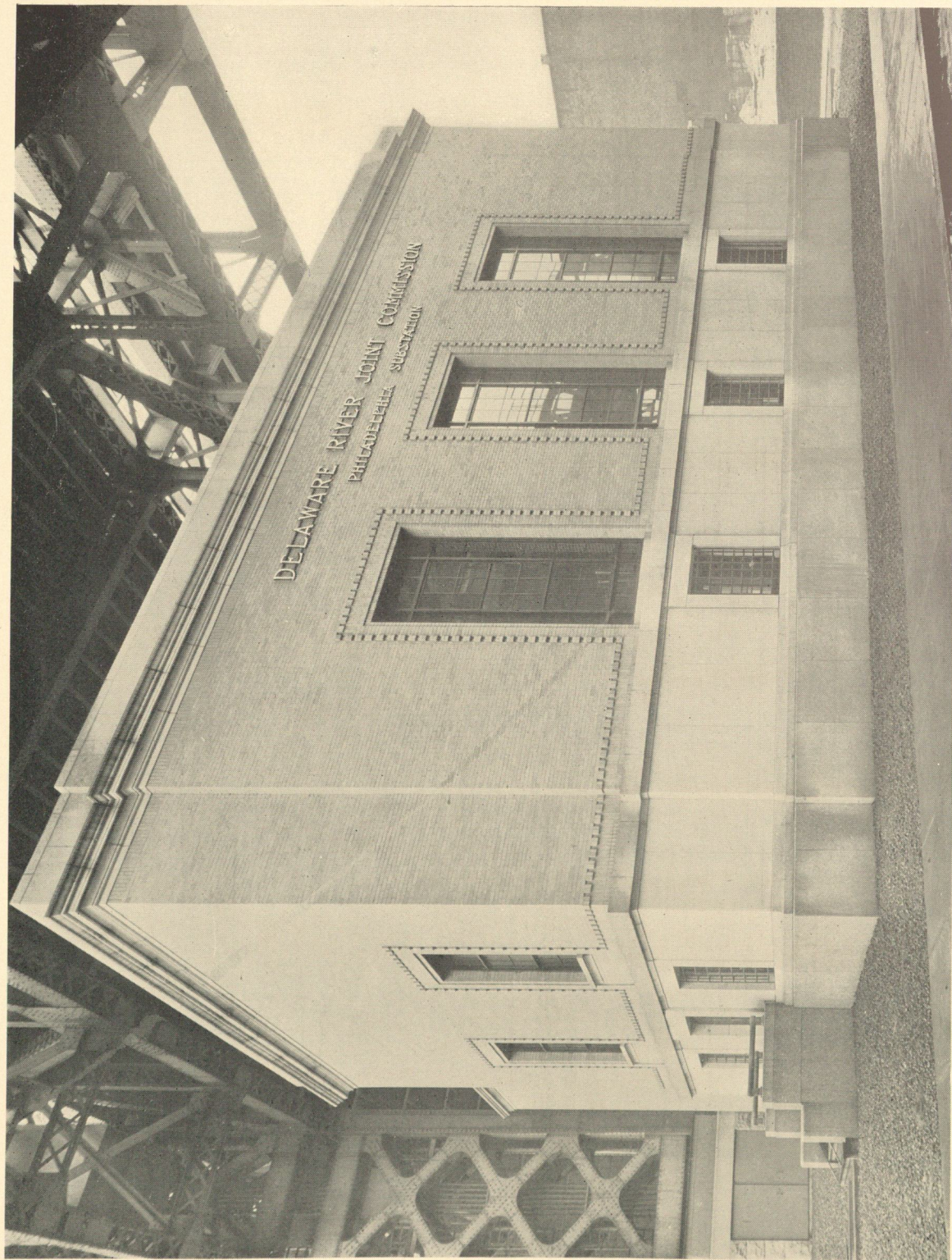
MONTH	FERRY VEHICLES		TACONY PALMYRA & RIVER BRIDGE	TOTAL VEHICLES OTHER THAN THE DELA. RIVER BRIDGE	DELAWARE RIVER BRIDGE	TOTAL CROSS RIVER TRAFFIC	TACONY PALMYRA BRIDGE SHARE OF TRAFFIC.	DELAWARE RIVER BRIDGE SHARE OF TRAFFIC.
	PENN. R.R.	PHILA. & READING						
JAN.	50,448	67,805	56,002	174,255	593,650	767,905	7.29%	77.31%
FEB.	49,668	64,444	54,560	168,672	563,194	731,866	7.45	76.95
MAR.	59,647	85,743	91,452	236,842	763,757	1,000,599	9.13	76.33
APR.	62,537	95,821	103,816	262,174	806,000	1,068,174	9.72	75.45
MAY	67,411	103,104	127,378	304,493	882,327	1,186,820	10.79	74.35
JUNE	70,050	118,095	164,427	352,572	960,277	1,312,849	12.52	73.14
JULY	82,866	144,354	219,188	446,408	1,117,485	1,567,893	14.01	71.45
AUG.	91,178	148,030	223,240	463,148	1,172,430	1,595,578	14.03	70.97
SEP.	77,676	124,007	155,860	357,543	941,261	1,298,804	12.00	72.47
OCT.	76,579	117,859	106,879	297,317	853,237	1,150,554	9.29	74.15
NOV.	67,347	94,970	86,969	249,286	786,152	1,035,438	8.35	75.92
DEC.	61,801	86,255	79,835	227,894	757,159	985,050	8.10	76.86
TOTALS 1935	817,208	1,252,487	1,470,906	3,540,601	10,156,929	13,697,530	10.73	74.15
TOTALS 1934	769,423	1,261,372	1,399,843	3,430,638	9,981,615	13,412,253	10.43	74.42
% CHANGE	+6.71	-0.70	+5.07	+3.20	+1.75	+2.12	-	-



DELAWARE RIVER BRIDGE.  
COMPARISON OF ESTIMATED & ACTUAL RESULTS.  
JULY-1ST-1926 TO DEC. 31ST-1935. (CUMULATIVE)



APPENDICES



PHILADELPHIA SUB-STATION, HIGH-SPEED PROJECT

## APPENDIX "A"

REPORT OF MODJESKI, MASTERS AND CASE, INC., ENGINEERS

December 31, 1935

THE DELAWARE RIVER JOINT COMMISSION

Camden, N. J.

GENTLEMEN:—

We transmit herewith a report of the work accomplished on the High Speed Rail Transit Line during 1935 and the status of the work at the present time. The report by the Electrical Engineer of the source and distribution of power for operation and the electrical features is given in Appendix "B".

