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Boston Public Works Department





ANNUAL REPORT  
OF THE  
PUBLIC WORKS DEPARTMENT  
FOR THE YEAR 1936

[DOCUMENT 24—1937]



# CONTENTS.

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## PART I.

### REPORT OF THE COMMISSIONER OF PUBLIC WORKS.

	PAGE		PAGE
Appropriations . . . . .	6	General review . . . . .	2
Employees . . . . .	14	Maintenance, comparative table . . . . .	6
Expenditures . . . . .	6	Organization . . . . .	1
Expenditures, by items, seg- regated budget . . . . .	8	Revenue . . . . .	12

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## PART II.—APPENDIX A.

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### REPORT OF THE DIVISION ENGINEER OF THE BRIDGE AND FERRY SERVICE.

(BRIDGE SERVICE.)

(PAGE 20.)

	PAGE		PAGE
Appropriations, special . . . . .	33	Federal Emergency Relief Administration . . . . .	20
Appropriations, special sum- mary of . . . . .	33	Day labor force . . . . .	23
Bridge openings . . . . .	40	Granite Avenue Bridge . . . . .	41
Bridges, work done on:		Bridge Miscellaneous . . . . .	24
Allston Bridge . . . . .	21	Expenditures . . . . .	33
Chelsea Bridge North . . . . .	21	Expenditures, special ap- propriations . . . . .	39
Chelsea Street Bridge . . . . .	21	Expenditures, special ap- propriations, summary of . . . . .	33
Meridian Street Bridge . . . . .	22	Repairs on bridges . . . . .	21
Milton Street Bridge (Hyde Park) . . . . .	22	Work done . . . . .	20
Northern Avenue Bridge . . . . .	23		
Albany Street Garbage Dump Station (for Sanitary Division) . . . . .	24		

## (FERRY SERVICE.)

(PAGE 24.)

	PAGE		PAGE
Appropriations.....	42	Ferryboats.....	24
Appropriations, amount paid from.....	42	Financial statements.....	42
Balance sheet.....	43	Motor vehicle traffic.....	47
Expenditures.....	44	Receipts at South Ferry.....	46
Expenditures and receipts since 1858.....	45	Travel on ferry.....	47
		Traffic rates.....	47
		Work done.....	24

## (SUMNER TUNNEL.)

(PAGE 26.)

## APPENDIX B.

REPORT OF THE DIVISION ENGINEER OF THE  
HIGHWAY DIVISION.

## GENERAL REVIEW.

(PAGE 49.)

	PAGE
Federal Public Works Administration.....	53

## (LIGHTING SERVICE.)

(PAGE 56.)

	PAGE		PAGE
Expenditures.....	49	Work done.....	49
Financial statement.....	49		

## (PAVING SERVICE.)

(PAGE 49.)

	PAGE		PAGE
Expenditures, objects of....	57	Street openings.....	58
Expenditures, detail of.....	57	Work done.....	49
General review.....	57	By contract, summary of,	51
Permits.....	58	By day labor, summary of,	56
Permits, revenue from.....	58		



APPENDIX C.

REPORT OF THE DIVISION ENGINEER OF THE  
SANITARY DIVISION.

(SANITARY SERVICE.)

(PAGE 59.)

	PAGE		PAGE
Appropriations.....	59	Materials:	
Complaints.....	62	Collected by districts.....	63
Financial statement.....	59	Cost of collecting and	
Income.....	59	disposing of refuse by	
Maintenance.....	59	contract.....	64
Cost of collecting and dis-		Work done.....	59
posing of refuse by day			
labor.....	65		

(STREET CLEANING AND OILING SERVICE.)

(PAGE 67.)

	PAGE		PAGE
Expenditures, distribution		Macadam streets, cost of	
of.....	67	oiling.....	67
Expenditures, items of.....	67	Work done.....	67
Financial statement.....	67		

APPENDIX D.

REPORT OF THE DIVISION ENGINEER OF THE  
SEWER DIVISION.

(PAGE 68.)

	PAGE		PAGE
Expenditures:		Pumping station, Calf Pas-	
Maintenance.....	70	ture, work done.....	84
Maintenance, detail of....	70	Pumps, Calf Pasture, aver-	
Maintenance, detail of,		age lift and duty.....	84
recapitulation of.....	70	Refuse, removing same from	
Financial statement.....	69	gatehouse.....	85
Pumping sewerage, average		Summary of sewer construc-	
cost per million foot		tion (twelve months)...	82
gallons.....	85	Work done.....	72
		Work in charge of division,	72

## APPENDIX E.

REPORT OF THE DIVISION ENGINEER OF THE  
WATER DIVISION.

(WATER SERVICE.)

(PAGE 87.)

	PAGE		PAGE
Construction, cost of.....	91	Revenue.....	91
Expenditures.....	91	Service pipes:	
Expenditures, detail of.....	91	Total number of lengths	
Financial statement.....	91	of.....	92
High pressure fire service...	93	Water pipes, total length of,	92
Hydrants, total number of, December 31, 1936.....	94	Work done.....	87
Hydrants, total number and kind of, established and abandoned.....	94	Work done, detail of.....	87

## APPENDIX F.

REPORT OF THE DIVISION ENGINEER OF THE  
WATER INCOME DIVISION.

(PAGE 105.)

	PAGE		PAGE
Financial statement.....	106	Meters:	
Shutting off and turning on water.....	107	Changed.....	113
Meter branch.....	109	Applied.....	114
Meter in service.....	110	Discontinued.....	115
Meter repairs.....	112	Reset.....	111

## APPENDIX G.

REPORT OF THE BOSTON AND CAMBRIDGE  
BRIDGE COMMISSION.

(PAGE 116.)

	PAGE		PAGE
Bridges in charge of com- mission.....	116	Work done.....	116
		Expenditures.....	117







ANNUAL REPORT  
OF THE  
**PUBLIC WORKS DEPARTMENT**  
FOR THE  
YEAR ENDING DECEMBER 31, 1936.

BOSTON, January 2, 1937.

HON. FREDERICK W. MANSFIELD,  
*Mayor of Boston.*

DEAR SIR,— In compliance with the Revised Ordinances, the annual report of the operations and expenses of the Public Works Department for the year ending December 31, 1936, is respectfully submitted. The Public Works Department created by Ordinances, 1910, chapter 9, now chapter 27 of the Revised Ordinances of 1925, was formed by consolidating the Engineering, Water and Street Departments.

ORGANIZATION.

The department is composed of six main divisions, viz.:

*Bridge and Ferry Division.*— This division, under a division engineer, has the charge and care of all bridges used as highways which are, in whole or in part, under the control of the city; and the care and management of the ferries owned by the city, including boats, slips, drops and buildings, and the maintenance and operation of the Sumner Tunnel.

NOTE.—The Boston and Cambridge Bridges Division, so called, is not, strictly speaking, a division of the Public Works Department, as this work is in charge of a commission of two, one member appointed by the Mayor of Boston and one by the Mayor of Cambridge, under the provisions of chapter 467 of the Acts of 1898; but because of the fact that the present Commissioner of Public Works is the Boston member of this commission, and also because one half of the expense of the commission is defrayed by the Bridge Service, it is in this report treated as a division of the department.

*Highway Division.*—This division, under a division engineer, has charge of the construction, reconstruction and maintenance of roadways and sidewalks, and the care of lamps and lighting of streets, parks and alleys.

*Sanitary Division.*—This division, under a division engineer, has charge of the collection and removal of ashes, garbage and refuse, street cleaning, and the oiling and flushing of streets.

*Sewer Division.*—This division, under a division engineer, has charge of the construction and maintenance of sewers, catch-basins and waterways.

*Water Division.*—This division, under a division engineer, has the care of all water pipes in the water system, the laying and relaying of water mains and the care of the high pressure fire system.

*Water Income Division.*—This division, under a division engineer, has charge of financial operations in connection with the sale of water, reading of water meter registrations, making out quarterly water bills for all consumers, forwarding said bills to City Collector's office, installation and maintenance of water meters and enforcement of payment of water bills.

#### *Bridge and Ferry Division.*

Considerable progress has been made on the construction of the new steel and concrete bridge at Chelsea

street, over Chelsea Creek, between East Boston and Chelsea. This bridge is being built under Federal Emergency Administration of Public Works Project, Mass. Docket 1086-R, and is in a new location parallel with the old structure. It will be completed and open for use next year.

With the approval of the Department of Public Utilities the reduced toll rates of the Sumner Tunnel, which became effective on January 14, 1935, were continued in force during the present year. Following is a schedule of the reduced rates:

A.	Passenger car . . . . .	\$0.15
B.	Tractor without trailer . . . . .	.15
C.	Trailer not in excess of 2 tons capacity . . . . .	.15
D.	Trailer over 2 tons up to 5 tons capacity . . . . .	.25
E.	Trailer over 5 tons up to 10 tons capacity . . . . .	.35
F.	Trailer over 10 tons up to 15 tons capacity . . . . .	1.00
G.	Trailer in excess of 15 tons capacity . . . . .	1.25
H.	Trucks not in excess of 2 tons capacity . . . . .	.15
I.	Trucks over 2 tons up to 5 tons capacity . . . . .	.25
J.	Trucks over 5 tons up to 10 tons capacity . . . . .	.35
K.	Trucks over 10 tons up to 15 tons capacity . . . . .	1.00
L.	Trucks over 15 tons capacity . . . . .	1.50
M.	Bus with or without passengers . . . . .	.25
N.	Motoreycles . . . . .	.10
O.	Gas supplied to stalled vehicles in tunnel, per gallon . . . . .	1.00

*Removal of Mechanically Stalled Vehicles from Tunnel.*

P.	Passenger cars or tractors . . . . .	\$0.50
Q.	Trailer or truck not in excess of 2 tons capacity, . . . . .	.50
R.	Trailer or truck over 2 tons up to 5 tons capacity . . . . .	.70
S.	Trailer or truck over 5 tons up to 10 tons capacity . . . . .	1.00
T.	Trailer or truck over 10 tons up to 15 tons capacity . . . . .	2.00
U.	Trailer or truck in excess of 15 tons capacity . . . . .	2.50
V.	Bus . . . . .	1.50

*Highway Division.*

On March 31, 1936, your Honor approved contracts with the Boston Consolidated Gas Company for furnishing illuminating gas and for the equipment, lighting and extinguishing of gas street lamps during the period of five years beginning with said date. As required by the City Charter these contracts were also approved by the City Council.

This year, following the recommendation of the Committee on Snow Removal appointed by your Honor, a large amount of equipment consisting of trucks, tractors, snow loaders, plows, etc., has been purchased, and the number of districts in which snow will be removed by contract has been reduced to four.

*Sanitary Division.*

In order that better service may be given in the Elm Hill section of Roxbury it is considered advisable that the collections of ashes and garbage in this section be carried on by contract, and arrangements are now being made for the establishment of this additional contract district. Men and equipment now working in this section can be concentrated in the Roxbury and other day labor districts.

*Sewer Division.*

The usual activities of this division were carried on during the year. A start has been made on the construction of sewerage works in the Government Housing Project in South Boston known as Old Harbor Village.

*Water Division.*

This division, during the year 1936, has carried on its policy of replacing with larger sizes the mains which have been in service for years and which had outlived their usefulness. Much of this work was done by W. P. A. forces.



Statements showing appropriations, expenditures and revenue received during the year, together with tabulations indicating the grade and number of employees, changes in personnel, etc., in the Public Works Department are attached.

Reports from the division engineers in charge of the various divisions are respectfully submitted.

Respectfully yours,

C. J. CARVEN,  
*Commissioner of Public Works.*

## APPROPRIATIONS.

The money assigned for the maintenance work of the Public Works Department for the year 1936 was derived from the income of the city raised by taxation. In December, 1935, the department estimates were submitted to the Mayor in segregated form. His Honor the Mayor made such allowances as he considered necessary and submitted them to the City Council. The total maintenance appropriations as passed by the City Council and approved by the Mayor are shown below:

Central Office . . . . .	\$37,405 41
Bridge Service . . . . .	409,389 81
Ferry Service . . . . .	346,817 83
Lighting Service . . . . .	982,462 79
Paving Service . . . . .	1,357,856 56
Sanitary Service . . . . .	2,290,472 57
Sewer Service . . . . .	554,335 00
Summer Traffic Tunnel . . . . .	254,350 38
Water Division . . . . .	1,192,229 72
Water Income Division . . . . .	284,569 15
Total . . . . .	<u>\$7,709,889 22</u>

The expenditures under the several appropriations for the different services for the year 1936 were as follows:

*Current Expenses.*

DIVISIONS AND SERVICES:	
Central Office . . . . .	\$36,885 23
Bridge Service . . . . .	398,852 88
Ferry Service . . . . .	334,250 45
Lighting Service . . . . .	977,117 00
Paving Service . . . . .	1,486,533 80
Sanitary Service . . . . .	2,220,761 01
Sewer Service . . . . .	550,129 82
Summer Traffic Tunnel . . . . .	237,025 00
Water Division . . . . .	1,044,980 08
Water Income Division . . . . .	257,088 89
Total . . . . .	<u>\$7,543,624 16</u>

*Special Appropriations, Etc.*

Water Division:	
Metropolitan Assessment, Interest on Debt, Serial Loans, etc. . . . .	\$3,224,822 99
Public Works Program, chapter 464, Acts of 1935 . . . . .	381,791 11
Bridges, repairs, etc. . . . .	36,283 58
Carried forward . . . . .	<u>\$3,642,897 68</u> <u>\$7,543,624 16</u>

<i>Brought forward</i> . . . . .	\$3,642,897 68	\$7,543,624 16
Chelsea North Bridge, repairs and strengthening . . . . .	56,961 65	
East Boston Ferry, two additional boats and other permanent improvements, Granolithic sidewalks . . . . .	13,707 52	
Reconstruction of streets . . . . .	117 70	
Sewerage works . . . . .	53,256 92	
Snow removal . . . . .	501,891 20	
Chelsea Street and Eastern Avenue Bridge . . . . .	798,734 45	
Northern Avenue Bridge, reconstruction and repair . . . . .	478,962 23	
Reconstruction of streets, chapter 366, Acts of 1933, as amended by chapter 21, Acts of 1934 . . . . .	45,357 86	
Construction, reconstruction and replacement of sewers and covering of open water courses . . . . .	116,592 89	
Chelsea North Bridge, water pipe trestle, reconstruction of . . . . .	24,377 19	
Replacement of the Brookline avenue water main from the Brookline line to Beacon street . . . . .	49,281 47	
Water main construction . . . . .	47,847 30	
Total . . . . .		<u>5,905,513 56</u>
Grand total . . . . .		<u><u>\$13,449,137 72</u></u>

**Expenditures Under the Maintenance Appropriation of the  
From January 1, 1936,**

GROUP AND ITEM.	Central.	Bridge.	Ferry.	Lighting.
<b>A. PERSONAL SERVICE AS PER SCHEDULE A . . . . .</b>	<b>\$35,399 31</b>	<b>\$343,434 43</b>	<b>\$232,581 73</b>	<b>\$7,710 79</b>
1. Permanent employees . . . . .	35,399 31	329,703 50	226,233 07	7,710 79
2. Temporary employees . . . . .		13,730 93	6,321 16	
3. Unassigned . . . . .			27 50	
<b>B. SERVICE OTHER THAN PERSONAL . . . . .</b>	<b>658 73</b>	<b>30,683 55</b>	<b>50,833 17</b>	<b>967,965 96</b>
1. Printing and binding . . . . .	47 80	13 80	195 00	52 50
3. Advertising and posting . . . . .			26 25	
4. Transportation of persons . . . . .		633 92	263 60	54 00
5. Cartage and freight . . . . .			1 89	
6. Hire of teams and auto trucks . . . . .			2,826 00	
8. Light, heat and power . . . . .		8,607 46	8,960 04	959,809 51
10. Rent, taxes and water . . . . .		357 75		
12. Bond and insurance premiums . . . . .	10 00		110 00	
13. Communication . . . . .		317 15	316 92	
14. Motor vehicle repairs and care . . . . .	491 19	2,372 17		116 10
15. Motorless vehicle repairs . . . . .				
16. Care of animals . . . . .				
18. Cleaning . . . . .		15 00	42 00	
19. Removal of ashes, dirt and garbage . . . . .				
20. Disposal of ashes, dirt and garbage . . . . .				
28. Expert . . . . .				
29. Stenographic, copying, listing, etc . . . . .				17 25
35. Fees, service of venires, etc . . . . .	2 00	10 00		2 00
37. Photographic and blueprinting . . . . .		21 37		
39. General plant . . . . .	107 74	17,361 06	37,802 68	3 00
42. Miscellaneous . . . . .		973 87	288 79	7,911 60
<b>C. EQUIPMENT . . . . .</b>	<b>38 40</b>	<b>1,592 26</b>	<b>1,196 44</b>	<b>1,253 55</b>
2. Machinery . . . . .				
3. Electrical . . . . .				
4. Motor vehicles . . . . .				
5. Motorless vehicles . . . . .				
6. Stable . . . . .				
7. Furniture and fittings . . . . .		67 65		
9. Office . . . . .	6 40	8 00	2 00	6 00
10. Library . . . . .	32 00	59 25	15 50	
11. Marine . . . . .		307 13	225 30	

Several Services by Items of the Segregated Budget.  
to December 31, 1936.

Paving.	Sanitary.	Sewer.	Water.	Water Income.	Tunnel.	Total Expenditures.
\$972,986 89	\$1,351,933 60	\$386,283 69	\$654,144 68	\$217,650 26	\$150,800 23	\$4,352,925 61
947,588 65	1,333,818 22	386,102 70	641,097 95	197,483 01	145,977 98	4,251,115 18
25,398 24	18,115 38		12,845 93	20,167 25	4,822 25	101,401 14
		180 99	200 80			409 29
51,351 62	729,379 52	110,814 70	153,135 93	10,022 67	60,622 86	2,165,468 71
40 50	186 80	50 00		248 40	360 00	1,194 80
	99 25	58 25	86 25			270 00
369 90	274 10	937 00	1,623 60	1,395 25	155 62	5,706 99
4 00	1 70		4 35	3 52	17 90	33 36
1,554 37	20,583 80		26 16			24,990 33
1,085 50	3,506 68	48,796 20	4,999 49	99 83	40,705 62	1,076,570 33
5,193 73	1,985 00	1,389 23	608 63			9,534 34
26 41	40 00	5 00		100 00	374 00	665 41
2,495 28	1,619 60	840 96	1,886 04	38 35	342 58	7,856 88
23,276 03	48,674 10	13,317 77	14,639 10	1,390 72	748 41	105,025 59
	3,133 15	164 60				3,297 75
401 45	2,823 80	126 25	904 50			4,256 00
	217 60	33,472 16	83 26		1,742 51	35,572 53
	269,304 00					269,304 00
	360,000 00	47 25				360,047 25
	406 00		365 50		50 00	821 50
						17 25
302 00	403 00	162 50	153 50	6,580 00	10 00	7,625 00
	28 15					49 52
10,142 10	16,092 79	9,195 59	79,383 22	166 60	14,607 30	184,862 08
6,460 35		2,251 94	48,372 33		1,508 92	67,767 80
16,545 65	33,015 88	10,498 86	20,400 93	16,310 80	9,924 83	110,777 60
	426 25	2,759 00	916 26		107 20	4,208 71
88 00	43 07	25 00	955 00		3,461 27	4,572 34
3,988 47	9,846 85	1,649 83	9,828 65	1,409 02	2,638 30	29,361 12
		40 53				40 53
8 40	738 32	9 50	41 70			797 92
118 00	70 63	191 10	202 32		277 62	927 32
182 10	46 80	15 25	51 82	1,334 75	759 25	2,412 37
79 25	31 00	45 00	40 00	31 00	15 50	348 50
						532 43

**Expenditures Under the Maintenance Appropriation of the  
From January 1, 1936,**

GROUP AND ITEM.	Central.	Bridge.	Ferry.	Lighting.
<b>C. EQUIPMENT.</b>				
12. Medical, surgical, laboratory .....				
13. Tools and instruments .....		\$773 94	\$756 23	
14. Live stock .....				
15. Tires, tubes and accessories .....		272 11		
16. Wearing apparel .....		48 57		
17. General plant .....		55 61	197 41	\$1,247 55
<b>D. SUPPLIES .....</b>	<b>\$788 79</b>	<b>5,966 65</b>	<b>38,850 42</b>	<b>186 70</b>
1. Office .....	633 15	1,474 61	525 31	84 90
2. Food and ice .....		24 00		
3. Fuel .....		2,342 90	36,591 34	
4. Forage and animal .....				
5. Medical, surgical, laboratory .....		5 26		
8. Laundry, cleaning, toilet .....		85 64	72 88	
11. Motor vehicle .....	152 61	828 32	222 02	101 80
13. Chemicals and disinfectants .....		50 70	139 32	
16. General plant .....	3 03	1,155 22	1,299 55	
<b>E. MATERIALS .....</b>		<b>15,566 99</b>	<b>5,092 64</b>	
1. Building .....		14,636 85	3,601 28	
2. Highway .....				
5. Sewer .....				
9. Machinery .....				
10. Electrical .....		655 72	867 94	
13. General plant .....		274 42	623 42	
<b>F. SPECIAL ITEMS .....</b>		<b>1,609 00</b>	<b>5,696 05</b>	
2. Damages .....				
7. Pensions and annuities .....		1,600 00	5,696 05	
11. Workmen's compensation .....		9 00		
<b>H. MISCELLANEOUS EMERGENCY RELIEF PROJECTS .....</b>				
<b>Grand totals .....</b>	<b>\$36,885 23</b>	<b>\$398,852 88</b>	<b>\$334,250 45</b>	<b>\$977,117 00</b>

Several Services by Items of the Segregated Budget.— Concluded.  
to December 31, 1936.

Paving.	Sanitary.	Sewer.	Water.	Water Income.	Tunnel.	Total Expenditures.
\$7 54						\$7 54
7,893 36	\$7,594 12	\$3,429 68	\$3,817 25	\$13,439 92	\$999 98	38,704 48
	3,500 00					3,500 00
3,886 04	10,210 85	1,282 97	4,133 85	96 11	210 20	20,092 13
7 80	30 50	371 13	169 00		1,022 89	1,649 89
286 89	477 49	679 87	245 08		432 62	3,622 52
32,894 39	63,551 38	33,516 89	14,908 43	3,980 13	4,953 60	199,597 38
4,588 12	2,864 75	1,728 23	2,739 63	3,142 10	1,495 64	19,276 44
24 75			8 75			57 50
10,015 24	2,795 35	23,282 00	1,102 47		1,471 19	77,600 49
677 68	22,414 57	201 04	567 02			23,860 31
7 92	48 15	25 02	65		42 00	129 00
62 16	255 44	131 74	86 96		148 58	843 40
15,526 05	32,705 88	5,429 09	7,301 49	629 46	884 42	63,781 14
46 69	377 33	830 89	55 69	5 44	415 99	1,922 05
1,945 78	2,089 91	1,996 34	3,045 77	203 13	495 78	12,234 51
59,727 40	31,421 79	4,631 70	108,286 24	9,050 03	10,228 56	244,005 35
1,027 46	1,660 82	819 95	204 36	1 15	2,406 53	24,358 40
54,202 58	9,440 27					63,642 85
		1,433 59	103,570 59	8,668 01		113,672 19
8 20	128 82	189 50	54 02			380 54
117 03	343 10	404 08	326 69	305 89	7,486 64	10,507 09
4,372 13	19,848 78	1,784 58	4,130 58	74 98	335 39	31,444 28
12,261 43	10,814 57	4,029 02	8,699 77	75 00	244 12	43,428 96
			1,192 95	75 00		1,267 95
9,049 00	7,624 23	3,169 00	7,399 32			34,537 60
3,212 43	3,190 34	860 02	107 50		244 12	7,623 41
340,766 42	644 27	354 96	85,404 10		250 80	427,420 55
<b>\$1,486,533 80</b>	<b>\$2,220,761 01</b>	<b>\$550,129 82</b>	<b>\$1,044,908 08</b>	<b>\$257,088 89</b>	<b>\$237,025 00</b>	<b>\$7,543,624 16</b>

## REVENUES, 1936.

*On Account of the Public Works Department, as Per Auditor's Statement.*

Central Office:			
Sale of plans, etc. . . . .			\$690 00
Bridge Service:			
Chelsea North Bridge . . . . .	\$11,833	15	
Meridian Street Bridge . . . . .	3,166	85	
Clerical services . . . . .	250	00	
Rent . . . . .	200	00	
Albany Street Bridge . . . . .	137	58	
L Street Bridge . . . . .	11	25	
Charlestown Bridge:			
Rents . . . . .	\$1,250	00	
Damage to property . . . . .	225	03	
			1,475 03
Chelsea North Bridge:			
Repair and strengthening, share of costs (Commonwealth and city of Chelsea)			45,796 41
Chelsea Street and Eastern Avenue Bridge:			
Federal grant . . . . .			22,680 00
Northern Avenue Bridge:			
Reconstruction and repair, Federal grant,			25,884 67
			<u>111,434 94</u>
Ferry Service:			
Tolls . . . . .	\$31,881	22	
Rent . . . . .	264	00	
Commission on telephones . . . . .	68	01	
Cleaning telephone booths . . . . .	52	00	
Concessions . . . . .	10	00	
Junk . . . . .	5	00	
Refund . . . . .	2	00	
			<u>32,282 23</u>
Lighting Service:			
Damage to posts . . . . .			100 00
Paving Service:			
From assessments on abutters for cost of laying sidewalks in front of their premises, including material for the same.			
Assessments added to taxes . . . . .	\$26,588	30	
Assessments paid in advance . . . . .	1,080	09	
Assessments unapportioned . . . . .	901	84	
Permits . . . . .	11,701	69	
Sale of material . . . . .	521	62	
Rent . . . . .	272	77	
Repairing signs . . . . .	148	35	
Refunds . . . . .	33	42	
Labor and materials furnished, etc. . . . .	6	25	
Reconstruction of streets (chapter 366, Acts of 1933, as amended), Federal grant . . . . .	88,274	46	
			<u>129,528 79</u>
Sanitary Service:			
Collection of commercial waste . . . . .	\$21,853	81	
Sale of manure . . . . .	890	56	
			<u>\$274,035 96</u>
Carried forward . . . . .	\$22,744	37	
			<u>\$274,035 96</u>



<i>Brought forward</i> . . . . .	\$22,744 37	\$274,035 96
Sale of garbage . . . . .	155 96	
Sale of junk, etc. . . . .	302 00	
	<hr/>	23,562 33
Sewer Service:		
Pumping sewage, amount received from Commonwealth . . . . .	\$17,857 00	
Entrance fees . . . . .	2,999 67	
Labor and materials furnished . . . . .	1,324 72	
	<hr/>	\$22,181 39
Sewerage Works:		
Assessment, under chapter 450, Acts of 1899 . . . . .	\$54,988 33	
Added to taxes:		
Paid in advance . . . . .	4,156 12	
Unapportioned . . . . .	1,288 38	
Rent . . . . .	260 00	
Services of inspector . . . . .	84 16	
	<hr/>	60,776 99
Construction, reconstruction and replacement of sewers and covering of open water courses:		
Federal grant . . . . .	46,977 71	
	<hr/>	129,936 09
Water Service:		
Water rates due:		
For the year 1936 and prior . . . . .	\$4,348,550 42	
Water added to taxes . . . . .	110,601 95	
Water liens . . . . .	46,566 12	
Service pipes for new water takers, extending, repairing, etc. . . . .	20,007 37	
Elevator and fire pipe connections . . . . .	15,373 92	
Fees on overdue rates . . . . .	11,772 57	
Relocating hydrants . . . . .	2,623 49	
Sale of junk, etc. . . . .	2,307 00	
Labor and materials . . . . .	1,758 68	
Board of horse . . . . .	547 50	
Damage to hydrants . . . . .	423 07	
Testing meters . . . . .	268 00	
Weighing fees, etc. . . . .	265 76	
Rent of land . . . . .	10 00	
Water main construction:		
Federal grant . . . . .	\$39,593 80	
Refund . . . . .	3,147 00	
	<hr/>	42,740 80
Replacement of the Brookline avenue water main from the Brookline line to Beacon street:		
Federal grant . . . . .	\$15,581 19	
Refund . . . . .	3,147 00	
	<hr/>	18,728 19
Chelsea North Bridge:		
Water Pipe Trestle, Reconstruction of, Federal grant . . . . .	10,843 70	
	<hr/>	4,633,388 54
		<hr/>
		\$5,060,922 92
		<hr/>
Sumner Traffic Tunnel:		
Tolls, etc. . . . .		\$788,329 72
		<hr/>

The records of the department show that there are now 2,507 persons eligible for employment in the several divisions, and of that number 2,473 were upon the January, 1937 pay rolls.

### Grade and Number of Employees.

TITLE.	SERVICES.										Total.	
	Central Office.	Paving and Lighting.	Sewer.	Sanitary.	Street Cleaning.	Ferry.	Tunnel.	Bridge.	Water Income.	Water.		
Commissioner.....	1											1
Division engineers.....		1	1	1				1	1	1		6
Engineers, chief.....		1										1
Executive secretary.....	1											1
Executive clerks.....	2	2						1	1	1		7
Clerks.....	5	28	11	8	2	1	4	2	27	22		110
Assistant engineers (civil).....		14	25	1				10		5		55
Draughtsmen.....		1	10					2		1		14
Instrumentmen.....		12	13					4		5		34
Rodmen.....		7	8					2				17
Inspectors.....		28	35	47	23		2	4	1	16		156
Foremen.....		11	8	13	10		1	1		8		52
Subforemen.....		16						2				18
Blacksmiths and assistants.....		6	2	11						2		21
Blueprinters.....			6									6
Chauffeurs.....		75	28	90	47		16	4		8		268
Carpenters and assistants.....		15	2	3		1		9		6		36
Chief electrician.....							1					1
Chief inspectors.....		1	1									2
Cement testers and assistants.....			4									4
Chemists and assistants.....		2										2
Constables.....		1	1	6	7				9	5		29
Cashiers and assistants.....				1		1	2		2			6
Drawtenders and assistants.....								130				130
Deckhands.....						14						14
Engineers (steam).....		7	5			9						21
Electricians.....			2				12	1				15
Emergency repairers.....										42		42
<i>Carried forward.....</i>	9	228	162	181	89	26	38	173	41	122		1,069

## Grade and Number of Employees.—Continued.

TITLE.	SERVICES.											Total.
	Central Office.	Paving and Lighting.	Sewer.	Sanitary.	Street Cleaning.	Ferry.	Tunnel.	Bridge.	Water Income.	Water.		
<i>Brought forward</i> .....	9	228	162	181	89	26	38	173	41	122		1,069
Firemen.....		2	7			18						27
Gate-men.....			2			6						8
General foreman.....											1	1
Harnessmaker and assistants..				3								3
Head chauffeurs.....		4			1							5
Horseshoers.....				5								5
Janitor.....						1						1
Matrons.....						4						4
Joiners.....						4						4
Laborers-teamsters, etc.....		242	69	270	177	6	2	6	2	93		867
Master mechanics.....		3		1		1			2	1		8
Machinist and assistants.....			3			6	2	1		13		25
Meter readers.....									32			32
Masons (stone and brick).....			10	1							1	12
Medical inspector.....					1							1
Oilers, filth hoisters.....			19			6						25
Pipe fitters.....						3						3
Pavers.....		41									1	42
Plumbers.....											11	11
Painters.....		8		10		3		2		1		24
Captains.....						6						6
Quartermasters.....						7						7
Repairers and auto mechanics,		28	3		2				20	110		163
Roofer.....						1						1
Rigger.....						1						1
Sealers.....									2			2
Sewer flushers.....			25									25
Supervisors and deputy.....	1	2		1								4
Stenographers.....	2	1	3									6
Stonecutters.....		9	1									10
Superintendents and deputy..		2							1			3
Stockkeeper.....				1								1
<i>Carried forward</i> .....	12	570	304	472	270	99	42	182	100	354		2,406

## Grade and Number of Employees.— Concluded.

TITLE.	SERVICES.										Total.
	Central Office.	Paving and Lighting.	Sewer.	Sanitary.	Street Cleaning.	Ferry.	Tunnel.	Bridge.	Water Income.	Water.	
<i>Brought forward</i> .....	12	570	304	472	270	99	42	182	100	354	2,406
Stablemen.....		6		10	15						31
Telephone operators.....					1					1	2
Tollmen-guards.....						10	35				45
Chief veterinarian.....					1						1
Wharfingers.....				3							3
Wharfman.....				1							1
Wheelwrights and assistants.....				5							5
Yardmen.....		3	2	6	1					1	13
Totals.....	12	579	306	498	288	109	77	182	100	356	2,507

## Number of Employees Actually Employed January 1, 1936, and January 1, 1937.

	Tunnel.	Central Office.	Bridge.	Ferry.	Water Income.	Paving and Lighting.	Sanitary.	Sewer.	Street Cleaning and Watering.	Water.	Total.
January 1, 1936.....	72	12	188	116	106	589	498	315	308	355	2,559
January 1, 1937.....	76	12	182	108	98	570	493	305	278	351	2,473

*Total Eligible Force.*

January 1, 1936.....	75	12	188	118	106	597	508	318	313	358	2,593
January 1, 1937.....	77	12	182	109	100	579	498	306	288	356	2,507

## Appointments, Transfers, Resignations, Retirements, Deaths, etc., of Employees.

Died.	Retired.	Transferred to Other Departments.	Transferred to Other Services.	Discharged.	Resigned.	January 1, 1936.	SERVICES 1936-1937.	January 1, 1937.	Transferred from Other Services.	Transferred from Other Departments.	Reinstated.	Appointed.
						12	Central Office.....	12				
4	7					188	Bridge.....	182		2		3
3	7		1			118	Ferry.....	109				2
15	10		3	3	8	597	Lighting and Paving.....	579	9	5	2	5
9	11	2	9		1	508	Sanitary.....	498	9	3	6	4
10	12	1	9			313	Street Cleaning.....	288	2	1		4
9	11		1			318	Sewer.....	306	4	4	1	
7	9	1	2	2	2	358	Water.....	356	3	7	1	10
1	6	1	3		1	106	Water Income.....	100	2			4
			2			75	Tunnel.....	77	1	1		2
58	73	5	30	5	12	2,593	Totals.....	2,507	30	23	10	34



PART II.  
APPENDICES.