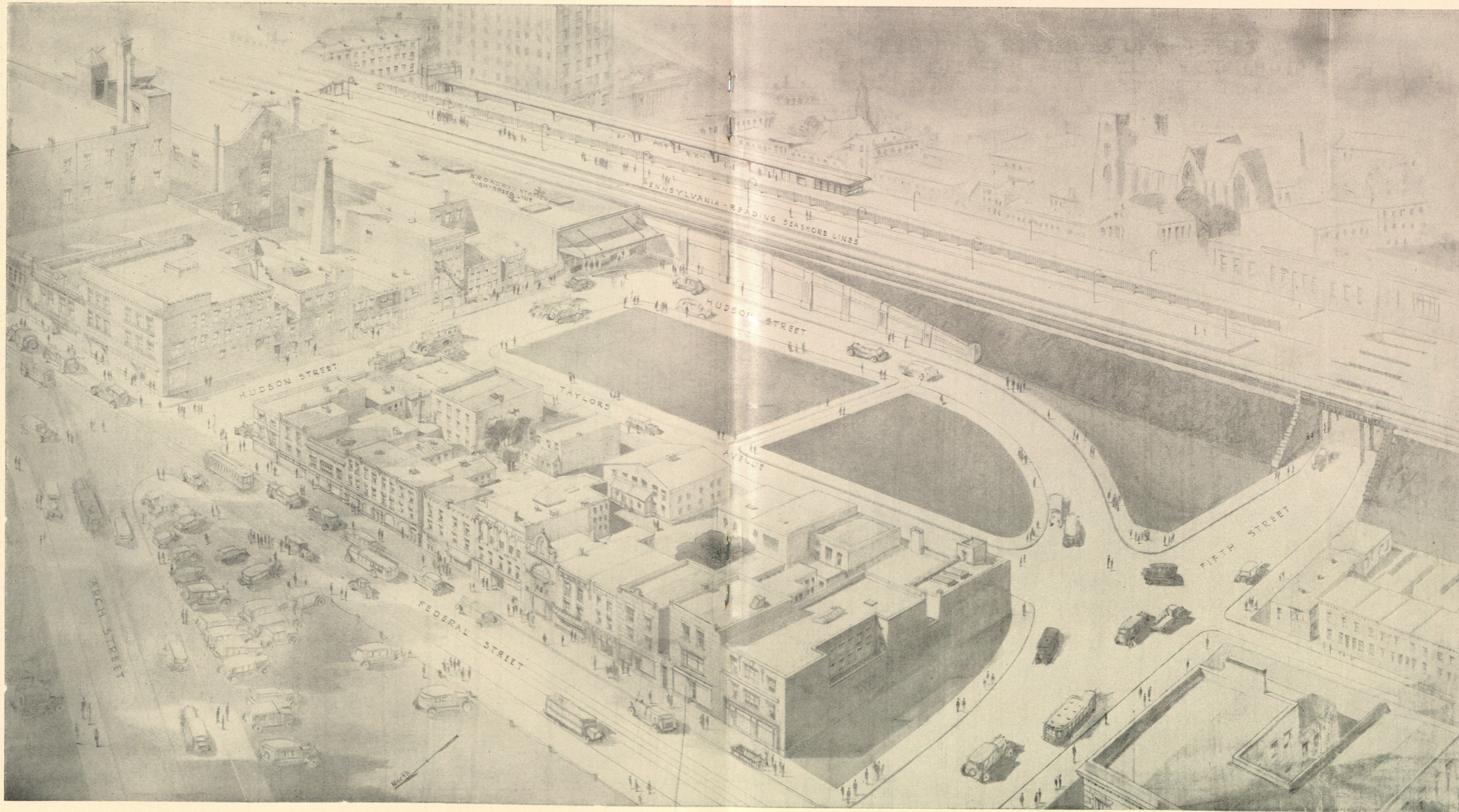
Nine contracts, Nos. 7-C to 15 inclusive, for the finish and equipment of the High Speed Line aggregating \$2,668,819.19 have been awarded during the year, completing the work of placing the entire project under contract. Including seven contracts awarded in 1934 the aggregate of the sixteen contracts comprising the entire work is \$7,277,488.09.

Contract No. 1 for subway construction in Philadelphia and Contracts 7-A and 7-C for the construction of the substation buildings were completed this year. Contract No. 6 for trackwork and contact rail is substantially completed and Contracts 2 and 3 for subway construction in Camden are nearing completion. Contract No. 4 for the construction of concrete decks on the bridge approaches was completed in 1934. The remaining nine contracts for finish and equipment, except Contract No. 15 for which the order to proceed has not yet been issued, are actively in progress. At the end of the year the project as a whole is approximately 80 per cent completed.

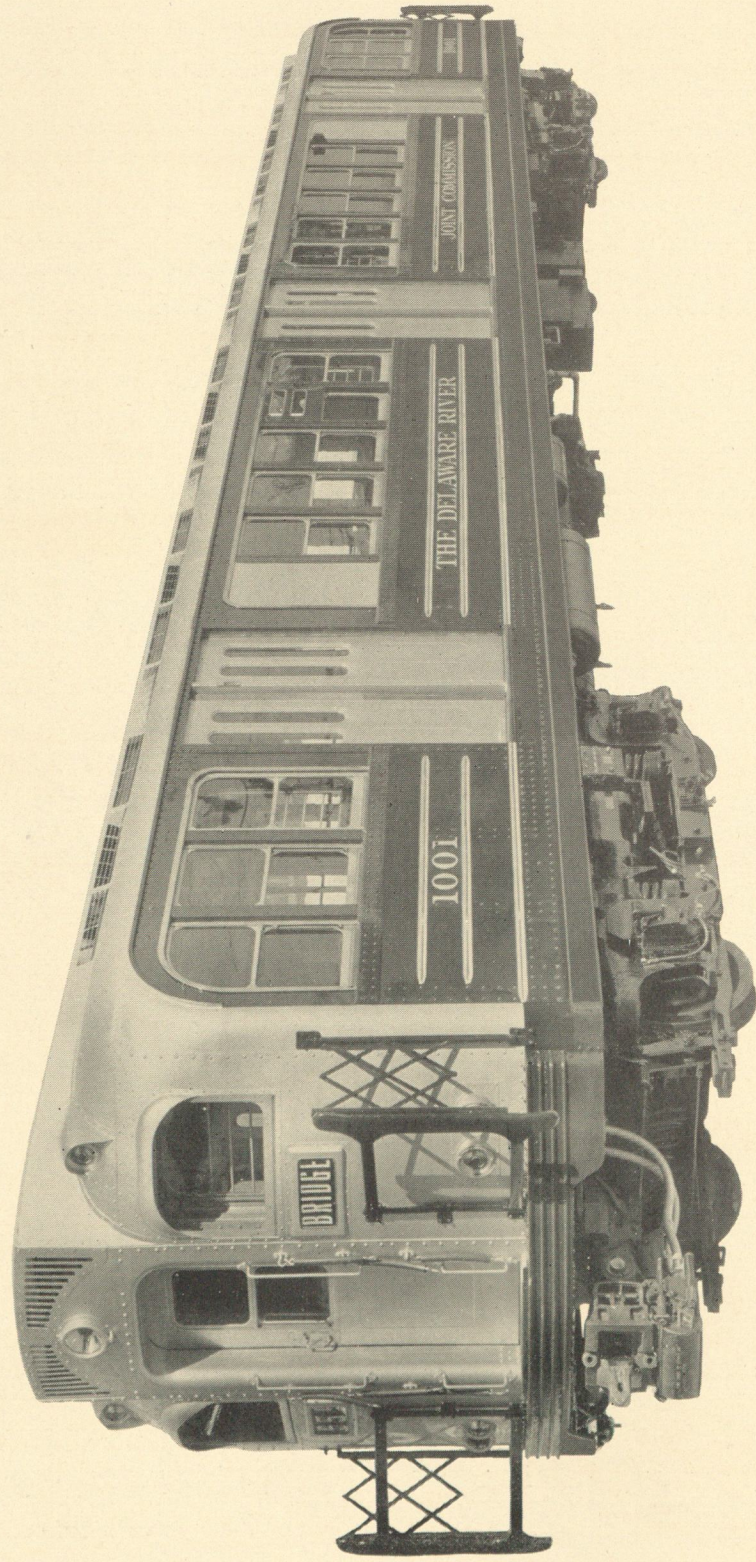
During the greater portion of the year 102 Commission engineers and inspectors have been employed on the work, the number now being reduced to 87. The number of Contractors' men employed directly on the work has averaged 725, the maximum being 1175. At the end of the year the force was reduced to about 400.