## APPENDIX A.

REPORT OF THE DIVISION ENGINEER OF  
THE BRIDGE AND FERRY DIVISION.

BOSTON, January 2, 1937.

*To the Commissioner of Public Works.*

DEAR SIR,—I respectfully submit the following report of the income, expenditures and operation of the Bridge and Ferry Division for the year ending December 31, 1936. The expenditures of the division in the regular maintenance appropriations of the department were \$970,128.33. Under a number of special appropriations \$631,272.84 was expended, making the total expenditures for the year \$1,601,401.17. This does not include certain expenditures for construction work for other departments, which work was supervised by the engineers of this division.

Under orders of the Department of Public Utilities, Commonwealth of Massachusetts, a new schedule of tolls and charges for the use of the Sumner Traffic Tunnel, between Boston proper and East Boston, was approved, covering this year (1936).

Under the provisions of House Bill No. 1625, providing for the repair and strengthening of Chelsea Bridge North, over the Mystic river, by the City of Boston, this bridge was closed to traffic at midnight, January 13, 1935. A contract was awarded to Coleman Brothers, Inc., for repairing and strengthening this bridge and work was started January 22, 1935. The bridge was opened to travel December 23, 1935. The entire work was completed July 15, 1936, at a total cost of \$264,982.18. A detailed statement of this work appears further on in this report.

A contract was awarded to T. Stuart & Son Company, Watertown, Mass., approved January 15, 1936, for Rebuilding Chelsea Street Bridge, over Chelsea Creek, at a contract price of \$629,446.50. This is a Federal Emergency Administration of Public Works Project, Mass. Docket 1086-R. The cost of this rebuilding will be paid for as follows:



55 per cent by the City of Boston.

45 per cent by the Federal Emergency Administration of Public Works.

It is expected that work will be completed about June 1, 1937. A detailed statement appears further on in this report.

This division had no Federal Relief Projects outside of the rebuilding of Chelsea Street Bridge.

The more important works undertaken during the past year in the Bridge Service were the repairs, alteration and painting of Allston Bridge; the rebuilding of Chelsea Street Bridge, over Chelsea Creek; repairing foundations of Meridian Street Bridge; repairs to flooring of Milton Street Bridge, and repairing the draw span of Northern Avenue Bridge.

#### BRIDGE SERVICE.

*Allston Bridge.*—A contract with the John F. Shea Company, Inc., was approved by the Mayor on November 4, 1936, to clean, paint, repair steel members, install blast guards and do certain other incidental work to the deck system. Before the close of year only a small part of the work was completed.

#### *Chelsea Bridge North.*

The work called for under a contract entered into with the Coleman Brothers Corporation, of Boston, approved on January 21, 1934, was not completed until July 15, 1936. The extension of time necessary to complete the work was caused by severe weather and the loss in transit by fire of about one-third of the piles required to do the work. The total cost of the work under this contract was \$264,982.18.

To repair damage done to the fascia, fence and sidewalk of the draw, due to fouling by the M. S. "California," a contract with the Progressive Iron Works was approved by the Mayor on May 13, 1936. This work was completed on May 21, at a cost of \$1,085.

#### *Chelsea Street Bridge.*

On January 15, 1936, the Mayor approved a contract with the T. Stuart & Son Company for the rebuilding of this bridge. This work is a Federal Emergency Administration of Public Works Project, Mass. Docket 1086-R, and calls for an entirely new bridge, paralleling

approximately the present wooden structure. The new bridge will be a steel and concrete structure, the spans supported on masonry piers and the draw crossing a 100-foot waterway, will be a heel trunnion type, built under Strauss patents.

At the close of the year the piers and fixed spans exclusive of the surfacing were completed and the draw leaf, which is being erected in the raised position, was about 50 per cent completed.

Due to the great area over which materials and equipment were supplied for this contract, proper inspection by the regular personnel in the employ of the city would have been too expensive. For this reason a contract was entered into with the Robert W. Hunt Company of New York, to conduct such tests and inspections as will be required.

#### *Meridian Street Bridge.*

The normal aging and dis-integrating of the landing piers and foundations of the draw of this bridge progressed to such a degree that on September 3, 1936, the Mayor approved a contract with W. H. Ellis & Son Company, to make such renewals and repairs to pile and timber work as were necessary to keep the draw in commission. At the same time the concrete base of the draw foundation was repaired by freeing the old forms from the sides adjacent to the waterways which were left in place originally to protect the concrete, clearing loose and disintegrated concrete from the base, building new side forms the same as the originals in all details and pouring a rich concrete to replace all that had been removed from the original.

Work was completed on November 20, 1936, at a cost of \$4,211.26.

#### *Milton Street Bridge (Hyde Park).*

On July 23, 1936, a contract with M. Solimando of Boston was approved by the Mayor to renew the decking entirely. The new deck is of 4-inch yellow pine; on this deck there was laid a 2-inch bituminous concrete, Type E surface on the westerly span and on the easterly span a wearing surface of 2-inch spruce was laid.

Work under this contract was completed on August 19, 1936, at a cost of \$5,528.72.

*Northern Avenue Bridge.*

Owing to a fouling of two end lifts and two pedestals during an opening of the draw on February 7, 1936, emergency repairs were necessary to get the draw in commission again in the shortest time. The Boston Bridge Works were called in to reset two pedestals, overhaul two air cylinders and end lift elements, make two new piston rods for the cylinders, make repairs and renewals to end of chord of outside truss and make incidental adjustments to the diagonals and counters of the trusses.

Work completed on February 19, 1936, at a cost of \$1,786.46.

*Day Labor Force.*

The Day Labor Force patched and replaced deck sheathing, headers and sidewalk planking on various bridges; repaired platforms, refastened treads, repaired draw headers, cleaned and painted draw houses and shelter houses; made repairs to draw houses and controller houses, added to counterweights, repaired steps; removed snow and ice from bridges and sanded same; repaired piers, painted fences and gates, did general carpenter work and painting and made mechanical repairs, etc., patched sidewalks and roadways of following bridges: Babson Street, Blue Hill Avenue, Broadway, Boylston Street, Broadway Extension, Dorchester Avenue (over railroad), Dorchester Avenue (over Fort Point Channel), Dover Street, L Street, Norfolk Street, Walworth Street, Webster Street, Byron Street, Charlestown, Glenwood Avenue, Malden, Meridian Street, Milton Street, Summer Street, Boston Street, Metropolitan Avenue, Albany Street, Cambridge Street, Congress Street, Hyde Park Avenue, West Fourth Street, Winthrop, Baker Street, Milton Lower Mills, Huntington Avenue, Southampton Street. Also repaired wood block paving, patched headers, fences, steps, platforms, etc., at Dover Street, L Street, Webster Street, Jones Avenue, Milton Street, Irvington Street, Metropolitan Avenue, Chelsea South, Congress Street, Hyde Park Avenue, Perkins Street, Gainsborough Street, Toll Gate Way, Fairmount Avenue and other bridges. Placed new submarine cable across channel and repaired draw house at Chelsea North Bridge and built two shelter houses at this bridge; repaired headers on Blue Hill Avenue

Bridge, Boston Street Bridge, Charlestown Bridge, Chelsea North Bridge, and L Street Bridge; burned off hanging rods under ceiling of Boylston Street Bridge, repaired water box, placed and painted new fence posts at Dorchester Avenue Bridge, repaired walings at Northern Avenue Bridge, placed new fence posts and stringers at Jones Avenue Footbridge, painted fence at Summer Street Bridge, removed or refastened loose traffic treads at Boylston Street Bridge, repaired pier at Charlestown Bridge, patched headers under draw and patched pier at Warren Bridge, removed slag from ceiling of Allston Bridge, painted Brookline Avenue Bridge, removed and refastened traffic treads at Albany Street Bridge, etc. Made miscellaneous small repairs at various bridges.

#### *Miscellaneous.*

Aside from the purely divisional activities there was an appreciable amount of time and effort spent in other departmental work and work outside of the department itself. It should be noted in every case that work was deemed by the Commissioner to be of an emergency nature that required immediate attention of the personnel of this division.

#### SANITARY DIVISION.

##### *Albany Street Garbage Dump Station.*

A contract was approved January 29, 1936, with the Bay State Dredging and Contracting Company, for dredging dock at Albany Street Garbage Dump Station. The work was completed February 27, 1936, at a cost of \$1,850.

#### FERRY SERVICE.

The following ferryboats are in commission:

Name.	When Built.	Length.	Gross Tons.
Lieutenant Flaherty.....	1921	174 ft.	755
Charles C. Donoghue.....	1926	174 " 4 in.	756.77
Daniel A. MacCormack.....	1926	174 " 4 in.	756.77
Ralph J. Palumbo.....	1930	174 " 4 in.	779

All these boats are of the propeller type and are all steel boats.

The work of this service for the year consisted of the following:

##### *Ferryboat "Charles C. Donoghue."*

On May 13, 1936, the Mayor approved a contract with the Quincy Dry Dock and Yacht Corporation, to

make annual repairs. Besides the routine cleaning and painting of the hull and superstructure and miscellaneous repairs, the crank and shaft of the main engines was lined up with all necessary rebabbitting of main bearings, all cylinders of the main engines rebored, the high pressure piston valves were renewed, the intermediate wheel guards of the main deck remodelled, four crank pin boxes were rebabbitted, and four new main engine valve stems were renewed. All work was completed on July 3, 1936, at a cost of \$8,138.01.

*Ferryboat "Lieutenant Flaherty."*

Due to the age and natural deterioration of the materials of the hull and superstructure, considerable renewals were required to put the vessel in acceptable condition to the United States Steamboat Inspection Service when papers of this ship expired. On September 3, 1936, the Mayor approved a contract with the Bethlehem Shipbuilding Corporation, Limited, to do the necessary annual cleaning, painting and repairs. Other work than regular repairs included rebabbitting and machining of the horse-shoe thrust bearings of the main engines, the renewing of the wooden staving at the ends of the main deck, and the removal of never used emergency exits, toilets, and locker closets in the cabins; these last in no degree ever justified their original installation. Work under this contract was completed October 21, 1936, at a cost of \$13,849.77.

*Ferryboat "Daniel A. MacCormack."*

The annual repairs to the hull, etc., incidental to the United States Steamboat Inspection Service, which were started last December, were completed on March 20, 1936. Included in the repairs and renewals was the reboring of the four cylinders of the main engines, rebabbitting of four main bearings and three crank pin boxes, fitting of two new high pressure piston valves, and the remodelling of the intermediate wheel guards on the main deck. The total cost of work under this contract was \$9,618.36.

*Ferryboat "Ralph J. Palumbo."*

A contract with the Quincy Dry Dock and Yacht Corporation was approved by the Mayor for the annual overhauling and repairs on this ship. At the close of the year work had not been completed.

*Department Force.*

During the year machinists, carpenters, painters, riggers and electricians, who make up the personnel of the Ferry Service, made all repairs possible to the plant to the extent of equipment at their disposal. This work was made up mainly of minor repairs to the machinery on the boats, repairs to ferry bridge machinery, ferry bridge roadways and headhouse repairs in general.

## SUMNER TUNNEL.

*Summary of Work During 1936.*

In January of 1936, a rotating schedule for maintenance work was put into effect. In this plan, the various items of work was divided into a number of groups and as each man finished his shift of work as operator and inspector on the operation of the tunnel he was assigned to one of these groups for a given period. For the next maintenance period, the man was shifted to a different group so that over a period of about a year all the men would work on all the different types of equipment. The object of this schedule was primarily for the purpose of performing "preventative maintenance," that is to check equipment and make adjustments and repairs before trouble developed and thus avoid shutting down of any equipment for trouble.

During the year, in addition to the general maintenance of equipment, there was considerable work done of a special nature which really amounted to additions, changes and new construction. A summary of these main items is given.

1. *Toll Indicators.*—Sidewalk toll indicators were installed on all the traffic lanes at the booths on each end. The traffic signals were relocated on the front side of the booths and the toll indicators were located on the pedestal of the traffic signals. When the collector registers the fare a bell rings and the indicator lights up the section, which shows the fare registered. The section remains lighted for about four seconds and then automatically goes out. This gives the driver of the car sufficient opportunity to read the amount registered.

2. *Traffic Signal System.*—Traffic signal indicators have been located on the outside of the toll booth doors

so that the indicators are visible to the collectors at all times. The traffic signal control equipment has been tested regularly. Signal units have been cleaned and repaired as needed.

The bells on the Booth-Red alarm at the toll booths have been replaced by a horn. A relay has been installed which starts the horn blowing immediately after the button is pushed, and then the relay causes the horn to blow intermittently with a time interval of about 1-2 seconds ON and about 3-4 seconds OFF. The Booth-Red alarm is tested regularly to make sure that it is operating properly. Even after the horn stops blowing and the red signal light goes off, the toll collectors are not permitted to start traffic into the tunnel until the operator calls the booths and gives the OK.

3. *Telephone System.*—Telephones were relocated in the toll booths so that the collectors can answer the telephone and continue collecting fares. This change in location will reduce the breakage of handsets.

Additional telephones were installed; one in each ventilation shaft near the exhaust air regulator door; one in each 13.8 KV. switch room; and one in the basement of the Boston ventilation building.

During the year, 2,020 feet of 16-pair, 1,500 feet of 11-pair and 750 feet of 5-pair of Anhydrex rubber-jacketed telephone cables were pulled in to replace the old lead-covered telephone cables. This completes the work started in 1935, so that now all telephone cables in the tunnel to the east of the Boston ventilation shaft have been replaced, and all connections to telephone stations have been completed. All telephone stations in the tunnel have been overhauled and rubber cords installed on the handsets. Connections have been arranged so that the jack circuits can be thrown on the telephone switchboard. This makes it possible to use handsets with plugs instead of portable telephone sets.

4. *Static Eliminators.*—There has been considerable trouble and many complaints from shocks received by persons when paying the fare due to the discharge of the static potential on the car to the collector. A study was made of this trouble and a device has been installed on all lanes for eliminating this static. This device consists of a spring steel leaf mounted on a rubber

flapper and with the steel leaf grounded to the anchor bolt. This device is mounted in the roadway just before the car reaches the door of the toll booth. The striking of this spring leaf by any part of the car discharges the static potential of the car.

5. *Tunnel Fire Line.*—To replace the old 6-inch water line that froze and broke during the winter of 1934-35, a 4-inch water line has been installed on the curb on the south side of the tunnel. This line was installed between the two portal pump rooms, with the connections made through the portal pump rooms to the city water mains under Richmond street and Meridian street. Main cut-off valves and check valves were installed in the portal pump rooms. Unit type electric heaters with thermostat control have been installed in the portal pump rooms so that all danger of freezing has been eliminated. Connections were brought up from this 4-inch water line to hose outlets in the original hose niches along the south wall of the tunnel. All doors have been removed from these hose niches, the inside of the niches have been painted and labelled, "B. F. D." or "T. F. D." There are nineteen 2½-inch hose connections for the Boston Fire Department and thirty-six 1½-inch hose connections for first-aid hose of the Summer Tunnel.

Near the center of the tunnel at the lowest point in the tunnel, a 1½-inch drain line connects to a motor-operated valve located in the harbor pump room. The control for this drain valve has been temporarily located on the sidewalk at Station No. 31. It is planned to have motor-operated valves on the supply end in each pump room and these valves will be interlocked with the control of the drain valve, and all these valves will be operated from the control room. Only the drain valve has been installed as motor-operated.

This water line will be kept dry during the winter months to prevent any freezing. During the summer months the line will be kept filled with water but not under pressure. The main valves at each end will be kept closed to prevent flooding the tunnel in case of an accident which breaks the pipe line in the tunnel.

6. *Harbor Pump Room.*—New, larger and heavier foot valves have been installed in the pumps. Lights have been installed over the foot-valves. A unit type



electric heater with thermostat control has been installed in the pump room. This heater prevents any freezing in the winter and also reduces the moisture condensation in the pump room and thereby reduces corrosion and rust on the equipment.

7. *Tunnel — General.*— All covers of splicing chambers have been painted. Drains have been cut in various niches in the tunnel to prevent water standing in the niches. The catch-basins and sumps have been cleaned as needed, and the roadway repaired as required. Tunnel lighting fixtures have been cleaned regularly and repaired. The exhaust air duct above the tunnel roadway was cleaned in the spring and again in the fall by a vacuum cleaner. A door was installed in the bulkhead in the exhaust air duct at the center of the tunnel so that the vacuum cleaner can be taken through from one section of the tunnel to the other section.

All cable manholes were pumped twice during the year.

8. *Ventilation Buildings.— General.*— Considerable trouble has been caused by persons (mainly children) climbing over the fence at the Boston ventilation building, so barb wires were installed on top of the iron paling fence. The floors in both ventilation buildings were painted during the year. The exhaust fan rooms were cleaned regularly. The 14-blower fans were painted and also the 28-fan motor controllers.

9. *Ventilation Buildings.— Ventilation Equipment.*— All ventilation fan motors were thoroughly overhauled, cleaned and sprayed with insulating varnish. Grease fittings and drain plugs were installed on the motor bearings and a felt-retaining ring was installed in the bearings. The control equipment for the fan motors was regularly cleaned, adjusted and repaired. Faults occurred in tachometer cables on fans E20 and W20. The lead cables on the tachometers were replaced by rubber-jacketed cables. Metal housings were installed over the blower damper motors to protect these motors from the weather. The damper on fan E12 is the vertical sliding type and much trouble has been experienced with this damper failing to open. Alterations were made on this damper to overcome the trouble.

10. *Ventilation Buildings.— Elevators.*— Alterations were made on the various door switches of the elevators.

The elevators and the control equipment were checked regularly, adjusted and repaired. The annual load test and inspection was made by the Portland Elevator Company.

11. *Ventilation Buildings.—Switching Equipment.—* At specified regular intervals all switches and oil circuit breakers have been tested for operation. Adjustments and repairs were made to keep all equipment in proper operating condition. For the first time since the tunnel opened, the oil was tested and the contacts and operating mechanism was checked for the 10-13,800 volt and the 8-2,300 volt oil circuit breakers.

12. *Ventilation Buildings.—Miscellaneous Equipment.—* The oil level on all the transformers was checked and oil was added as required. The oil in all the transformers was tested for dielectric strength and acidity. The oil in transformer ET2 had a low dielectric strength and the oil was changed. All induction regulators were regularly tested and adjusted.

All the graphic voltmeter ground detectors were checked, adjusted and repaired.

In order to maintain proper ventilation and to prevent drawing in of smoke from adjacent chimneys, the operator must know the direction of the wind. For this purpose, a weather vane was made and installed on the roof of the Boston ventilation building, with a remote indicator in the control room. A light also indicates when the temperature drops to freezing.

Very careful maintenance has been given to the carbon monoxide recording equipment to keep this apparatus in perfect operating condition. The equipment has been checked and calibrated at regular intervals. The alarm on the carbon monoxide recorders has been changed from 3.0 to 2.5 parts of CO in 10,000 parts of air, and the operators have been instructed to keep the dilution of the air below 1.5 parts during certain periods of heavy traffic. In order to further better the air conditions in the tunnel, experimental work is now being done on a smoke detector and indication equipment. It is possible for the carbon monoxide content to be low, and still there may be smoke in the tunnel. This apparatus will indicate to the operator the presence of smoke in the tunnel and the ventilation can be changed to remove the smoke. Since carbon monoxide is colorless, the presence of smoke in the tunnel does not indicate

carbon monoxide, but smoke is unpleasant to users of the tunnel. Thus, the indication of smoke in the tunnel and the proper change in ventilation to remove the smoke will make for better air conditions in the tunnel and more satisfied users.

Tests were made on the metering cable which transfers meter readings from the East Boston ventilation building to the Boston ventilation building. Trouble was experienced by the Edison Electric Illuminating Company in the failure to record the totalized demand readings from East Boston. Changes were made in the power for these readings from 36 volts D. C. to 110 volts A. C. to prevent continued discharge on the storage batteries. Forty-three of the seventy-six conductors in the cable were tested and only six conductors were found to be in good condition. It is planned to replace this cable with an Anhydrex rubber-jacketed cable in 1937.

13. *Power Consumption.*—Electrical power is supplied by the Edison Electric Illuminating Company, at 13,800 volts by two cables to each ventilation building. This power is used not only for ventilation but all lighting of the tunnel and buildings and also electric heating.

Total kilowatt hours . . . . .	2,698,852
Total cost . . . . .	\$38,472.28
Total vehicles . . . . .	5,187,531
Average cost power per month . . . . .	\$3,206.02
Average cost power per day . . . . .	\$105.116
Average cost power kilowatt hour . . . . .	\$0.01425
Average cost power vehicle . . . . .	\$0.00742
Average kilowatt hour per vehicle . . . . .	0.52

14. *Booth-Red.*—In case of a fire, wreck, or any other serious trouble in the tunnel, the guards on duty push an emergency button which sets the “RED” traffic lights and starts a horn to blowing at each entrance to the tunnel. All traffic is stopped from entering the tunnel. During the year, the BOOTH-RED was put on 17 times for an average duration of 6.3 minutes. (In 1935, the BOOTH-RED was put on 38 times for an average time duration of 8.7 minutes.) Of the 17 times the BOOTH-RED was put on, 12 times it was put on by mistake. Thus the BOOTH-RED was put on only 5 times for some trouble for a total time duration of 76 minutes.

15. *Tow Jobs.*— During 1936 there were 268 tow jobs reported as compared to 456 tow jobs in 1935. There were 96 trucks and buses and 172 passenger cars towed out of the tunnel.

16. *Miscellaneous.*— On July 17, between 1.30 and 4.30 a. m., 68 trucks and 16 cars for a circus passed through the tunnel.

On June 8, at 10.50 p. m. the fire alarm was pulled for a fire on the third floor of the Administration Building, which floor is occupied by the Traffic Commission.

*Tunnel Administration Building — Repairs.*

A contract with the Codman Hill Construction Company was approved by the Mayor on June 24, 1936, to repair damage caused by fire at the tunnel Administration Building. The fire caused extensive damage and necessitated removing the old ceiling of the entire third floor and replacing with new metal lathing and three-coat plaster.

New glass partitions, doors, hardware, window frames, glass, electrical fixtures and some new flooring and all new painting and finishing were required.

It was necessary that the work be carried on at night and on Sundays and holidays, so as not to interfere with the activities of the Traffic Division, which occupies the floor.

Work under this contract was completed July 28, 1936, at a cost of \$5,350.

Yours respectfully,

THOMAS H. SEXTON,  
*Division Engineer.*

## BRIDGE SERVICE

## FINANCIAL STATEMENT, 1936.

*Expenditures from Maintenance Appropriation.*

Boston bridges . . . . .	\$393,783 60	
Boston and Cambridge bridges . . . . .	5,069 28	
	<u>                    </u>	<u>\$398,852 88</u>

*Total Expenditures.*

From maintenance appropriation . . . . .	\$398,852 88	
From special appropriation . . . . .	617,565 32	
	<u>                    </u>	<u>\$1,016,418 20</u>

*Expenditures on Boston Bridges.*

## Administration:

## Salaries:

Division engineer . . . . .	\$3,000 00	
Engineers and draughtsmen . . . . .	29,903 25	
Clerks . . . . .	5,200 00	
Blueprinters . . . . .	2,800 00	
Inspectors . . . . .	4,951 82	
Foreman . . . . .	2,500 00	
Veterans' pensions . . . . .	1,600 00	
Holidays . . . . .	5,804 72	
Vacations . . . . .	1,201 76	
Injured employees . . . . .	9 00	
	<u>                    </u>	\$56,970 55

## Printing, postage and stationery . . . . .

\$1,341 21

Traveling expenses . . . . . 288 75

Telephone . . . . . 24 35

Engineers' supplies and instruments (new and repaired) . . . . . 127 27

Typewriter inspection . . . . . 13 50

Photographs . . . . . 27 37

Supplies and miscellaneous . . . . . 220 44

                     2,052 89\$59,023 44

## Yard and Stockroom:

## Yard:

Clerk and watchmen . . . . .	\$7,817 15
Traveling expenses . . . . .	345 17
Tools, new and repaired . . . . .	1,109 10
Telephone . . . . .	289 95
Repairs in yard . . . . .	745 50
Supplies . . . . .	621 44
Expense of autos, trucks and compressors (3 autos, 2 trucks, 2 compressors) . . . . .	6,629 22

\$17,557 53

## Stockroom:

Stock purchased . . . . .	\$14,880 07
Stock used . . . . .	9,881 43

Increase in stock . . . . .	4,998 64
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\$22,556 17*Tidewater Bridges.*

BRIDGES.	Drawtenders' Salaries.	Mechanics' Wages.	Material.	Repair Bills.	Supplies.	Total.
Broadway . . . . .	\$16,146 42	\$649 43	\$288 79	\$174 41	\$243 03	\$17,502 08
Charlestown . . . . .	21,821 60	3,344 55	800 62	1,189 78	654 82	27,811 37
Chelsea North . . . . .	17,661 16	2,503 77	269 53	2,098 53	1,129 07	23,662 06
Chelsea South . . . . .	18,066 41	1,626 62	328 88	739 75	634 51	21,396 17
Chelsea Street . . . . .	16,190 12	1,224 01	342 36	1,610 72	412 61	19,779 82
Congress Street . . . . .	16,600 73	397 66	144 79	678 06	450 84	18,272 08
Dorchester Avenue . . . . .	16,157 61	2,509 77	670 15	1,467 46	205 80	21,010 79
Dover Street . . . . .	16,245 90	761 93	169 78	477 61	199 36	17,854 58
L Street * . . . . .	16,190 12	819 18	436 68	411 85	350 53	18,208 36
Malden . . . . .	16,371 25	741 36	394 54	311 98	540 44	18,359 57
Meridian Street . . . . .	16,342 90	3,808 18	606 91	2,201 16	304 10	23,263 25
Northern Avenue . . . . .	18,496 14	1,877 81	269 99	2,859 18	2,884 47	26,387 59
Summer Street . . . . .	16,400 35	1,442 08	609 51	242 78	306 34	19,001 06
Warren . . . . .	16,377 96	3,279 21	1,187 38	1,487 76	286 65	22,618 96
	\$239,068 67	\$24,985 56	\$6,519 91	\$15,951 03	\$8,602 57	\$295,127 74

\* Now Summer Street, over Reserved channel.

*Repairs on Inland Bridges.*

BRIDGES.	Labor and Materials.
Albany Street.....	\$233 44
Arlington Street.....	22 16
Austin Street-Prison Point.....	11 12
Babson Street.....	199 03
Baker Street.....	107 47
Beacon Street, over Boston & Albany Railroad.....	390 73
Berkeley Street.....	124 31
Blue Hill Avenue.....	497 03
Boston Street.....	190 44
Boylston Street.....	2,604 93
Broadway, over Boston & Albany Railroad.....	470 14
Brookline Avenue.....	485 35
Byron Street.....	107 33
Cambridge Street, over Boston & Albany Railroad.....	310 50
Cambridge Street, over Boston & Maine Railroad.....	174 16
Camden Street-Gainsborough Street.....	15 80
Central Avenue.....	151 96
Cummins Highway.....	53 00
Dana Avenue.....	761 62
Dartmouth Street (rent, \$300).....	323 50
Dorchester Avenue, over New York, New Haven & Hartford Railroad.....	360 35
Durham Street (Foot).....	12 00
Everett Street.....	39 97
Fairmount Avenue.....	375 97
Glenwood Avenue.....	433 40
Granite Avenue.....	17 50
Huntington Avenue.....	29 67
Hyde Park Avenue.....	25 19
Irrington Street-Yarmouth Street (Foot).....	19 27
Jones Avenue (Foot).....	279 27
Longfellow.....	13 41
Massachusetts Avenue, over New York, New Haven & Hartford Railroad...	23 40
Metropolitan Avenue.....	229 71
Milton Street.....	520 80
Milton Lower Mills.....	69 48
Mystic Avenue.....	12 94
<i>Carried forward</i> .....	\$9,696 35

*Repairs on Inland Bridges.— Concluded.*

BRIDGES.	Labor and Materials.
<i>Brought forward</i> .....	\$9,696 35
Norfolk Street.....	334 71
Perkins Street (Foot).....	138 91
River Street.....	54 45
Shawmut Avenue.....	13 40
Spring Street.....	65 00
Southampton Street.....	134 89
Summer Street, over B Street.....	20 83
Toll Gate Way.....	72 47
Tremont Street.....	69 97
Walworth Street.....	89 95
Webster Street (Foot).....	234 39
West Fourth Street.....	73 92
Winthrop.....	706 26
Cleaning bridges.....	2,573 00
Snow removal and sanding bridges.....	2,797 75
Total.....	<u>\$17,076 25</u>

## SUMMARY.

Administration.....	\$59,023 44
Yard and stockroom.....	22,566 17
Tidewater bridges.....	295,127 74
Inland bridges.....	17,076 25
Total.....	<u>\$393,783 60</u>



## SPECIAL APPROPRIATIONS.

## BRIDGES, REPAIRS, ETC.

BEACON STREET BRIDGE, OVER BOSTON & ALBANY RAILROAD.		
Remove loose material . . . . .	\$967 10	
Repairing sidewalk . . . . .	269 20	
Painting . . . . .	400 50	
	<hr/>	\$1,636 80
BROADWAY BRIDGE, OVER NEW YORK, NEW HAVEN & HARTFORD RAILROAD.		
Paving repairs . . . . .		429 39
BROOKLINE AVENUE BRIDGE.		
Sidewalk repairs . . . . .		480 00
CHARLESTOWN BRIDGE.		
Boston Bridge Works, Inc. . . . .	\$1,042 67	
Paving repairs . . . . .	1,224 55	
	<hr/>	2,267 22
CHELSEA NORTH BRIDGE.		
Progressive Iron Works, Inc. . . . .	\$1,085 00	
New cable installed . . . . .	1,098 69	
Paving repairs . . . . .	910 90	
Repairs to landing blocks . . . . .	463 55	
Removal of wreckage on account of accident . . . . .	817 90	
Advertising . . . . .	30 50	
	<hr/>	4,406 54
CONGRESS STREET BRIDGE.		
Paving repairs . . . . .		202 85
CAMBRIDGE STREET BRIDGE OVER BOSTON & ALBANY RAILROAD.		
Flagman services . . . . .	\$12 58	
Advertising . . . . .	30 05	
	<hr/>	42 63
DANA AVENUE BRIDGE.		
Repairs to deck . . . . .		970 00
DORCHESTER AVENUE BRIDGE.		
Sidewalk repairs . . . . .		1,026 00
DOVER STREET BRIDGE.		
Repair chimney and roof . . . . .		399 97
JONES AVENUE BRIDGE.		
Painting . . . . .		330 00
MALDEN BRIDGE.		
Renew gates . . . . .	\$920 00	
Repair paving . . . . .	501 05	
	<hr/>	1,421 05
<i>Carried forward</i> . . . . .		<hr/> \$17,612 45

<i>Brought forward</i> . . . . .		\$17,612 45
MERIDIAN STREET BRIDGE.		
W. H. Ellis & Son Company . . . . .	\$2,468 49	
Remove obstruction in channel . . . . .	480 54	
Advertising . . . . .	10 75	
	<hr/>	2,959 78
MILTON STREET BRIDGE.		
M. Salimando . . . . .	\$5,528 72	
Inspection of lumber . . . . .	62 82	
Advertising . . . . .	30 00	
	<hr/>	5,621 54
NORTHERN AVENUE BRIDGE.		
Boston Bridge Works, Inc. . . . .	\$1,786 46	
Advertising . . . . .	14 35	
	<hr/>	1,800 81
SUMMER STREET BRIDGE, OVER RESERVED CHANNEL.		
John F. Shea Company . . . . .	\$7,093 00	
Advertising . . . . .	112 50	
Engineering . . . . .	242 61	
	<hr/>	7,448 11
TOLL GATE WAY BRIDGE.		
New fence . . . . .		985 00
WALWORTH STREET BRIDGE.		
Sidewalk repairs . . . . .		251 50
WARREN BRIDGE.		
Paving repairs . . . . .	\$2,313 52	
Repairs on foundation . . . . .	609 85	
	<hr/>	2,923 37
YARD.		
Drainage and water pipes . . . . .		681 02
		<hr/>
		<u>\$36,283 58</u>
CHELSEA NORTH BRIDGE.		
<i>Repair and Strengthening.</i>		
Coleman Brothers, Inc. . . . .	\$55,529 97	
Inspection of piles . . . . .	1,431 68	
	<hr/>	<u>\$56,961 65</u>
CHELSEA STREET AND EASTERN AVENUE BRIDGE.		
<i>Chapter 366, Acts 1933, as Amended.</i>		
T. Stuart & Son Company . . . . .	\$416,334 50	
Fay, Spofford & Thorndike . . . . .	16,170 02	
Strauss & Paine, Inc. . . . .	15,857 75	
Robert W. Hunt Company . . . . .	150 00	
Land . . . . .	7,500 00	
Legal services . . . . .	245 00	
Services of diver . . . . .	282 50	
Printing serial bonds . . . . .	132 00	
Advertising . . . . .	187 28	
Inspection of lumber . . . . .	229 86	
Inspection of rivets . . . . .	250 00	
Testing concrete cylinders . . . . .	245 00	
Supplies and miscellaneous . . . . .	140 15	
Engineering . . . . .	21,238 17	
	<hr/>	<u>\$478,962 23</u>

## NORTHERN AVENUE BRIDGE, RECONSTRUCTION.

*Chapter 366, Acts 1933, as Amended.*

M. F. Gaddis . . . . .	\$29,044 31
J. R. Worcester & Co. . . . .	2,070 07
Electric meter and wiring . . . . .	66 07
Engineers' instruments, new and repaired . . . . .	155 65
Cloth prints . . . . .	21 76
Redemption of debt . . . . .	14,000 00
	\$45,357 86

## SUMMARY.

## Expenditures from Special Appropriations, 1936.

	Balances From 1935.	Total Credits, Including Balances Carried Over and Transfers.	Expended During Year 1936.	Balances Unexpended December 31, 1936.
Bridges, repairs, etc.* . . . . .	\$42,457 38	\$82,457 38	\$36,283 58	\$46,173 80
Chelsea North Bridge, repair and strengthening . . . . .	11,754 20	57,550 61	56,961 65	588 96
Chelsea Street and Eastern Avenue Bridge, chapter 366, Acts 1933, as amended . . . . .		672,680 00	478,962 23	193,717 77
Northern Avenue Bridge, re- construction, chapter 366, Acts 1933, as amended . . . . .	53,671 60	79,556 27	45,357 86	34,198 41
Totals . . . . .	\$107,883 18	\$892,244 26	\$617,565 32	\$274,678 94

\* \$10,000 transferred to Sewerage Works.