Due to the participation by the United States Government in the financing of the work, it has been prosecuted as Public Works Administration Project No. 1293 and has been subject to Government regulations and inspection throughout.

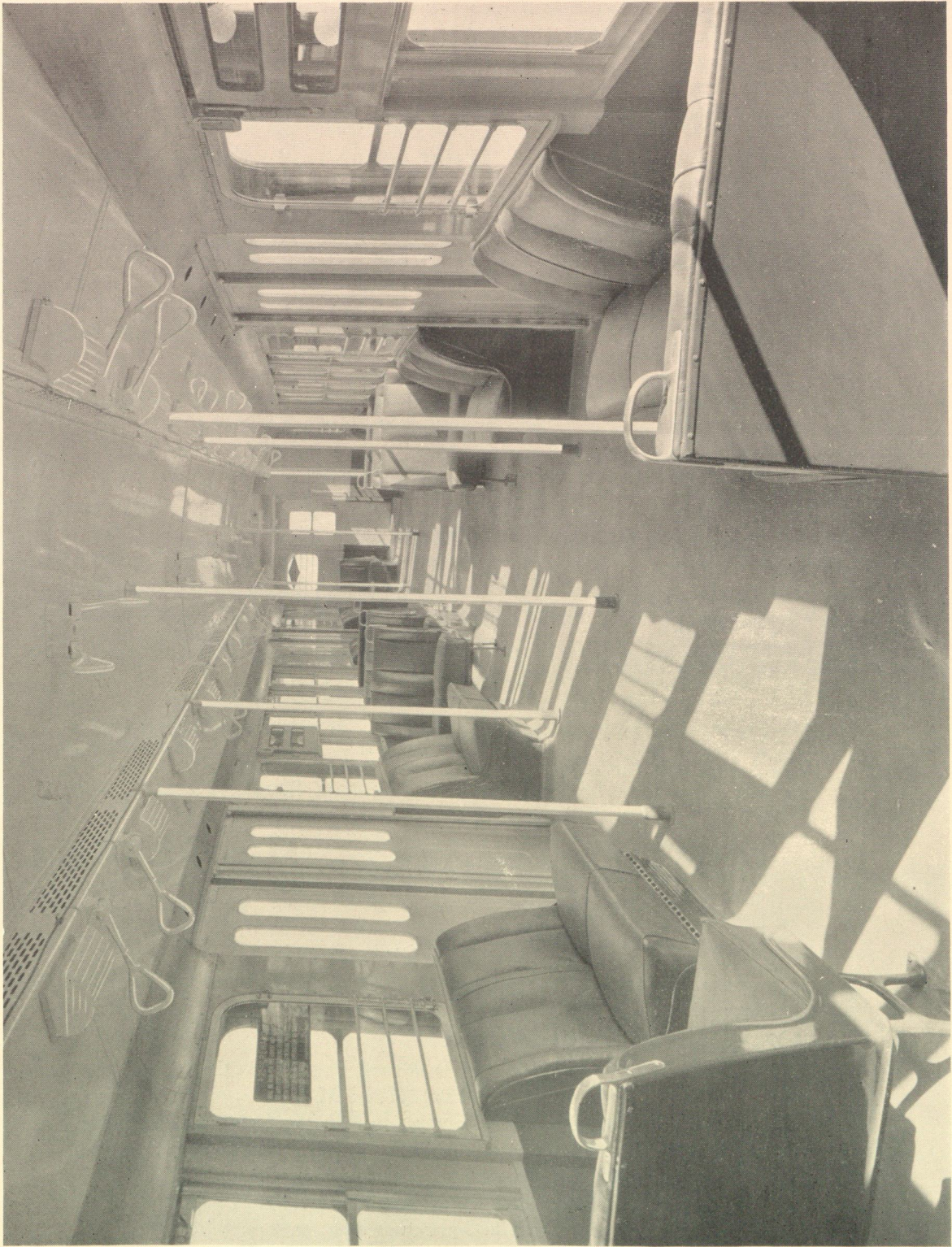
The various contracts for the construction and equipment of the High Speed Line Project are as follows:



NEW BOULEVARD TO BROADWAY STATION, HIGH-SPEED PROJECT, CAMDEN



DELAWARE RIVER BRIDGE HIGH-SPEED CAR



INTERIOR OF BRIDGE CAR

<i>Contract No.</i>	<i>For</i>	<i>Awarded to</i>	<i>Date of Award</i>	
1	Phila. Subway and Underpass	Builders, Inc.	1-26-34	\$998,394.15
2	Trackways Underpasses and Subway—Camden	The Marcus Contg. Co., Inc.	4-13-34	1,373,999.06
3	Subway South of Federal St.—Camden	Triest Contg. Corp.	6- 8-34	957,694.00
4	Concrete Decks on Bridge	Turner Constr. Co.	8-17-34	73,615.04
5	Equipment for Substations	Allis-Chalmers Mfg. Co.	8-17-34	393,965.00
6	Trackwork and Contact Rail	E. R. Morehouse Co., Inc.	10-19-34	735,481.45
7-A	Phila. Substation Building	Turner Constr. Co.	11-16-34	75,520.20
7-C	Camden Substation Building	Turner Constr. Co.	1-18-35	65,929.05
8	Steel Passenger Cars	The J. G. Brill Co.	3-23-35	1,365,865.00
9	Substation Equipment, Bonding and Cables	W. V. Pangborne & Co., Inc.	6-7-35	318,346.21
10-A	Signaling and Interlocking	Union Switch & Signal Co.	5-31-35	589,970.00
11	Station Finish and Control Equipment	Ralph S. Herzog	3-23-35	179,518.00
12	Subway Lighting	Riggs Distler & Co.	7-19-35	54,700.99
13	Pumps, Plumbing, Sewage Ejectors and Heating	W. M. Anderson Co.	8-16-35	20,219.94
14	Moving Stairway	Westinghouse Electric Elevator Co.	7-19-35	26,950.00
15	Miscellaneous Equipment and Work	Kaufman Constr. Co.	12-20-35	47,320.00
Total.....				\$7,277,488.09

#### DETAILED REPORT OF CONSTRUCTION

The following is a record of the construction work accomplished during the year:

##### CONTRACT NO. 1—SUBWAY IN PHILADELPHIA FROM EIGHTH AND RACE STREETS TO SIXTH STREET AND AN UNDERPASS IN FIFTH STREET

Contractor .....	Builders, Inc.
Date of Contract.....	February 9, 1934
Bids Opened.....	January 15, 1934
Aggregate of Bid.....	\$998,394.15
Notice to Proceed Issued.....	February 9, 1934
Work of Contract Completed.....	August 29, 1935

Contract No. 1 comprising the subway and underpass construction in Philadelphia which was approximately 80 per cent complete at the beginning of 1935 was completed August 29, 1935.

The work during the past year has been concerned largely with the completion of the Fifth Street underpass which was opened to traffic on May 28, 1935, the filling and repaving of the old underpass, the physical connection with the Eighth Street Subway, and the restoration of surface conditions. The Seventh Street Extension has been completed and the car tracks laid, Race Street has been widened on the north side between Eighth Street and Franklin Street, and the surface of other streets disturbed by the construction has been repaved. Franklin Square has been temporarily resurfaced, the

fountain replaced, and the walks relaid, but the landscaping of this square and of the open plots resulting from the demolition of buildings over the subway to the west and the replacement of trees in Franklin Square has been deferred until a later date.

CONTRACT No. 2—CONSTRUCTION IN CAMDEN OF TRACKWAYS ALONG THE DELAWARE RIVER BRIDGE APPROACH FROM WEST OF THIRD STREET TO FIFTH STREET AND A SUBWAY IN FIFTH STREET FROM THE BRIDGE APPROACH TO FEDERAL STREET: ALSO A VEHICULAR AND A PEDESTRIAN UNDERPASS IN FOURTH STREET.

Contractor.....The Marcus Contracting Co., Inc.  
 Date of Contract.....April 16, 1934  
 Bids Opened.....April 6, 1934  
 Aggregate of Bid.....\$1,373,999.06  
 Notice to Proceed Issued.....May 2, 1934  
 Contract now approximately.....97% completed

Contract No. 2 for that portion of the High-Speed Line north of Federal Street, including the City Hall Station and the underpasses in Fourth Street, was 60 per cent completed at the beginning of the year and is now nearly finished. The work remaining to be done consists of backfilling and paving portions of Fifth Street at the southerly end of the contract and putting the finishing touches on the work in general.

The Contractor's operations during the year have covered all branches of the construction, including the completion of the difficult work of underpinning and supporting the substructure of the Delaware River Bridge approach, the completion of the Fourth Street underpasses, opened for vehicular travel September 23, 1935 and for pedestrians September 25, 1935, the widening and paving of Fourth Street and the underpass approaches at Linden Street, and the restoration of surface conditions. New granite curbs have been set and cement sidewalks laid along the line of the subway and underpass and permanent asphalt roadway paving on concrete base, laid in Fourth Street. A temporary bituminous macadam pavement on four inches of broken stone is being laid over the backfill above the subway in Fifth Street.

CONTRACT No. 3—SUBWAY IN CAMDEN FROM FIFTH AND FEDERAL STREETS TO THE VICINITY OF HADDON AVENUE AND CARMAN STREET

Contractor.....Triest Contracting Corporation  
 Date of Contract.....June 8, 1934  
 Bids Opened.....June 1, 1934  
 Aggregate of Bid.....\$957,694.00  
 Notice to Proceed Issued.....June 22, 1934  
 Contract now approximately.....98% completed

Contract No. 3 comprising the construction of the subway and its connecting passages between Federal Street and Haddon Avenue, which was 30 per cent completed at the beginning of the year is now substantially completed. The unfinished work consists of laying sheet asphalt in Hudson Street and Taylors Avenue and laying certain small areas of cement sidewalk paving, and minor items of finish to the structure.

The work on Contract No. 3 during the year has been principally concerned with the construction of the Broadway station and its approaches. The design of this station differs from the conventional type of the other stations in that the station control areas above the loading and unloading platforms are at the street level and are housed by steel and concrete structures located on both sides of Broadway. The south wall of these

structures support the railroad embankment. A moving stairway between the platform and street levels is being installed under Contract No. 14. The work includes construction of a covered passage from the station to within about 50 ft. of Sixth Street and from Sixth Street to Haddon Avenue. Heated quarters for the employees of the operating company are provided at the east end of the station.

CONTRACT No. 4—CONCRETE DECK AND TRACKWAYS ON BRIDGE

Contractor.....	Turner Construction Co.
Date of Contract.....	August 22, 1934
Bids Opened.....	August 10, 1934
Aggregate of Bid.....	\$77,234.40
Notice to Proceed Issued.....	September 12, 1934
Work Completed.....	December 18, 1934

CONTRACT No. 5—FURNISHING AND ERECTING MERCURY-ARC POWER RECTIFIER EQUIPMENT, TRANSFORMERS, AND SWITCH GEAR IN PHILADELPHIA AND CAMDEN SUBSTATIONS

Contractor.....	Allis-Chalmers Mfg. Co.
Date of Contract.....	August 21, 1934
Bids Opened.....	August 10, 1934
Aggregate of Bid.....	\$393,965.00
Notice to Proceed Issued.....	September 15, 1934
Contract now approximately.....	75% completed
Details in Appendix "B"	

CONTRACT No. 6—TRACKWORK AND CONTACT RAIL

Contractor.....	E. R. Morehouse Co., Inc.
Date of Contract.....	October 22, 1934
Bids Opened.....	October 12, 1934
Aggregate of Bid.....	\$737,481.45
Notice to Proceed Issued.....	November 5, 1934
Contract now approximately.....	99% completed

Contract No. 6 covers the furnishing and installing of the trackwork and contact rail required for the operation of the High Speed Line including the storage yard; also installations of metallic tubing for cables and steel electrical chambers, footwalks, gratings, pipe railings and similar equipment on the bridge and approach structures.