## Draw Openings, 1936.

BRIDGES.	STEAMERS.		SAILING VESSELS.		TUGS.		BARGES.		ALL OTHERS.		TOTAL NUMBER OF VESSELS.			Total Number of Carries.	Total Number of Openings.					
	Day.	Night.	Total.	Day.	Night.	Total.	Day.	Night.	Total.	Day.	Night.	Total.	Day.			Night.	Total.			
																		Day.	Night.	Total.
Broadway.....	22	9	31	45	3	48	586	45	631	131	16	147	195	2	197	979	75	1,054	230	618
Charlestown.....	4	2	6	75	9	84	778	285	1,063	280	152	432	500	247	747	1,637	695	2,332	573	903
Chelsea North.....	1,157	403	1,560	26	2	28	8,427	2,096	10,523	1,527	543	2,070	512	59	571	11,649	3,103	14,752	2,424	6,060
Chelsea South.....	80	20	100	8	.....	8	2,713	177	2,890	136	19	155	1,380	102	1,482	4,317	318	4,635	1,273	1,751
Chelsea Street.....	233	108	341	2	3	5	2,002	980	2,982	821	738	1,559	386	96	482	3,444	1,925	5,369	1,063	2,997
Congress Street.....	132	8	140	41	.....	41	1,346	115	1,461	312	56	368	520	48	577	2,360	227	2,587	466	1,501
Dorchester Avenue.....	18	4	22	45	1	46	685	38	723	81	15	96	379	10	389	1,208	68	1,276	254	736
Dover Street.....	3	3	6	53	3	56	681	37	718	137	14	151	291	6	297	1,165	63	1,228	257	682
L Street *.....	86	35	121	275	28	303	190	21	211	742	54	796	875	111	986	2,082	214	2,296	380	2,054
Malden.....	993	237	1,230	4	.....	4	6,279	1,548	7,827	1,921	1,115	3,036	2,075	316	2,391	11,272	3,216	14,488	2,623	7,989
Meridian Street.....	229	194	423	46	2	48	2,087	278	2,365	293	83	376	1,207	146	1,353	3,862	703	4,565	888	2,497
Northern Avenue.....	142	8	150	38	1	39	1,388	60	1,448	356	26	382	448	17	465	2,372	112	2,484	497	1,484
Summer Street.....	6	3	9	35	1	36	757	274	1,031	322	156	478	1,350	433	1,783	2,470	867	3,337	558	1,954
Totals.....	3,105	1,034	4,139	695	53	748	28,853	6,131	34,984	7,404	3,141	10,545	10,404	1,702	12,196	50,551	12,061	62,612	11,909	32,714

\* Now Summer Street, over Reserved channel.

GRANITE AVENUE BRIDGE. \*  
COMMISSION.

Drawtenders' salaries . . . . .	\$2,696 34
Material . . . . .	3 15
Repairs . . . . .	206 65
Supplies . . . . .	85 90
<b>Total . . . . .</b>	<b>\$2,992 04</b>

\* One half paid by County of Suffolk and one half by Town of Milton.

*Granite Avenue Bridge Openings.*

	STEAMERS.		SAILING VESSELS.		TUGS.		BARGES.		ALL OTHERS.		TOTAL NUMBER OF VESSELS.		Total Number of Carco's.	Total Number of Openings.						
	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.			Total.	Total.				
Openings.....	7	1	8	3	3	6	201	10	211	62	6	68	102	49	151	375	69	444	39	298

## FERRY SERVICE.

### FINANCIAL STATEMENT FOR THE YEAR ENDING DECEMBER 31, 1936.

#### 1. Receipts.

Total cash receipts during the year . . . . .	\$32,222 23
Cash in hands of tollmen at beginning of year . . . . .	200 00
	\$32,422 23
Cash paid over to City Collector * . . . . .	\$32,282 23
Cash in hands of tollmen December 31, 1936 . . . . .	140 00
	\$32,422 23

#### 2. Appropriations and Expenditures.

Received from annual appropriations for Ferry Service . . . . .	\$334,250 45
Unexpended balances from special appropriations, January 1, 1936 . . . . .	\$41,146 91
Expenditures . . . . .	13,707 52
	\$27,439 39

#### 3. Results of Operation for the Year.

Receipts for the year (net income) . . . . .	\$32,282 23
Ordinary expenses (maintenance appropriations) . . . . .	\$334,250 45
Interest paid on ferry debt . . . . .	15,450 00
Depreciations on ferryboats . . . . .	64,048 93
Decrease in value of machinery and tools . . . . .	236 31
	\$413,985 69
Increase in value of supplies on hand . . . . .	3,731 00
	\$410,254 69
Net outgo for year . . . . .	\$410,254 69
Net loss for the year . . . . .	† \$377,972 46

\* Includes \$60 deposited with City Collector, withdrawn from cash in hands of tollman.  
† Does not include expenditures for special appropriations.

Balance Sheet, End of Fiscal Year, December 31, 1936.

ASSETS.	LIABILITIES.
<b>AVAILABLE ASSETS:</b>	<b>CURRENT LIABILITIES:</b>
Cash in hands of Tollmen at close of year.....	
\$140 00	
<b>INVENTORY OF SUPPLIES, VIZ.:</b>	
Supplies for maintenance.....	
6,318 00	
Rents receivable.....	
2,622 87	
Damages receivable.....	
325 00	
<b>\$19,405 87</b>	
<b>CONTINGENT ASSETS:</b>	<b>CONTINGENT LIABILITIES:</b>
City Treasurer.....	Appropriations account.....
	\$27,439 39
<b>FIXED ASSETS:</b>	
Real estate, land and buildings <sup>1</sup> .....	
2 610,100 00	
Ferryboats <sup>2</sup> .....	
604,524 16	
Machinery, tools, etc.....	
2,126 80	
<b>\$1,263,596 22</b>	
Total tangible assets.....	
16,554,912 75	
Deficiency or loss by operations and maintenance of the ferries for seventy-nine years to date.....	Less total receipts.....
	\$879,875 47
	<b>\$17,701,069 58</b>
	<b>\$17,818,508 97</b>
<sup>1</sup> Original purchase.....	<sup>2</sup> Assessors' figures.....
\$276,375 00	<sup>3</sup> Total cost to date, per ferry books.....
New buildings, drops, slips, cost to 1913.....	\$2,520,820 50
607,523 64	Less boats sold, depreciated or destroyed.....
Land, Lincoln's Wharf, cost to 1867.....	1,325,296 34
5,562 52	<u>\$604,524 16</u>
Land, Battery Wharf, cost to 1893.....	
10,000 00	
<b>\$809,461 16</b>	
New drops, both ferries, cost from 1923 to December 31, 1936.....	
886,648 44	
<b>\$1,786,109 60</b>	

## Balance Sheet for Year 1936.

<i>Assets.</i>	
Cash, tollmen's capital . . . . .	\$140 00
Rents receivable . . . . .	2,622 87
Supplies in stock . . . . .	16,318 00
City Treasurer (balance of appropriation) . . . . .	27,439 39
Ferryboats (less depreciation) . . . . .	604,524 16
Machinery and tools . . . . .	2,126 80
Real estate, land and buildings (assessors' valuation) . . . . .	610,100 00
Damages receivable . . . . .	325 00
	<hr/>
	\$1,263,596 22
Cost of avenues, etc., East Boston (previous to 1871) . . . . .	1 315,815 68
Deficiency of assets (loss) . . . . .	16,239,097 07
	<hr/>
Totals . . . . .	<u>\$17,818,508 97</u>
<i>Liabilities.</i>	
Capital invested by City of Boston to date . . . . .	\$17,791,069 58
Appropriations account (credit balances) . . . . .	27,439 39
	<hr/>
Total liabilities . . . . .	<u>\$17,818,508 97</u>

*Details of Capital Invested by the City of Boston.*

Total expenditures to date per ferry books . . . . .	\$26,304,546 20
Interest of debt for the year (per City Auditor's reports), . . . . .	15,450 00
Interest previous years, etc. (net debits, per City Auditor's reports) . . . . .	350,948 85
	<hr/>
Total expenditures . . . . .	\$26,670,945 05
Deduct total receipts paid to City Collector . . . . .	8,879,875 47
	<hr/>
Excess expenditures, capital . . . . .	<u>\$17,791,069 58</u>

## COMPARISON OF RECEIPTS, APPROPRIATIONS AND EXPENDITURES.

<i>Receipts.</i>	
From foot passengers (tollman) . . . . .	\$10,555 64
From foot passengers (office sales) . . . . .	52 70
From team tickets (office sales) . . . . .	2 1,831 20
From strip team tickets (tollman) . . . . .	5,494 80
From cash for teams (gatemen) . . . . .	3 13,617 51
From gatemen's refunds . . . . .	269 37
	<hr/>
Total from rates . . . . .	\$31,821 22
From rents . . . . .	124 00
From other sources . . . . .	277 01
	<hr/>
Ordinary receipts . . . . .	<u>\$32,222 23</u>
<i>Expenditures (Ordinary).</i>	
Office:	
Division engineers' salary (part) . . . . .	\$1,500 00
Clerk — assistant cashier . . . . .	1,700 00
Clerk (part time) . . . . .	1,700 00
	<hr/>
Carried forward . . . . .	\$4,900 00

<sup>1</sup> Included in deficiency of assets in Balance sheet.<sup>2</sup> Includes \$6 coupons sold in 1935, paid for in 1936.<sup>3</sup> Includes cash fares from extra passengers on teams (gatemen).



<i>Brought forward</i>	\$4,900 00
Retired veterans' pensions	4,976 05
Retired employees' pensions	720 00
Stationery	124 46
Printing	610 35
Telephones	316 92
Advertising	26 25
Car fares	263 60
Postage	3 00
Premiums, surety companies	110 00
Total office expenses	<u>\$12,050 63</u>
Ferryboats and Landings:	
Employees (wages)	\$227,681 73
Fuel	36,558 21
Teaming, weighing coal, etc.	2,826 00
Supplies	7,354 11
Gas	46 39
Oil	1,034 93
Electric light	2,659 16
Electric power	1,051 57
Repairs of boats	35,233 08
Repairs of buildings, drops and piers	2,219 04
Furnishings	42 00
Other expenditures	5,493 60
Total	<u>\$334,250 45</u>

## RECEIPTS, APPROPRIATIONS AND EXPENDITURES.

*Expenditures from Special Appropriations.*

East Boston Ferry, two additional boats and other permanent improvements	\$13,707 52
Total expenditures, regular and special	<u>\$347,957 97</u>
Balance in treasury unexpended	<u>\$27,439 39</u>

*Appropriations.*

Regular annual appropriations	<u>\$346,817 83</u>
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**Total Expenditures upon Ferries Since 1858.**

Expenditures for avenues, paving, interest, etc., previous to the purchase of the ferries by the city	\$444,101 30
Purchase of the ferries, April, 1870	276,375 00
Expenditures for ferryboats since April 1, 1870	2,530,009 51
Expenditures for new buildings, piers, drops, etc.	1,491,468 89
Expenditures for tools and fixtures (prior to 1910)	14,752 46
Expenditures for land for Lincoln's Wharf in 1887	5,562 52
Expenditures for land for Battery Wharf in 1893	10,000 00
Total expenditures on capital account	<u>\$4,772,269 68</u>
Expenditures for repairs of all kinds	2,980,833 86
Expenditures for fuel	3,122,719 73
Expenditures for salaries and wages	12,411,394 54
Expenditures for all other purposes	3,383,727 24
	<u>\$26,670,945 05</u>

**Total Receipts from Ferries Since 1858-59.**

Receipts from rents, etc., previous to purchase of ferries . . . . .	\$29,588 56
Receipts from ferry tolls since purchase of ferries . . . . .	8,541,010 63
Receipts from rents since purchase of ferries . . . . .	73,390 40
Receipts from sale of ferryboats . . . . .	168,004 57
Receipts from all other sources, per ferry books . . . . .	37,286 46
Receipts from all other sources, per City Auditor . . . . .	30,734 85
<b>Total receipts from all sources . . . . .</b>	<b>88,880,015 47</b>
Less amount with tollmen as capital . . . . .	140 00
<b>Total receipts, Auditor's report . . . . .</b>	<b>88,879,875 47</b>

**Regular Annual (Ordinary) and Special Appropriations (Extraordinary) of the Ferry Service for the Year Ending December 31, 1936.**

Appropriations (regular) for the year ending December 31, 1936 . . . . .	\$346,817 83
Amount of expenditures (regular) for the year . . . . .	334,250 45
Transferred to City Treasurer . . . . .	<u>12,567 38</u>

**Special Appropriations.**

East Boston Ferry, two additional boats and other permanent improvements:	
Unexpended balance January 1, 1936 . . . . .	\$32,772 33
Expenditures for year 1936 . . . . .	13,707 52
Unexpended balance December 31, 1936 . . . . .	<u>\$19,064 81</u>
Expenditures for year made up as follows:	
Amount paid to William H. Ellis & Son Company. . . . .	
Reconstructing and improving Ferry Piers, South Ferry, Boston . . . . .	\$12,338 15
Amount paid to Grinnell Company, Inc.:	
Furnishing and installing sprinkler system on ferryboats . . . . .	1,369 37
	<u>\$13,707 52</u>
Ferry Improvements:	
Unexpended balance January 1, 1936 . . . . .	\$8,374 58
Unexpended balance December 31, 1936 . . . . .	<u>\$8,374 58</u>

**RECEIPTS OF SOUTH FERRY.**

FROM TOLLMAN.	From Foot Passengers.	From Tickets.	Totals.
Boston side . . . . .	\$5,347 03	\$4,062 40	\$9,409 43
East Boston side . . . . .	5,208 61	1,432 40	6,641 01
Totals . . . . .	\$10,555 64	\$5,494 80	\$16,050 44

From tollman . . . . .	\$16,050 44
From gateman:	
Cash for teams . . . . .	<sup>1</sup> 13,886 88
Total at South Ferry . . . . .	<sup>2</sup> \$29,937 32
Tickets paid for at ferry office . . . . .	1,877 90
Tickets sold in 1935 and paid for through the City Collector's office . . . . .	6 00
Total in 1936 from rates . . . . .	\$31,821 22
Rents for the year . . . . .	124 00
Headhouse privileges . . . . .	150 00
Care of public telephone . . . . .	52 00
Commission on public telephones . . . . .	68 01
Old material sold . . . . .	5 00
Refund from state industries . . . . .	2 00
Total receipts for the year . . . . .	<u>\$32,222 23</u>

TRAVEL ON THE SOUTH FERRY FROM JANUARY 1, 1936,  
TO DECEMBER 31, 1936, INCLUSIVE.

Foot passengers at 1 cent each . . . . . \$1,055,564 00

SOUTH FERRY.

Handcart, or wheelbarrow and man . . . . .	5 cents	}	42,023
Horse and rider . . . . .	5 cents		
Horse and cattle, each with attendant . . . . .	5 cents		
One or two horse vehicle with driver . . . . .	5 cents		
Motoreycle with driver . . . . .	5 cents		
Trailer . . . . .	10 cents	}	93,103
Three or four horse vehicle with driver . . . . .	10 cents		
Passenger automobile with driver and one passenger, Passenger automobile with driver and more than one passenger . . . . .	10 cents		
Motor truck, six tons or less, with driver . . . . .	15 cents	}	65,760
Motor truck over six tons with driver . . . . .	15 cents		
Auto bus with driver . . . . .	20 cents		
Auto bus with driver and passengers . . . . .	20 cents		
Auto bus with driver and passengers . . . . .	30 cents		000
			<u>\$209,734</u>

Changes in rates of tolls on city ferryboats were made during the year 1930. The first rate, effective January 1, was superseded on April 1, 1930, by the rates which are now effective, and are as follows:

PASSENGERS.

On and after April 1, 1930, the tolls on the East Boston Ferries will be as follows:

Foot passengers . . . . . 1 cent.

<sup>1</sup> Includes gatemen's refund.

<sup>2</sup> Includes 1 cent cash fares from foot passengers for year.

## VEHICLES.

One or two horse vehicle with driver . . . . .	5 cents.
Motorcycle with driver . . . . .	5 cents.
Trailer . . . . .	10 cents.
Three or four horse vehicle with driver . . . . .	10 cents.
Passenger automobile with driver and one passenger,	10 cents.
Passenger automobile with driver and more than one passenger . . . . .	15 cents.
Motor truck, six tons or less, with driver . . . . .	15 cents.
Motor truck, over six tons, with driver . . . . .	20 cents.
Auto bus with driver . . . . .	20 cents.
Auto bus with driver and passengers . . . . .	30 cents.

## MISCELLANEOUS.

Handcart, or wheelbarrow and man . . . . .	5 cents.
Horse and rider . . . . .	5 cents.
Horse and cattle, each with attendant . . . . .	5 cents.

## TICKETS FOR VEHICLES.

Tickets in books of ten to be sold at a reduction of 20 per cent.

## FUNERAL PROCESSIONS.

Funeral processions pass free of tolls.

## SUMNER TRAFFIC TUNNEL.

*Financial Statement for the Year Ending December 31,  
1936.*

Cash paid over to City Collector . . . . .	<u>\$788,329 72</u>
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## Appropriations and Expenditures.

Received from annual appropriations for Sumner Traffic Tunnel . . . . .	\$254,350 38
Ordinary expenditures (Maintenance) . . . . .	<u>237,025 00</u>
Unexpended balance December 31, 1936 . . . . .	<u>\$17,325 38</u>

## APPENDIX B.

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 REPORT OF THE DIVISION ENGINEER OF  
 THE HIGHWAY DIVISION.
 

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January 2, 1937.

*To the Commissioner of Public Works.*

DEAR SIR,—I submit the following report of the operations and expenditures of the Street Lighting and Paving Services of the Highway Division for the year ending December 31, 1936.

The maintenance expenditures of the division for the year are as follows:

Lighting Service . . . . .	\$977,117 00
Paving Service . . . . .	1,486,533 80
Total . . . . .	<u>\$2,463,650 80</u>

## PAVING SERVICE.

Under the Public Works Program, chapter 464 of the Acts of 1935, the sum of \$381,342.49 was expended. This work consisted of the resurfacing of fifty-five streets with "Type E" pavement in the various districts of the city.

From the "Highways, Making of," loans there was expended \$36,592.03. The work done under this appropriation consisted of the construction of three streets built by contract.

In addition to the regular work of the Paving Service in connection with construction and maintenance of the public streets throughout the city a very considerable amount of work was done by the Works Progress Administration.

The work undertaken, completed and now under way by the Works Progress Administration Forces covers street surfacing, the designing and construction of retaining walls, city lot grading, the grading of two

hundred and twenty-four streets, and the laying of macadam penetration in these streets, paving of public alleys, the grading of sidewalks, and a protection for the sidewalks by laying a so-called hip gutter at the curb.

A field survey of the city is still under way whereby the private ways of the city are to be located, described and listed for charting and marking, and the erection of private way street signs has been done by the Federal Forces.

In connection with the Federal Work, projects have been carried out for the care and sharpening of tools, and the maintenance of yards for storage and distribution of materials.

For snow removal during the season of 1936 the sum of \$798,734.45 was expended.

#### LIGHTING SERVICE.

On Bennington street, East Boston, forty-three 1,000 candle power lamps were installed, and on Huntington Avenue Overpass in Roxbury twenty-two 1,000 candle power lamps were installed. All posts on both these installations were of the concrete type.

A total of twenty-three arc and 1,500 candle power lamps were installed throughout the various sections of the city.

The following installation of smaller types of lamps was made in addition to the above:

- Fifteen 600 candle power lamps.
- Fifteen 250 candle power lamps.
- Thirty-three 80 candle power lamps.

Respectfully,

JOSHUA ATWOOD,  
*Division Engineer.*

## HIGHWAY DIVISION -- PAVING SERVICE.

## Work Done by Contract in 1936.

	Old Work.	New Work.	Total Old and New Work.
Earth excavation.....		2,737 cubic yards.	2,737 cubic yards.
Rock excavation.....		240 " "	240 " "
Water box excavation.....		213 " "	213 " "
Old concrete base removed.....		24 square yards.	24 square yards.
Edgestone set.....		3,687 linear feet.	3,687 linear feet.
Edgestone reset.....	200 linear feet.		200 " "
6-inch concrete base.....		4,366 square yards.	4,366 square yards.
Granite block paving relaid, gravel base, gravel joints.....	5 square yards.		5 " "
Granite block paving relaid, concrete base, grout joints.....	5 " "		5 " "
Sheet asphalt and binder.....		4,446 square yards.	4,446 " "
Extra binder.....		3 tons.	3 tons.
Artificial stone sidewalks.....	3,887 square feet.		24,071 square feet.
Artificial stone driveways.....	146 " "	1,620 " "	1,766 " "
Ground water drain.....		1,196 linear feet.	1,196 linear feet.
Covers reset.....	63		63
Sign posts erected.....		4	4

## Work Done Under Public Works Program in 1934, "Chapter 464, Acts of 1935."

	Old Work.	New Work.	Total Old and New Work.
Preparing site.....		105,171 square yards.	105,171 square yards.
Edgestone reset.....	3,115 linear feet.	.....	3,115 linear feet.
Granite block edging.....		3,537 linear feet.	3,537 "
Bituminous concrete pavement.....		105,171 square yards.	105,171 square yards.
Artificial stone sidewalks.....		38,224 square feet.	38,224 square feet.
Brick sidewalks.....	50 square yards.	.....	50 square yards.
Bituminous concrete sidewalks.....	.....	2,497 square feet.	2,497 square feet.



## Work Done Under Works Progress Administration in 1936.

	Old Work.	New Work.	Total Old and New Work.
Preparing site.....	.....	541,251 square yards.	541,251 square yards.
Earth excavation.....	.....	36,216 cubic yards.	36,216 cubic yards.
Rock excavation.....	.....	1,570 " "	1,570 " "
Edgestone set.....	.....	3,196 linear feet.	3,196 linear feet.
Edgestone reset.....	69,317 linear feet.	.....	69,317 " "
Granite block edgings.....	.....	46,544 linear feet.	46,544 " "
Bituminous concrete pavement.....	.....	51,550 square yards.	51,550 square yards.
Bituminous macadam pavement.....	435,440 square yards.	92,399 " "	527,839 " "
Artificial stone sidewalks.....	12,946 square feet.	3,447 square feet.	16,393 square feet.
Brick sidewalks.....	24,374 square yards.	.....	24,374 square yards.
Crushed stone sidewalks.....	.....	1,139 square yards.	1,139 " "
Bituminous concrete sidewalks.....	.....	47,511 square feet.	47,511 square feet.
Sidewalks graded.....	29,824 square yards.	.....	29,824 square yards.
Artificial stone driveways.....	900 square feet.	.....	900 square feet.
Street signs erected.....	.....	1,525	1,525
Sign posts erected.....	.....	979	979
Re-inforced concrete pavement.....	.....	5,778 square yards.	5,778 square yards.
Rubble walls erected.....	.....	4,346 cubic yards.	4,346 cubic yards.
Concrete culverts constructed.....	.....	60 linear feet.	60 linear feet.

## Summary of Work Done by Contract, Public Works Program and Works Progress Administration in 1936.

	Old Work.	New Work.	Total Old and New Work.
Preparing site.....		646,422 square yards.	646,422 square yards.
Earth excavation.....		38,953 cubic yards.	38,953 cubic yards.
Rock excavation.....		1,810 " "	1,810 " "
Water box excavation.....		213 " "	213 " "
Old concrete base removed.....		24 square yards.	24 square yards.
Edgestone set.....		6,883 linear feet.	6,883 linear feet.
Edgestone reset.....	72,632 linear feet.		72,632 " "
Granite block edgings.....		50,081 linear feet.	50,081 " "
6-inch concrete base.....		4,366 square yards.	4,366 square yards.
Granite block pavement, gravel base, gravel joints.....			5 " "
Granite block pavement, concrete base, grout joints.....	5 square yards.		5 " "
Sheet asphalt pavement.....	5 " "	4,466 square yards.	4,466 " "
Extra binder.....		3 tons.	3 tons.
Bituminous concrete pavement.....		156,721 square yards.	156,721 square yards.
Bituminous macadam pavement.....	435,440 square yards.	92,399 " "	527,839 " "
Brick sidewalks.....	24,424 " "		24,424 " "
Crushed stone sidewalks.....		1,139 square yards.	1,139 " "
Sidewalks graded.....	29,824 square yards.		29,824 " "
Artificial stone sidewalks.....	16,833 square feet.	61,855 square feet.	78,688 square feet.

Bituminous concrete sidewalks.....	50,008	"	50,008	"
Artificial stone driveways.....	1,620	"	2,666	"
Covers reset.....	63		63	
Sign posts erected.....	983		983	
Street signs erected.....	1,525		1,525	
Ground water drain.....	1,196 linear feet.		1,196 linear feet.	
Re-inforced concrete pavement.....	5,778 square yards.		5,778 square yards.	
Rubble walls erected.....	4,346 cubic yards.		4,346 cubic yards.	
Concrete culverts constructed.....	60 linear feet.		60 linear feet.	

## Work Done by Paving Service Forces During 1936.

	Old Work.	New Work.	Total Old and New Work.
Concrete base laid.....	307 square yards.	.....	307 square yards.
Roadway, granite block, gravel joints.....	5,878 " "	.....	5,878 " "
Roadway, granite block, gROUT joints.....	5,679 " "	.....	5,679 " "
Gutter, granite block, gravel joints.....	2,258 " "	135 square yards.	2,393 " "
Gutter, granite block, gROUT joints.....	2,980 " "	1,548 " "	4,528 " "
Flagging crosswalk, gravel joints.....	155 " "	30 " "	185 " "
Sidewalk excavation, no sidewalks laid.....	.....	150 " "	150 " "
Asphalt surface patched.....	1,710 square yards.	.....	1,710 " "
Macadam surface patched.....	225,992 " "	.....	225,992 " "
Asphalt penetration, macadam surface placed.....	32,000 " "	.....	32,000 " "
Grading, no pavement laid.....	360 " "	.....	360 " "
Brick sidewalks laid.....	26,205 " "	.....	26,205 " "
Artificial stone sidewalks laid.....	65,183 " "	.....	65,183 " "
Gravel or crushed stone sidewalks surfaced.....	54,078 " "	.....	54,078 " "
Tar sidewalks patched.....	7,522 " "	.....	7,522 " "
Edgestone set.....	27,535 linear feet.	677 linear feet.	28,212 linear feet.
Fence repaired.....	632 " "	.....	632 " "
Roadway excavating, roadway changed.....	2,700 cubic yards.	.....	2,700 cubic yards.
Rock excavating.....	.....	40 cubic yards.	40 " "
Snow removed.....	.....	.....	546,299 " "
New style sign posts erected.....	85	.....	85
Street cleaning removed.....	.....	.....	457,368 cubic yards.

Objects of Expenditures from Maintenance Appropriation, Classified by Districts, from January 1, 1936, to December 31, 1936.

Districts.	Macadam Repairs.	Paved Street Repairs.	Removal of Snow.	Street Cleaning.	Edgestone, Sidewalk and Gutter Repairs.	Street Work (Resurfacing.)	Miscellaneous.	Totals.
South Boston and Dorchester North,	\$9,194 12	\$2,712 68	\$11,406 50	\$1,215 00	\$19,171 87	\$2,599 14	.....	\$46,299 31
East Boston and Breed's Island.....	15,233 84	.....	6,438 00	15,287 99	8,406 51	.....	.....	45,366 34
Charlestown.....	3,371 65	8,106 68	2,507 12	749 83	3,858 02	1,225 96	.....	19,819 26
Brighton.....	16,467 86	.....	11,459 44	24,738 66	4,486 90	8,183 53	.....	65,336 39
West Roxbury.....	19,096 92	1,093 00	19,734 09	40,147 34	6,717 74	12,118 15	.....	98,907 24
Dorchester.....	9,092 10	31 34	14,067 88	15,246 90	13,244 26	3,703 53	.....	55,386 01
Roxbury South and Jamaica Plain..	19,930 88	12,060 85	18,982 56	36,978 40	9,903 07	9,033 39	.....	106,889 15
City Proper.....	17,312 99	9,180 33	22,953 66	222 50	25,022 43	2,526 61	.....	77,218 52
Ashmont.....	10,319 04	.....	13,103 02	24,761 20	8,439 23	1,158 39	.....	57,780 88
Hyde Park.....	19,351 50	.....	9,425 25	4,912 50	4,253 90	.....	.....	37,943 15
Miscellaneous.....	.....	.....	.....	.....	.....	.....	*\$875,587 55	875,587 55
Totals.....	\$139,370 90	\$33,184 88	\$130,077 52	\$164,260 32	\$103,503 93	\$40,548 70	\$875,587 55	\$1,486,533 80

\* Miscellaneous Includes: Artificial stone sidewalks, \$50,632.87; new edgestone and sidewalks, \$1,446.41; street signs, \$16,365.36; asphalt street repairs, \$5,725.46; Item "H," \$340,766.42; F-11, \$3,212.43; miscellaneous, \$457,438.60.  
 SPECIAL APPROPRIATIONS: Public Works Program, chapter 464, Acts of 1935, \$381,791.11 (less \$448.62); granolithic sidewalks, \$117.70; reconstruction of streets, \$53,256.92; snow removal, \$798,734.45; P. W. A.—\$75,527.50; H. M. O.—\$36,522.03.  
 TOTAL EXPENDITURES (Maintenance and Specials), \$2,832,553.51 (less \$448.62).

## STREET OPENINGS.

Under Classes 1 and 2 of the schedule of permit fees permits were issued for openings in public ways, as follows:

	Number of Permits.	
Sewer and Water Service . . . . .	3,893	
Edison Company . . . . .	1,057	
Miscellaneous . . . . .	1,320	
Boston Consolidated Gas Company . . . . .	603	
Emergency permits . . . . .	941	
New England Telephone and Telegraph Company . . . . .	471	
Boston Elevated Railway . . . . .	127	
Dedham and Hyde Park Gas and Electric Company . . . . .	14	
	<hr/>	
Total . . . . .		8,416

Permits for other than street openings have been issued as follows:

Painting and minor repairs . . . . .	2,717	
Placing signs flat on buildings . . . . .	684	
Special permits . . . . .	429	
Erecting and repairing buildings . . . . .	361	
Erecting and repairing awnings . . . . .	236	
Emergency permits for raising and lowering . . . . .	45	
Moving buildings in streets . . . . .	48	
Cleaning snow from roofs . . . . .	14	
Feeding horses in streets . . . . .	10	
Driving cattle through streets . . . . .	1	
	<hr/>	
Total . . . . .		4,545
		<hr/>
Grand total . . . . .		<u>12,961</u>

The fees received from these permits amounted to \$12,092; of this amount \$9,130.50 was deposited with the City Collector and \$2,961.50 was billed to public service corporations.

## BONDS.

There are now on file 2,594 surety bonds, in the amount of one, three, four and twenty thousand dollars, covering the city against claims for damages, etc., through the use of permits.

TABLE SHOWING LENGTH AND AREA OF PAVING ON ACCEPTED STREETS, CORRECT TO JANUARY 1, 1937.