At the beginning of the year track materials were beginning to arrive on the work; the contract is now substantially completed.

The trackwork is similar to that adopted as standard in the City-owned Philadelphia subways.

An interesting innovation consists of the use of GEO type tie plates used throughout the work which are accurately fitted to the ties by gauge in the shop and provide means for the subsequent placing of the running rail on rubber pads in accurate alignment. The rail is fastened to the tie plates by means of clips, thus providing for replacements with a minimum damage to the ties. This construction eliminates the necessity for anti-creepers. Expansion joints of a new and effective design have been installed in the rail of both tracks at the bridge towers.

CONTRACT No. 7-A—PHILADELPHIA SUBSTATION BUILDING

Contractor.....	Turner Construction Co.
Date of Contract.....	November 20, 1934
Bids Opened.....	November 9, 1934
Aggregate of Bid.....	\$75,520.20
Notice to Proceed Issued.....	December 12, 1934
Contract now approximately.....	100% completed

Contract No. 7-A which was awarded near the close of 1934 has been substantially completed and the electric power equipment it is designed to house is being installed. The building is approximately 74 ft. by 53 ft. in size and of attractive architectural appearance, constructed of brick with granite base and limestone trim. It is located underneath the structure of the Delaware River Bridge on Front Street north of Race Street and as a protection against a possible fire on the bridge structure is provided with a copper roof.

CONTRACT No. 7-C—CAMDEN SUBSTATION BUILDING

Contractor .....	Turner Construction Co.
Date of Contract .....	January 22, 1935
Bids Opened .....	January 11, 1935
Aggregate of Bid .....	\$65,929.05
Notice to Proceed Issued .....	February 15, 1935
Contract now approximately .....	100% completed

The substation building in Camden was first designed as a limestone structure to resemble the Administration Building and was located in the open plot of land on the south side of Linden Street at the south Marginal Road. Bids were received on November 9, 1934 for constructing this building under Contract No. 7-B, the low bidder being Builders, Inc. and the price \$105,220.15. All bids were rejected and the building was redesigned as a brick structure with granite base course and limestone trim approximately 83 ft. by 53 ft. in size to occupy the plot of land on the east side of Fourth Street between Birch Street and the north Marginal Road. Bids for the construction of the substation on the revised design under Contract No. 7-C were received on January 11, 1935. Work was started on this building shortly thereafter and it is now completed and electrical apparatus and conduits are being installed. The work of Contract No. 7-C includes plumbing, ventilators, and hand-operated chain hoist but no electrical equipment.

CONTRACT No. 8—STEEL PASSENGER CARS

Contractor .....	The J. G. Brill Company
Date of Contract .....	March 25, 1935
Bids Opened .....	March 15, 1935
Aggregate of Bid .....	\$1,365,865.00
Notice to Proceed Issued .....	April 11, 1935
Contract now approximately .....	40% completed

Contract No. 8 covers the construction of 26 steel passenger cars for the operation of the High Speed Line, and two additional trucks and some replacement parts. One sample car is nearing completion, and the construction of the others is progressing rapidly.

The cars have a modified stream line outline at the ends and seating arrangement for 67 passengers. Some reduction in weight was made by the use of high-strength rust-resisting steel.

CONTRACT No. 9—SUBSTATION CONTROL EQUIPMENT AND POWER DISTRIBUTION SYSTEM

Contractor .....	W. V. Pangborne & Co., Inc.
Date of Contract .....	June 7, 1935
Bids Opened .....	May 31, 1935
Aggregate of Bid .....	\$318,346.21
Notice to Proceed Issued .....	July 13, 1935
Contract now approximately .....	35% completed
Details in Appendix "B"	

CONTRACT No. 10-A—BLOCK SIGNALING AND INTERLOCKING EQUIPMENT

Contractor.....	Union Switch & Signal Co.
Date of Contract.....	June 3, 1935
Bids Opened.....	May 17, 1935
Aggregate of Bid.....	\$589,970.00
Notice to Proceed Issued.....	June 19, 1935
Contract now approximately.....	60% completed
Details in Appendix "B"	

Contract No. 10 for Block Signaling and Interlocking Equipment was advertised and one bid received from the Union Switch & Signal Company in the amount of \$593,480 on March 15, 1935. This single bid was rejected and the Contract was readvertised as Contract 10-A giving bidders the privilege of bidding on either an electric or electro-pneumatic system or a combination of the two, except that installations in the Eighth Street Subway were required to be electro-pneumatic in operation to operate with the existing signaling and interlocking equipment with which it connected. Bids were received from the Union Switch & Signal Company in the amount of \$583,600 for combined electro-pneumatic and electric system in which an air line across the Delaware River Bridge was not required, and in the amount of \$589,970 for an electro-pneumatic system which included an air line available for the operation of tools on the bridge. The General Railway Signal Company submitted a bid of \$628,406. The electro-pneumatic type of equipment was requested by the Philadelphia Rapid Transit Company on account of the air line over the bridge and its many advantages in facilitating connection with the existing signal systems in the Philadelphia subways and the bid of the Union Switch & Signal Company for an electro-pneumatic system was accepted by the Commission and was awarded on May 31, 1935 as Contract 10-A.

CONTRACT No. 11—STATION FINISH AND CONTROL EQUIPMENT

Contractor.....	Ralph S. Herzog
Date of Contract.....	March 22, 1935
Bids Opened.....	March 15, 1935
Aggregate of Bid.....	\$179,518.00
Notice to Proceed Issued.....	April 11, 1935
Contract now approximately.....	40% completed

Contract No. 11 covers furnishing and installing the station finish, tile work and control equipment for the three subway stations and the construction of a small brick maintenance building underneath the approach spans of the Delaware River Bridge at the car storage yard near Third Street, Camden. The station finish comprises tile work; granite masonry around stairway openings in Franklin Square, Philadelphia and cast-iron enclosures around other stairways; grilles and fencing; copper covered, hollow metal and tubular steel doors; bronze sign fixtures, scuppers, and copper louvers; marble work for toilet rooms; passimeters, turnstiles, ticket booths, and other operating equipment.

The wall finish consists of a terra cotta backing and vitrified wall tile at the Franklin Square Station in Philadelphia and the City Hall Station in Camden, and faience tile at the Broadway Station, with granolithic base and cement plastering respectively below and above the tile wainscot except that no granolithic base is required at Broadway Station. The work is nearing completion in the Franklin Square Station. The contract as a whole is 40 per cent completed.

CONTRACT No. 12—SUBWAY LIGHTING

Contractor.....Riggs Distler and Co., Inc.  
 Date of Contract.....July 20, 1935  
 Bids Opened.....July 12, 1935  
 Aggregate of Bid.....\$54,700.99  
 Notice to Proceed Issued.....August 8, 1935  
 Contract now approximately.....40% completed  
 Details in Appendix "B"

CONTRACT No. 13—PUMPS, PLUMBING, SEWAGE EJECTORS AND HEATING

Contractor.....W. M. Anderson Co.  
 Date of Contract.....August 17, 1935  
 Bids Opened.....August 9, 1935  
 Aggregate of Bid.....\$20,219.94  
 Notice to Proceed Issued.....September 10, 1935  
 Contract now approximately.....25% completed

Contract No. 13 covers installing one electrically operated, centrifugal, vertical pump unit in the pump room of the Eighth Street Subway to comply with the requirements of the agreement with the City of Philadelphia, and two similar units in the pump room at City Hall Station, Camden; also plumbing fixtures in the toilet and porters' rooms at the three subway stations; three duplex and one single pneumatically operated sewage ejector units at these stations; a hot water heating system for the operating headquarters, and toilet rooms at the Broadway Station.

CONTRACT No. 14—MOVING STAIRWAY FOR BROADWAY STATION

Contractor.....Westinghouse Electric Elevator Co.  
 Date of Contract.....July 22, 1935  
 Bids Opened.....July 12, 1935  
 Aggregate of Bid.....\$26,950.00  
 Notice to Proceed Issued.....August 8, 1935  
 Contract now approximately.....50% completed

Contract No. 14 covers the furnishing and installing of a reversible type moving stairway having a maximum load capacity of 8,000 persons per hour, a width of 4 feet between balustrades and a speed of 90 feet per minute. The moving stairway is being installed in the space provided for it between the platform and street levels of the Broadway Station. The step units and balustrading are composed of polished black micarta with polished stainless steel trim and presents an attractive appearance. At the present date work is suspended waiting for electric power for test operation.

CONTRACT No. 15—MISCELLANEOUS EQUIPMENT AND WORK

Contractor.....Kaufman Construction Co.  
 Date of Contract.....December 23, 1935  
 Bids Opened.....December 13, 1935  
 Aggregate of Bid.....\$47,320.00  
 Notice to Proceed Not Yet Issued

Contract No. 15, a clean up contract in preparation for the operation of the High Speed Line covers the following items:

(a) Furnishing 160 lots of furniture, testing apparatus and operating equipment for distribution over the High Speed Line where required.

(b) Furnishing certain track replacement parts of frogs and switches, and expansion joints, to permit immediate installation in emergencies and thus insure continuity of operation.

(c) Furnishing and installing at the site of the project signs, doors, miscellaneous iron work in the subway; installing iron fences at the Philadelphia Substation; cutting holes for manhole frames and covers on the Delaware River Bridge footwalk; and other miscellaneous items of work.

The contract was signed December 23, 1935 but has not yet been approved by Federal Administration of Public Works and notice to proceed has not been issued.

#### CONCLUSION

All of the work required for the completion of the High Speed Line has been placed under contract and seven contracts have been either entirely or substantially completed. The main subway construction contracts being now virtually completed, the way is open for the rapid finishing of the remaining equipment contracts by the time the cars are delivered early in 1936.

Respectfully submitted,

MODJESKI, MASTERS AND CASE, INC.

By: M. B. CASE.

## APPENDIX "B"

### REPORT OF ELECTRICAL ENGINEER

December 31, 1935

THE DELAWARE RIVER JOINT COMMISSION,  
Camden, N. J.

GENTLEMEN:

Six major electrical or mechanical contracts, five of which were prepared, issued and awarded during the current year, are now being actively carried forward as part of the high-speed rail transit project. In addition to the above, a considerable amount of electrical and mechanical work is included in several of the structural contracts. The aggregate of this work is in excess of \$1,500,000.

In general, manufacturing, erection and installation have progressed satisfactorily. The present status of the work is well advanced on all contracts as shown below.

#### FEATURES AND PROBLEMS

The direct current power distribution system had to follow closely that of Broad Street Subway on account of the inter-connection of the lines, but special study had to be made on account of problems introduced by the considerable expansion, contraction and vibration on the bridge structure.

Rectifiers and metal-clad switchgear are used in the sub-stations for rectifying and switching the current as these types are the most desirable equipment available and have proven extremely satisfactory on the more recent subway developments in Philadelphia.

A diversity of primary power is provided through two independent sources each of a high degree of reliability. There are two sub-stations each supplied with power over duplicate cables from one source. There is a tie line between sub-stations so that either may be supplied from the other. This arrangement gives maximum flexibility and reliability of service and, though it assured continuity of operation, introduced a very complex problem due to the differential in power characteristics between the Pennsylvania and New Jersey power system.

Each of the utility companies which are to furnish power for the operation of the line stipulated that the use of the tie cable made it mandatory that provisions be made to prevent the possible tying of the two systems together. This might occur through the tie line or through either of the four distribution cables, each of which is to be supplied from either sub-station, unless proper precautions were taken. Conferences were held with the engineers of the utility and operating companies. The limitations each wished to impose were duly considered and a system of electrical remote interlocking was developed which is now acceptable to all concerned. Such system has been adopted and the auxiliary devices on the various switchgear units augmented or modified to meet the imposed conditions. There are twenty-six units of switchgear and the system of interlocking makes it impossible to close any unit, either manually or electrically, if such closing would inter-connect the two utility systems but at the same time permits all normal operations to be performed.

A feature worthy of note was the adoption of non-ferrous thin wall tube system across the bridge for cable raceways and signal air lines. The gross weight of these tubes is about 100,000 pounds or about one-third the weight of corresponding ferrous pipes ordinarily used. This desirable reduction in weight was obtained coincident with what is believed to be a more reliable installation and at a cost comparable with that involved in the use of ferrous metal.

All operations in the Philadelphia sub-station will be normally controlled from the Camden sub-station over four wires of the size ordinarily used for a telephone. Numerous circuit breakers at remote locations are also controlled from this station over similar wires. Telephones are to be located at many points along the line as are fire alarm stations and loud speakers for train dispatching. The wires for these many functions have a special rubber insulation and are combined into a single special trunk cable with branches as required. The total conductor-feet in this cable exceeds one million or over two hundred miles.

Power for lights and miscellaneous equipment in each passenger station is supplied over two cables, each of which may be fed from either sub-station. Automatic equipment in each station transfers the various circuits to the live source and thus assures continuity of service. Similar provisions are being installed to maintain signal service.