	LENGTH IN MILES											AREA IN SQUARE YARDS										
	Sheet Asphalt.	Asphalt Concrete	Granite Block.	Wood Block	Plank on Bridges	Brick.	Concrete.	Macadam.	Gravel.	Not Graded.	Totals.	Sheet Asphalt.	Asphalt Concrete.	Granite Block.	Wood Block.	Plank on Bridges.	Brick.	Concrete.	Macadam.	Gravel.	Not Graded.	Totals.
Year 1935 report	140.48	130.44	88.98	2.32	0.79	0.97	9.78	289.95	26.49	1.96	692.16	2,704,424	2,679,176	2,357,808	51,191	17,501	22,431	178,220	4,733,720	408,214	57,046	13,210,331
Per Cent	20.30	18.84	12.86	0.34	0.11	0.14	1.41	41.89	3.83	0.28	100.00	20.47	20.28	17.85	0.39	0.13	0.17	1.35	35.83	3.09	0.44	100.00
JANUARY 1, 1937.																						
City Proper	33.15	22.79	31.59	1.31	0.16	0.40	1.00	6.57	0.32	.....	97.29	660,200	525,197	767,511	29,103	4,058	9,776	7,552	102,460	2,819	.....	2,108,676
Charlestown	0.69	2.26	10.29	0.08	0.07	.....	0.78	9.22	.....	.....	23.39	10,218	36,293	246,052	2,011	1,999	.....	18,751	133,659	.....	.....	448,983
East Boston	3.86	4.03	6.03	.....	0.06	0.04	0.44	21.03	0.82	0.04	36.35	86,376	90,714	138,622	.....	854	771	22,253	439,748	16,512	865	796,715
South Boston	7.86	5.46	14.22	0.61	0.19	0.12	0.12	16.08	0.33	2.00	46.99	150,286	120,398	353,809	10,400	4,797	3,004	3,642	288,184	6,025	46,244	986,789
Roxbury	25.80	13.84	14.63	0.10	0.04	0.14	0.76	38.27	1.34	.....	94.92	463,669	272,943	375,141	3,778	1,022	3,387	16,767	566,795	17,464	61	1,721,027
West Roxbury	24.93	31.52	3.44	0.01	0.07	.....	2.32	69.32	3.00	0.32	134.93	455,569	619,610	156,575	210	1,447	.....	33,102	1,087,878	48,758	10,351	2,413,500
Dorchester	32.56	33.03	7.12	0.11	0.07	0.27	1.81	82.35	4.70	0.34	162.36	610,145	618,425	211,895	2,855	1,346	5,493	30,615	1,324,691	73,569	6,570	2,885,604
Brighton	11.39	22.64	0.65	.....	0.08	.....	2.27	21.84	2.88	.....	61.75	260,359	452,960	75,537	1,007	1,231	.....	45,316	365,437	41,436	2,870	1,246,153
Hyde Park	0.65	5.26	0.65	0.09	0.05	.....	0.29	20.78	11.55	0.24	38.96	15,411	108,205	9,360	1,488	747	.....	7,056	359,638	178,919	7,965	688,789
Totals	* 140.89	† 140.83	‡ 88.02	2.31	0.79	0.97	§ 9.79	‡ 285.46	24.94	2.94	696.94	* 2,712,233	† 2,844,745	‡ 2,334,502	50,852	17,501	22,431	§ 185,054	‡ 4,668,490	385,502	74,926	13,296,236
Per Cent	20.22	20.21	12.63	0.33	0.11	0.14	1.40	40.96	3.58	0.42	100.00	20.40	21.40	17.56	0.38	0.13	0.17	1.39	35.11	2.90	0.56	100.00

TOTAL PUBLIC STREETS 696.94 MILES.

NOTE.— In the above table the city is subdivided substantially on the boundary lines between the districts as they existed when annexed to Boston. Territory annexed from Brookline is included in city proper.

\* Of this amount 0.10 mile or 834 square yards is Bitulock; and 0.08 mile or 1,323 square yards is Kyrock; and 0.02 mile or 470 square yards in Unionite.

† Of this amount 0.06 mile or 924 square yards is Blome granitoid concrete block.

‡ Of this amount 0.02 mile or 175 square yards is cobble; and 57.63 miles or 1,767,654 square yards is granite block paving on concrete base.

§ Of this amount 0.02 mile or 667 square yards is Amiesite; and 22.32 miles or 400,585 square yards is asphalt concrete; and 106.15 miles or 2,196,880 square yards is bitulith; and 0.00 mile or 4,139 square yards is Colprovia; and 0.06 mile or 959 square yards is Filbertine; and 0.00 mile or 4,000 square yards is Hepburnite; and 0.00 mile or 3,963 square yards is Laykold; and 0.00 mile or 4,167 square yards is Macasphalt; and 0.24 mile or 5,751 square yards is Simasoy; and 11.65 mile or 211,679 square yards is Topeka; and 0.00 mile or 4,153 square yards is Wareolite; and 0.18 mile or 3,474 square yards is Carey Elastic asphalt plank; and 0.16 mile or 3,347 square yards is Flintkote asphalt plank; and 0.05 mile or 1,041 square yards is Johns-Manville asphalt plank.

¶ Of this amount 182.04 miles or 3,089,363 square yards is bituminous macadam.

6.98 miles or 37,035 square yards public alleys included in this table; 7.55 miles or 332,474 square yards public streets in charge of Park Department included in this table; 3.42 miles or 97,457 square yards public streets in charge of Commonwealth of Massachusetts included in this table. In addition to this table there are 1.75 miles or 8,729 square yards of accepted footways.





## APPENDIX C.

REPORT OF THE DIVISION ENGINEER OF  
THE SANITARY DIVISION.

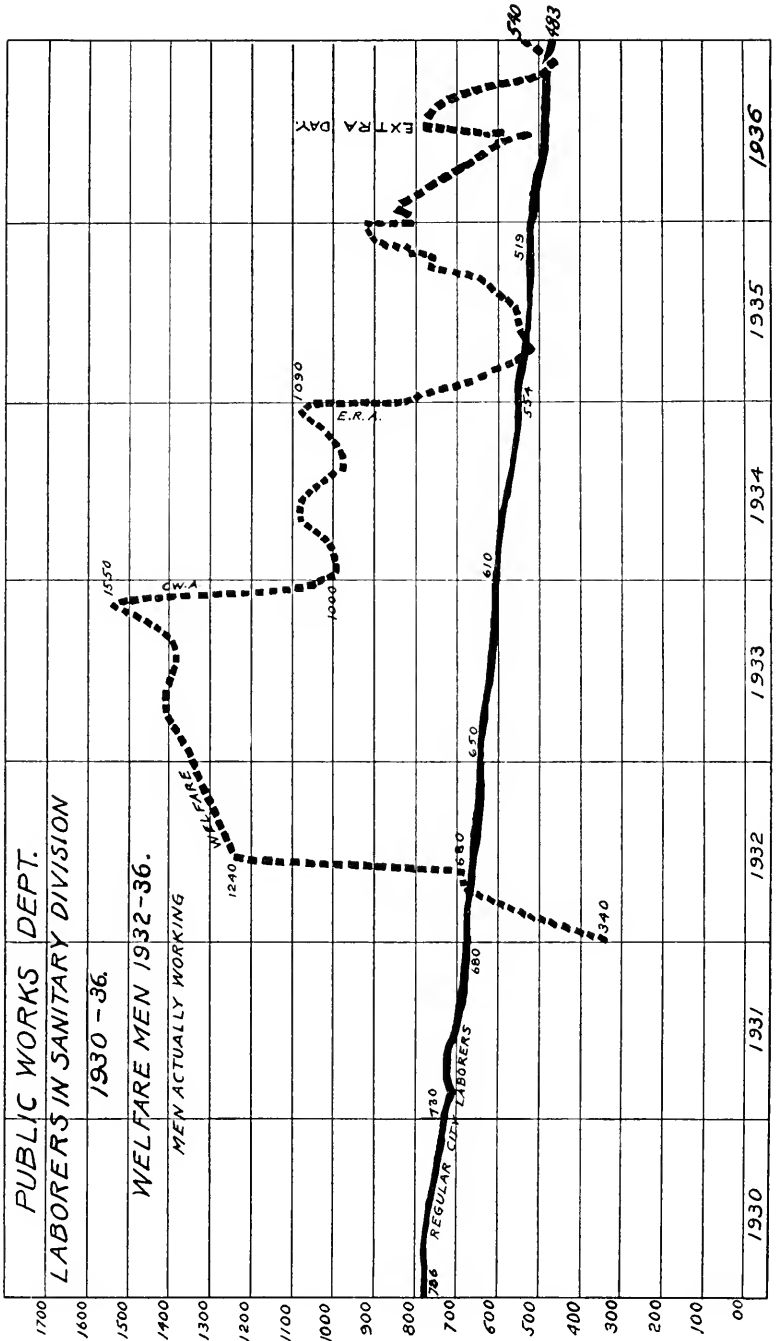
BOSTON, January 2, 1937.

*To the Commissioner of Public Works.*

DEAR SIR,— I submit herewith a statement of the activities and expenditures of the Sanitary Division for the year ending December 31, 1936:

Maintenance expenditures . . . . .	\$2,220,761	01
Distributed as follows:		
I. Waste collection and disposal . . . . .	1,507,345	84
(a) By contract (Table II) . . . . .	\$355,992	39
(b) By day labor (Table III) . . . . .	1,151,353	45
II. Street Cleaning (table VI) . . . . .	673,219	55
III. Not directly chargeable to 1936 operation . . . . .	40,195	62
(a) For other services . . . . .	\$12,577	00
(b) Pensions and annuities . . . . .	7,624	23
(c) Injured roll . . . . .	3,190	34
(d) W. P. A. . . . .	1,008	64
(e) Unused stock . . . . .	15,795	41
Personnel changes in permanent force:		
Total personnel January 1, 1936 . . . . .		840
Transfers from other departments and divisions . . . . .		15
New appointments . . . . .		8
Reinstatements . . . . .		6
		<hr/>
		869
Deaths . . . . .		19
Resignation . . . . .		1
Retirements . . . . .		24
Transferred out . . . . .		24
		<hr/>
		68
		<hr/>
		801
		<hr/>

Personnel January 1, 1937, being a net loss of thirty-nine men.



## MAN POWER.

The graph shows the decrease in the number of city laborers employed in the Sanitary Division, which fell during the year 1936 from 519 to 483.

We are still trying to operate with the assistance of Welfare men, but as can be seen from the chart the year 1936 shows no improvement.

At the beginning of the year these men averaged 800 per week but by the middle of the year the number had fallen to about 500 per week. Then by requiring an extra day's work from these men the figure rose to about 775. It fell to an all-time low in November of 470, rising to 540 at the end of the year.

This shortage of man power, unless augmented by a reasonable increase in the number of city laborers, together with a considerable increase in the number of Welfare laborers furnished, will result in street conditions becoming steadily worse.

On account of the widely fluctuating man power comparisons of performance as well as of costs continue to be without value.

The 1936 expenditures show a decrease from 1935 of \$114,788.61; \$21,660 of this decrease is due to lower prices of the contracts.

The pay rolls on account of loss in personnel show a drop of about \$56,000.

The remainder of this decrease is due to miscellaneous savings.

Respectfully submitted,

ADOLPH J. POST,  
*Division Engineer.*

## COMPLAINTS.

There were 3,372 complaints during the year as compared with 5,481 in 1935.

To eliminate distortion in comparisons by reason of complaints due to snow conditions, the number of complaints in the first three months have been deducted from each year as follows:

	1935.	1936.
Total.....	5,481	3,372
Less January, February, March.....	3,309	1,474
Nine Months.....	2,172	1,898

An improvement over last year.

TABLE I.  
Amount Expended for the Collection and Disposal of Ashes and Garbage by Districts.

Districts.	Population.	ASHES AND RUBBISH.		GARBAGE.		Total Cost.	Per Capita.
		Cost.	Per Capita.	Cost.	Per Capita.		
South Boston.....	60,704	\$100,340 68	\$1.653	\$29,555 45	\$0.4868	\$129,905 13	\$2.14
East Boston.....	65,650	29,101 53	0.4432	9,938 63	0.1513	39,040 16	0.5946
Charlestown.....	29,752	51,338 38	1.7255	13,878 02	0.4664	65,216 40	2.192
Brighton.....	70,997	30,866 75	0.4347	15,907 89	0.224	46,774 64	0.6588
West Roxbury.....	58,906	22,210 65	0.377	21,534 95	0.3655	43,745 60	0.7426
Dorchester.....	205,806	122,590 44	0.5956	89,377 07	0.4342	211,967 51	1.0299
Roxbury.....	162,919	308,988 08	1.8965	103,629 28	0.636	412,617 36	2.5326
South End and Back Bay.....	108,386	307,741 36	2.8393	32,428 63	0.2991	340,169 99	3.1385
North and West Ends.....	56,040	180,676 98	3.224	22,767 59	0.4062	203,444 57	3.6363
Hyde Park.....	26,196	8,318 36	0.3171	6,146 12	0.2345	14,464 48	0.5521
Totals.....	845,336	\$1,162,182 21	\$1.3746	\$345,163 63	\$0.4082	\$1,507,345 84	\$1.783

TABLE II.  
Cost of Collection and Disposal of Refuse by Contract in City of Boston.

CONTRACT DISTRICTS.	CHARACTER OF REFUSE.	Cubic Yards.	Cost per District.	Cost per Cubic Yard.	Population.	Total Cost per Capita.
East Boston.....	Mixed refuse.....	75,792				
	Garbage.....	2,832				
	Totals.....	78,624	\$39,040 16	\$0 4965	65,650	\$0 5946
Brighton.....	Mixed refuse.....	77,223				
	Garbage.....	8,678				
	Totals.....	85,901	\$46,774 64	\$0 5445	70,997	\$0 6588
West Roxbury.....	Mixed refuse.....	72,697				
	Garbage.....	14,126				
	Totals.....	86,823	\$43,745 60	\$0 5038	58,906	\$0 7426
Dorchester.....	Mixed refuse.....	299,765				
	Garbage.....	35,280				
	Totals.....	245,045	\$194,651 88	\$0 7943		
Hyde Park.....	Garbage disposal, proportionate charge.....		17,315 63			
	Totals.....	245,045	\$211,967 51	\$0 865	205,806	\$1 0299
	Mixed refuse.....	16,505				
Totals (all districts).....	Garbage.....	3,928				
	Totals.....	20,433	\$14,464 48	\$0 7077	26,196	\$0 0521
	Totals (all districts).....	516,826	\$355,992 39	\$0 6888	427,555	\$0 8326

TABLE III.  
 Cost of Collection and Disposal of Refuse by Day Labor Force in the City of Boston for the Year Ending December 31, 1936.

DISTRICTS AND POPULATION.	CHARACTER OF REFUSE.	Cubic Yards.	COST PER CUBIC YARD.		TOTAL COST PER CUBIC YARD.			Total Cost, Collection and Disposal.	Total Cost Per Capita.
			To Collect.	For Disposal.	Collection and Disposal.	Cost to Collect.	Cost for Disposal.		
1. South Boston (60,704).....	Mixed refuse.....	85,092	\$0 6885	\$0 4908	\$1 1793	\$58,586 53	\$41,763 15	\$100,349 68	
	Garbage.....	9,773	2 5334	0 4908	3 0241	24,758 86	4,796 59	29,555 45	
	Totals.....	94,865	\$0 8785	\$0 4908	\$1 3679	\$83,345 39	\$46,559 74	\$129,905 13	\$2 14
3. Charlestown (29,752).....	Mixed refuse.....	40,631	\$0 7727	\$0 4908	\$1 2635	\$31,396 69	\$19,941 69	\$51,338 38	
	Garbage.....	3,414	3 574	0 4908	4 0645	12,202 43	1,675 59	13,878 02	
	Totals.....	44,045	\$0 9898	\$0 4908	\$1 4806	\$43,599 12	\$21,617 28	\$65,216 40	\$2 192
7. Roxbury (162,919).....	Mixed refuse.....	226,474	\$0 8735	\$0 4908	\$1 3643	\$197,834 64	\$111,153 44	\$308,988 08	
	Garbage.....	43,752	1 877	0 4908	2 3685	82,140 91	21,488 34	103,629 28	
	Totals.....	270,226	\$1 0360	\$0 4908	\$1 5268	\$279,975 58	\$132,641 78	\$412,617 36	\$2 5326
8 and 9. South End and Back Bay (108,386).....	Mixed refuse.....	211,522	\$1 0113	\$0 4908	\$1 5021	\$213,923 91	\$103,817 45	\$317,741 36	
	Garbage.....	8,802	1 9382	0 4908	2 5481	17,060 63	5,368 00	22,428 63	
	Totals.....	220,324	\$1 0483	\$0 4908	\$1 5435	\$230,984 54	\$109,185 45	\$340,169 99	\$3 1385
10. North and West Ends (56,040).....	Mixed refuse.....	127,333	\$0 9281	\$0 4908	\$1 4110	\$118,181 94	\$62,495 04	\$180,676 98	
	Garbage.....	8,768	2 1058	0 4908	2 5966	18,464 26	4,303 33	22,767 59	
	Totals.....	136,101	\$1 0637	\$0 4908	\$1 4948	\$136,646 20	\$66,798 37	\$203,444 57	\$3 6303
Total, 417,801.....	Totals (all districts).....	765,561	\$1 0117	\$0 4908	\$1 5039	\$774,550 83	\$376,802 62	\$1,151,353 45	\$2 7557

TABLE IV.  
Comparative Costs Per Cubic Yard, 1935-36.