Provisions have been made for future developments. Space is provided in each sub-station for a 50 per cent increase of capacity over the initial. The power distribution system will readily lend itself to any normal extension of the line, particularly in the Camden area.

#### CONTRACT DATA AND STATUS OF THE WORK

Contracts involving electrical or mechanical work are as follows:

<i>Contract Number</i>	<i>For</i>	<i>Awarded to</i>	<i>Date of Award</i>	<i>Amount of Contract</i>
5	Rectifier and switchgear	Allis-Chalmers Manufacturing Co.	8-17-34	\$393,965.00
9	Sub-station control and power distribution system	W. V. Pangborne and Company, Inc.	6- 7-35	318,346.21
10-A	Block signaling and interlocking equipment	Union Switch and Signal Company	5-31-35	589,970.00
12	Subway lighting	Riggs-Distler and Company, Inc.	7- 9-35	54,700.99
13	Pumps, plumbing, sewage ejectors and heating	William M. Anderson Company	8-13-35	20,219.24
14	Moving Stairway	Westinghouse Electric Elevator Company	7-19-35	26,950.00

In addition to the above major electrical and mechanical contracts, a considerable amount of similar work has been done as part of various construction contracts as follows:

CONTRACT No. 1: Installation of concealed conduit and fittings in the subway and passenger station area, construction of an underground duct system and lighting and pumping facilities for the Fifth Street Underpass.

CONTRACT No. 2: Installation of concealed conduit and fittings in the subway and passenger station area, installation of high-voltage feeder line from the Camden Anchorage to the Fourth Street transformer room, installation of lighting and pumping facilities for the underpass and installation of an underground duct system. Under this contract the several electrical services now furnishing power for various locations in the Camden area are being combined and supplied from present service to the Camden Anchorage via a high-voltage cable to the transformer room at Fourth Street and then distributed to the various locations. This permits all power required for bridge operation in the Camden area to be obtained at more favorable rates and effects a very appreciable annual saving.

CONTRACT No. 3: Installation of concealed conduit and fittings in the subway and passenger station areas and construction of an underground duct system.

CONTRACT No. 6: Installation of a metallic tube system across the bridge and on approaches for the support and protection of cables and installation of the contact or third rail system.

CONTRACTS Nos. 7-A AND 7-C: Studies and equipment layouts were made to obtain buildings best adapted for the desired arrangement of equipment. Ventilation, dissipation of excess heat, and suitable illumination were considered and definite provisions made to obtain desired results. Detail plans were made for under-floor ducts, a concealed conduit system, and equipment foundations.

CONTRACT No. 8: Motive, control and other electrical equipment on the cars. Specifications covering these items were prepared. Plans and diagrams have been checked. Engineering tests have been made and witnessed and inspection of construction maintained. Most of the motive and control equipment has been tested and delivered to the car builder.

CONTRACT No. 11: Electrical equipment of the maintenance building.

#### MAJOR ELECTRICAL AND MECHANICAL CONTRACTS

CONTRACT No. 5:

This contract was awarded to the Allis-Chalmers Manufacturing Company and covers transforming, rectifying and switchgear equipment required for the two sub-stations. Work of design and manufacture was started in the latter part of 1934 based on mutual agreement pertaining to reduction in rupturing capacity of certain switchgear units. This agreement was disapproved by the Federal Emergency Administration of Public Works in March, 1935, and the contractor was so advised and contract reverted to original requirements. Notwithstanding this delay of over eight months, the work has progressed so as to keep pace with related work on other contracts. Manufacture and testing are nearly complete. Delivery to the Camden sub-station is complete and erection work well under way. Delivery to Philadelphia sub-station is 50 per cent complete and erection started. The contract as a whole is approximately 70 per cent complete.

CONTRACT No. 9:

This contract was awarded to W. V. Pangborne and Company, Incorporated and includes sub-station switching and control equipment, supervisory control equipment, complete cable plant, track bonding, completion of contact rail system, remote controlled circuit breaker equipment, signal transformer equipment, underground ducts and other work.

Manufacture of sub-station equipment is being rushed and many items are being installed. The manufacture and testing of cable is nearly complete and installation started. The work on this contract is closely co-related with that of Contract No. 5, each being somewhat dependent upon the other. In connection with the track bonding, coincident with other work under this contract, difficulties were encountered which required a supplemental contract being prepared. This will provide for the use of compressed and expanded types rather than welded type bonds. The work as a whole is about 35 per cent complete.

CONTRACT No. 10-A:

This contract was awarded to Union Switch and Signal Company and covers interlocking and block signaling equipment for the line. Certain of the interlocking devices are controlled from distant points by a system of Centralized Traffic Control. This

system, over a group of three control wires, permits the sending of coded electrical impulses from a central station to switching and interlocking devices which perform the desired operation and return a signal to the central station showing that the operation has been performed. This makes it unnecessary to keep switch and signal men at the remote points. Mention has been made of using thin wall non-ferrous tubes for signal air lines. These tubes are joined together by a novel coupling or fitting which permits the tube to expand and at the same time maintain an air-tight joint.

Manufacture of all equipment is nearing completion. Construction work has been under way for several months and is progressing satisfactorily. The final completion of the work will be dependent upon availability of power for testing and adjustment. The entire work is now 60 per cent complete.

CONTRACT NO. 12:

This contract was awarded to Riggs Distler and Company and covers the transformers, switchboards, panelboards, wiring and fixtures required for the lighting and auxiliary power required for the subway and passenger stations.

Considerable study was made of the illumination requirements particularly of passenger stations and a departure made from the usual metallic type of lighting fixture so that in many locations, refractory glass types are being installed. Switchboards are all "dead front" safety type provided with the most modern type of equipment. Certain major items have been designed, manufactured and delivered and others are in process of manufacture. Installation work has been in progress for three months and is progressing satisfactorily. The entire work is 40 per cent completed.

CONTRACT NO. 14:

Awarded to the Westinghouse Electric Elevator Company and covers furnishing a moving stairway or escalator in the Broadway Station. Manufacture is practically complete. Installation work has proceeded as far as practicable until power is available for operation and adjustment. The entire work is now approximately 50 per cent complete.

CONCLUSION

The electrical and mechanical work of the entire project is progressing in a satisfactory manner.

The close relationship between the work of the several electrical contracts requires careful co-ordination. This is being done so as to expedite the work. Some adjustments in completion schedules will however be necessary.

Respectfully submitted,

LOUIS T. KLAUDER,  
*Electrical Engineer.*

APPENDIX "C"

FINANCIAL SUMMARY 1935

RECEIPTS:

Toll and rental receipts.....	\$2,892,959.10
Interest received on bank balances.....	6,469.11
Miscellaneous .....	291.93

\$2,899,720.14

Less:

Federal Reserve Bank corrections of Camden Safe Deposit and Trust Company's cash.....	\$102.49
Ticket refunds .....	54.40
	<u>156.89</u>

GROSS OPERATING INCOME..... \$2,899,563.25

EXPENSES: (Operating)

Salaries .....	\$337,952.43
Equipment .....	11,949.17
Supplies .....	9,291.77
Repairs .....	12,505.94
Miscellaneous (including light and heat)	50,603.45
Insurance (All Risk) .....	16,666.68
Insurance (Employees) .....	1,326.19
	<u>\$440,295.63</u>

(Non-operating):

New construction and relocations.....	\$576.56
Miscellaneous .....	274.40
	<u>850.96</u>

TOTAL EXPENSES .....

441,146.59

\$2,458,416.66

Interest on bonds accrued 1/1/35 to 12/31/35..... 1,313,745.83

NET OPERATING INCOME..... \$1,144,670.83

Non-Operating Income:

Sinking Fund net — less net premium paid.....	\$797.50.....	24,465.01
Surplus Fund net — less net premium paid.....	5,841.58.....	25,382.50

NET INCOME .....

\$1,194,518.34

(Use and Occupancy insurance (\$624.96) not a reasonable expense of operation, per P.W.A.)

BALANCE SHEET

December 31, 1935

ASSETS	Totals	Bridge Operation	High-Speed Transit Project
Cash in Banks.....			
Accounts Collectable.....			
SINKING FUND: Investments in The Delaware River Joint Commission, Philadelphia-Camden Bridge Bonds at Par: (cost) 1936's.....\$141,000	\$ 2,107,611.82	\$ 720,746.88	\$ 1,386,864.94
1937's..... 93,000	205.14	205.14	
1938's..... 75,000			
1939's..... 74,000			
1940's..... 75,000			
Investment in 80 Home Owners' Loan Corporation 3's—1952—44 at Par (cost \$80,797.50).....	458,000.00		
Cash.....	80,000.00		
Interest on Investments Accrued.....	1,915.64		
BOND SURPLUS FUND: Interest on Investments Accrued.....	6,888.34		
Investments in 1,525 Home Owners' Loan Corporation 3's—1952—44 at Par (cost \$1,530,841.58).....	1,525,000.00	546,803.98	
Cash.....	7,625.00		
Interest on Investments Accrued.....			
Cash on deposit with the Fiscal Agent for Bond Interest Coupons, Per Contra.....	1,532,625.00		
Cash Payment to The High-Speed Transit Project for Retirement of Funded Debt, Per Contra.....	2,911.25		
Prepaid Insurance Premiums Unexpired.....	49,000.00		
INVESTMENTS IN PHYSICAL PROPERTY:	22,335.12		
Bridge.....			
Cost to date of the High-Speed Transit Project:.....	\$33,205,994.82		
Toll Funds Expended in the Project:			
Easement—City of Philadelphia.....	\$ 582,300.08		
Preliminary Design.....	14,951.85		
Relocation of Public Utilities Structures.....	46,112.29		
Miscellaneous Expenses.....	11,025.69		
Interest during Construction.....	258,773.89		
P. W. A. Allotted Funds Expended in the Project:	913,163.80		
Construction.....			
Philadelphia Land.....	\$4,759,505.79		
Camden Land.....	743,765.16		
Deposited with N. J. Supreme Court Re: Land Claim.....	401,652.62		
Office Engineering and Field Expense.....	15,403.00		
Legal Expense.....	605,497.35		
90.55			
Unexpended Balance of Amount made available by P. W. A. for The High-Speed Transit Project: Loan and Grant.....	\$40,645,073.09	34,119,158.62	6,525,914.47
(Appropriations available for development—\$500,000)	5,852,633.87		5,852,633.87
	\$50,759,199.27	\$36,993,785.99	\$13,765,413.28

BALANCE SHEET—Concluded

December 31, 1935

LIABILITIES

	Totals	Bridge Operation	High-Speed Transit Project
FUNDED DEBT: 4 $\frac{1}{4}$ per cent. Serial Bonds Maturing 1935-73: Total authorized . . . . . \$41,000,000.00			
Unissued (\$3,342,000 reserved for The High-Speed Transit Project) . . . . . 3,380,000.00			
Total Issued . . . \$37,620,000.00		\$30,811,000.00	\$ 6,609,000.00
Less: Redeemed . . . . . 200,000.00		530,116.67	
Interest on Funded Debt Accrued . . . . .	\$37,420,000.00		
Unpaid Bond Interest Coupons, Per Contra . . . . .	530,116.67		
Amount withheld from Contract Estimates payable: (Builders Inc. Contract No. 1) . . . . .	2,911.25		
Retained Amount due Contractors . . . . .	10,000.00		10,000.00
Tolls Income Applied in Retirement of The High-Speed Transit Project Funded Debt, Per Contra . . . . .	468,548.34		468,548.34
UNCOLLECTED BALANCE OF AMOUNT PLEDGED BY P. W. A. FOR THE HIGH-SPEED TRANSIT PROJECT:	49,000.00		49,000.00
Total Loan Funds Available . . . . . \$10,000,000.00			
Requisitioned and Paid . . . . . 7,090,411.43			
Total Estimated Grant . . . . . \$ 1,900,000.00			
Less: Requisitioned (30%) . . . . . \$1,447,672.25			
Less: Retained (5%) . . . . . \$241,278.71			
Unpaid (25%) . . . . . 862,573.90	1,103,852.61		
Requisitions Paid . . . . . 343,819.64	1,556,180.36		
HIGH-SPEED TRANSIT PROJECT RESERVES:	4,465,768.93		4,465,768.93
For Land Settlements . . . . . \$ 96,058.78			
For Construction . . . . . 1,259,797.36			
For Engineering and Field Expense . . . . . 29,268.41			
Unclassified (Loan Funds) . . . . . 1,740.39	1,386,864.94		1,386,864.94
SINKING AND RESERVE FUNDS:			
Reserve required to meet Bonded Debt at Maturity . . . . . \$ 400,000.00			
Reserve for Bond Surplus Fund . . . . . 1,454,806.61	1,854,806.61		
SURPLUS:			
Capital Surplus provided through Construction of The High-Speed Transit Project:			
U. S. Government Grant . . . . . \$ 343,819.64			
Premium on Bonds Sold to Finance The High-Speed Transit Project . . . . . 428,090.32			
Interest Received on The High-Speed Transit Project Bank Balances . . . . . 4,321.11	776,231.07		
Balance of Surplus Accumulated through Bridge Operation from July 1, 1931 to December 31, 1935 . . . . .	3,794,951.46	3,794,951.46	776,231.07
	\$50,759,199.27	\$36,993,785.99	\$13,765,413.28

3-17-30

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