DAY LABOR DISTRICTS.	COLLECTION.		TOTAL COST.		Cubic Yards. 1935.	Cubic Yards. 1936.
	1935.	1936.	1935. \$0.5435 Disposal.	1936. \$0.4908 Disposal.		
1. South Boston.....	\$1 20	\$0 8785	\$1 7437	\$1 3679	87,188	94,865
3. Charlestown.....	1 3772	0 9898	1 9207	1 4806	36,874	44,045
7. Roxbury.....	1 1769	1 036	1 7204	1 5269	267,127	270,226
8 and 9 South End and Back Bay.....	1 4053	1 0483	1 9489	1 5435	175,909	220,324
10. North and West Ends.....	1 161	1 004	1 7049	1 4948	125,116	136,101
Average.....	\$1 245	\$1 0117	\$1 7885	\$1 5039	692,214	765,561
Collection Cost.....					\$862,329 62	\$774,550 83

CONTRACT DISTRICTS.	COST PER CUBIC YARD.		Cubic Yards. 1935.	Cubic Yards. 1936.
	1935.	1936.		
2. East Boston.....	\$0 4869	\$0 4965	76,877	78,624
4. Brighton.....	0 557	0 5445	89,675	85,901
5. West Roxbury.....	0 6423	0 5038	62,059	86,823
6. Dorchester (including disposal).....	0 7306	0 7943	328,016	245,045
11. Hyde Park.....	0 635	0 7077	27,112	20,433
Totals.....			583,739	516,826
Average.....	\$0 658	\$0 6888		



TABLE V.

## Street Cleaning and Oiling Service, 1936.

*Distribution of Expenditures.*

Removing snow . . . . .	\$97,885 63
Brooming . . . . .	242,541 63
Pushcart patrolling . . . . .	110,602 32
Flushing streets . . . . .	9,028 81
Horse-drawn sweeping. . . . .	105,974 50
Motor sweeping . . . . .	45,811 70
Team patrol . . . . .	3,594 56
Refuse box collection . . . . .	23,848 57
Sanding streets . . . . .	5,401 22
Removal old autos . . . . .	160 14
Underpass . . . . .	1,892 19
Cleaning lots . . . . .	442 03
Public alleys . . . . .	1,837 81
	<hr/>
Totals . . . . .	\$648,921 11
Oiling and watering of public streets and ways . . . . .	24,298 44
	<hr/>
Totals . . . . .	<u>\$673,219 55</u>

## APPENDIX D.

REPORT OF THE DIVISION ENGINEER OF  
THE SEWER DIVISION.

BOSTON, January 2, 1937.

*To the Commissioner of Public Works.*

DEAR SIR,—I submit herewith statement of the activities and expenditures of the Sewer Division for the year ending December 31, 1936.

There were built by contract, day labor, private parties and by the city under P. W. A. and W. P. A. supervision, 4.93 miles of common sewers and surface drains throughout the city.

After deducting 0.23 mile of sewers and surface drains, rebuilt or abandoned, the net increase for 1936 is 4.70 miles, which, added to the existing 1,172.17 miles of common sewers and surface drains and 30.93 miles of intercepting sewers, makes a *grand total of 1,207.80* miles of common and intercepting sewers (and surface drains) belonging to the City of Boston and under the care of the Sewer Division on January 1, 1937.

There were 280 catch-basins built or rebuilt and 54 abandoned or removed during the year, making a net gain of 226 catch-basins and a *grand total of 21,484* catch-basins under the care of the Sewer Division on January 1, 1937.

The sewerage works built during 1936 are listed in detail on the subsequent pages of this report.

Respectfully,

GEORGE W. DAKIN,  
*Division Engineer, Sewer Division.*

## Financial Statement from January 1, 1936, to December 31, 1936.

OBJECT.	Balance on Hand Jan. 1, 1936.	Appropriations, Loans and Revenue.	Transfers to.	Transfers from.	Total Credits.	Expenditures During Year 1936.	Balance on Hand Dec. 31, 1936.
Sewer Service.....	.....	\$554,335 00	\$4,800 00	.....	\$559,135 00	\$550,129 82	\$9,005 18
Sewerage Works.....	\$109,327 44	500,084 16	75,000 00	.....	684,411 60	501,891 20	182,520 40
P. W. A.....	94,457 45	46,977 71	.....	.....	141,435 16	116,592 89	24,842 27

## MAINTENANCE EXPENDITURES JANUARY 1 TO DECEMBER 31, 1936.

### SEWER DIVISION.

#### *Improved Sewerage.*

Pumping Station, Calf Pasture, inside . . . . .	\$99,402 55	
Pumping Station, Calf Pasture, outside . . . . .	12,063 97	
Pumping Station, Calf Pasture, engines . . . . .	44,612 33	
Pumping Station, Calf Pasture, boilers . . . . .	18,904 48	
Pumping Station, Union Park street . . . . .	10,416 56	
Pumping Station, Summer street . . . . .	2,544 11	
Moon Island . . . . .	23,650 43	
Main and intercepting sewer . . . . .	18,366 61	
New floor for west shaft house, Calf Pasture Pumping Station, contract dated May 22, 1936.	1,158 75	}
Repairs to No. 3 pump at Calf Pasture Pumping Station, contract dated September 29, 1936.	1,223 40	
	\$232,343 19	

#### *Maintenance — Regular.*

Automobiles . . . . .	\$55,144 44	
Cleaning catch-basins . . . . .	98,647 70	
Cleaning sewers . . . . .	51,961 62	
Employed at yards . . . . .	31,535 63	
Fuel and oil . . . . .	1,008 18	
Hardware and tools . . . . .	7,740 41	
House connections . . . . .	6,703 56	
Horses, carts, harness, etc. . . . .	1,871 85	
Maintenance, Stony brook . . . . .	99 46	
Office expense . . . . .	1,885 08	
Office salaries . . . . .	44,314 14	
Stock . . . . .	5,432 92	
Yard and locker . . . . .	3,400 00	
Eastwood circuit and Dent street brook, clean- ing brooks, Eastwood circuit, 4,500 feet; Dent street brook, 5,500 feet, work done by W. P. A. . . . .	354 96	
	310,099 95	

#### *Maintenance — Repairs.*

Repairing department buildings . . . . .	\$2,487 78	
Repairing catch-basins, South Boston . . . . .	2,108 75	
Repairing catch-basins, East Boston . . . . .	453 11	
Repairing catch-basins, Charlestown . . . . .	84 07	
Repairing catch-basins, Brighton . . . . .	1,313 66	
Repairing catch-basins, West Roxbury . . . . .	1,510 62	
Repairing catch-basins, Dorchester . . . . .	4,488 56	
Repairing catch-basins, Hyde Park . . . . .	368 92	
Repairing catch-basins, Roxbury . . . . .	5,272 67	
Repairing catch-basins, City Proper . . . . .	5,652 39	
Repairing sewers, South Boston . . . . .	1,092 02	
Repairing sewers, East Boston . . . . .	265 44	
Repairing sewers, Charlestown . . . . .	509 74	
Repairing sewers, Brighton . . . . .	584 82	
	\$26,192 55	
<i>Carried forward</i> . . . . .	\$542,443 14	

<i>Brought forward</i> . . . . .	\$26,192 55	\$542,443 14
Repairing sewers, West Roxbury . . . . .	1,509 39	
Repairing sewers, Dorchester . . . . .	5,323 64	
Repairing sewers, Hyde Park . . . . .	479 08	
Repairing sewers, Roxbury . . . . .	1,557 28	
Repairing sewers, City Proper . . . . .	2,931 26	
	<hr/>	37,993 20

*Maintenance — Miscellaneous.*

Miscellaneous . . . . .	\$39,215 64	
Back Bay Fens . . . . .	350 50	
Telephones . . . . .	678 39	
Rubber goods . . . . .	391 29	
Pensions and annuities . . . . .	3,169 00	
	<hr/>	43,804 82
		<hr/>
		\$624,241 16
Less cost of stock and autos used on jobs . . . . .	\$65,776 50	
Less stock and autos transferred to construction, . . . . .	8,334 84	
	<hr/>	74,111 34
		<hr/>
		<u>\$550,129 82</u>

## Sewerage Works, 1936.

ACCOUNTS.	Labor.	Compressors, Pumps, Autos.	Materials.	Miscellaneous.	Contractors.	Totals.
Engineers' and office salaries.....	\$137,939 51					\$137,939 51
Engineers' expense.....	3,774 44	\$3,448 04	\$2,400 93	\$2,756 40	\$2,025 25	14,405 06
Miscellaneous.....	2,923 26	165 50	148 67	36 48	1,869 85	5,143 76
Land-takings.....				2,851 00		2,851 00
New manholes.....	9,584 84	1,207 00	3,693 75	326 70	41,811 03	56,683 32
New catch-basins, South Boston.....	3,648 36	408 00	976 08	7 25	1,902 36	6,942 05
New catch-basins, East Boston.....	1,061 00	48 00	984 22		11,792 42	13,885 64
New catch-basins, Charlestown.....	392 72		616 00		7,525 73	8,534 45
New catch-basins, Brighton.....	417 22	6 00	305 17	13 50	3,079 82	3,821 71
New catch-basins, West Roxbury.....	3,333 07	24 00	1,282 64		6,362 10	11,001 81
New catch-basins, Dorchester.....	3,946 96	539 50	2,984 94	168 19	18,880 42	26,520 01
New catch-basins, Hyde Park.....						
New catch-basins, Roxbury.....	7,126 19	582 00	1,796 68	33 43	5,179 23	14,717 53
New catch-basins, City Propet.....	4,001 03	108 00	426 88	21 84	3,711 14	8,268 89
Repairing streets.....	1,809 70		59 00		4,246 40	6,115 10
Release sewers.....	653 70					653 70
Stock.....			23,555 07			23,555 07
Holiday.....	1,357 81					1,357 81
Unadvertised jobs.....	1,465 36		65 33		5,559 96	7,090 65

Miscellaneous account, W. P. A.....	2,511 69					2,511 69
Resurfacing and repaving, District No. 1.....					417 81	417 81
Resurfacing and repaving, District No. 2.....					51 64	51 64
Totals.....	\$185,946 86	\$0,596 04	\$39,295 36	\$0,214 79	\$114,415 16	\$352,468 21
Sewers built, entire city.....	46,365 23	32,843 04	16,984 81	4,651 07	78,045 56	178,889 71
Totals.....	\$232,312 09	\$39,439 08	\$56,280 17	\$10,865 86	\$192,460 72	\$531,357 92
Credit to stock for stock used on job.....		\$14,044 15				
Maintenance stock not transferred.....		4,103 07				
Maintenance autos, not transferred.....		3,019 50				
Debit transfer to Water Division.....		3,000 00				
Debit transfer to Bridge Service.....		2,800 00				
Debit transfer to Paving Service.....		2,500 00				
Totals.....	8,300 00	3,019 50	18,147 22			29,466 72
Total expenditures for 1936.....	\$224,012 09	\$36,419 58	\$38,132 95	\$10,865 86	\$192,460 72	\$501,891 20

## Sewerage Works Construction, January 1, 1936, to December 31, 1936, Inclusive.

LOCATION.	Began.	Finished.	Built by.	Length in Feet.	Character.	Amount expended in 1936.
SOUTH BOSTON.						
B and Seventh streets, overflow in land of New York, New Haven & Hartford Railroad about 1,600 feet south of and parallel to Dover street, South Boston.	March 5, 1936	June 10, 1936	N. Cibotti & Co.	149.00	7 feet 10 inches by 6 feet 6 inches concrete overflow, including 3 manholes.	\$22,558 29
Old Harbor Village.	Nov. 16, 1936	Unfinished.	W. P. A.			1,729 93
BRUGHTON.						
Private land in St. John's Seminary grounds.	May 4, 1936	June 18, 1936	W. P. A.	159.86 48.64	30" pipe, surface drain. 24" pipe, surface drain.	481 48
Foster street, from Surrey street to 780 feet south of Rogers Park avenue.	June 22, 1936	Oct. 19, 1936	W. P. A.	805.00 577.00 100.00	15" pipe, surface drain. 12" pipe, surface drain. 10" pipe, surface drain.	3,829 33
Wallbridge street, from Commonwealth avenue to Bramerd road.	June 18, 1936	Aug. 15, 1936	W. P. A.	374.50	12" pipe, surface drain.	711 66
Everet street extension.	Sept. 8, 1936	Oct. 22, 1936	Roxbury Concrete Construction Company.	449.54 454.88	10" pipe, sanitary sewer. 12" pipe, surface drain.	3,087 67
Larch street, Lake street and Kendrick street.	Oct. 29, 1936	Unfinished.	W. P. A.			1,770 92
WEST ROXBURY.						
Beech street, La Grange street and Border road.	May 18, 1932	Dec. 14, 1932	Murphy Brothers.			2,417 03
Pershing road, from 100 feet west to 440 feet west of Centre street.	Jan. 8, 1936	March 28, 1936	Rosindale Contracting Company, Incorporated.	341.11	10" pipe, sanitary sewer.	3,456 29



Scarborough brook in Forest Hills Cemetery, from Morton street to Canterbury street.	June 12, 1935	Dec. 6, 1935	E. R. A.	152.04	24" pipe, surface drain.	10,233 67
Dent street, from Lassell street to Glenham street.	March 18, 1935	April 30, 1935	M. DeSisto.			105 10
Corey street, between Weld street and Ad- dington road.	July 8, 1936	Sept. 15, 1936	W. P. A.	647.80	15" pipe, surface drain.	1,618 21
Church street, between Centre street and Weld street.	April 21, 1936	Sept. 10, 1936	W. P. A.	203.37	10" pipe, surface drain.	2,121 81
Washington street, between Grove street and Edgemere road.	Oct. 8, 1936	Not finished.	W. P. A.	188.00 182.00	12" pipe, sanitary sewer 12" pipe, surface drain.	2,371 20
Thurlow street.	Oct. 29, 1936	Nov. 21, 1936	W. P. A.	107.55	10" pipe, surface drain.	365 34
Cowing street.	June 18, 1936	Oct. 5, 1936	W. P. A.	199.55 135.70	10" pipe, sanitary sewer 10" pipe, surface drain.	1,297 19
Mt. Hope street.	May, 1936		W. P. A.			28 05
Keith street.	April 27, 1936	June 11, 1936	W. P. A.	184.86 212.00	10" pipe, sanitary sewer 12" pipe, surface drain.	671 25
Montebello road.	April 21, 1936	May 15, 1936	W. P. A.	156.98	10" pipe, sanitary sewer	512 21
Oakview terrace.	May 13, 1936	July 17, 1936	W. P. A.		2 catch-basins.	1,634 19
Bobolink street, from Pheasant street to La Grange street.	May 27, 1936	Oct. 23, 1936	W. P. A.	344.70 349.97	10" pipe, sanitary sewer 10" pipe, surface drain.	2,326 07
Bogandale road, from Centre street to end of road.	Aug. 12, 1936	Oct. 5, 1936	W. P. A.	563.00	10" pipe, surface drain.	1,421 68
Canterbury street, between Paine street and Mt. Hope street.	June 15, 1936	Nov. 21, 1936	W. P. A.	1,392.11	10" pipe, sanitary sewer.	3,217 70
Bellevue Hill road, between La Grange street and Bellevue park.	Sept. 9, 1936	Oct. 31, 1936	J. D'Amico, Inc.	285.95 292.45	10" pipe, sanitary sewer. 12" pipe, surface drain.	2,352 92
Stimson street, from Washington street to Centre street and outlet in private land to Centre street.	Sept. 8, 1936	Unfinished.	W. P. A.	185.00 195.00	10" pipe, sanitary sewer 12" pipe, surface drain.	5,006 00

## Sewerage Works Construction, January 1, 1936, to December 31, 1936, Inclusive.—Continued.

LOCATION.	Began.	Finished.	Built by.	Length in Feet.	Character.	Amount Expended in 1936.
WEST ROXBURY.— <i>Continued.</i>						
Metropolitan avenue, West Roxbury and Hyde Park.	Oct. 11, 1936	Unfinished.....	W. P. A.....	65.00 350.00 200.00 150.00	15" pipe, sanitary sewer..... 10" pipe, sanitary sewer..... 18" pipe, surface drain..... 15" pipe, surface drain.....	1,639 93
Spring street brook in Baker street, Hart street and Prospect street.	Oct. 22, 1936	Unfinished.....	Charles Struzziery.....	325.00	5' 4" by 4' 6" concrete conduit.....	6,273 12
Washington street outlets in Archdale road, private land and Toll Gate road, and in Whipple avenue and private land.	Oct. 26, 1936	Unfinished.....	M. DeSisto Company.....	549.00 200.00	4' 4" sanitary drain conduit..... 10" pipe, sanitary sewer.....	6,611 12
Rendall road and Weld street.....	May 27, 1936	Sept. 25, 1936	W. P. A.....	345.56 637.24	10" pipe, sanitary sewer..... 12" pipe, surface drain..... 8 manholes.....	2,292 75
Cornauba street extension from Cornauba street to Poplar street.			Tufo & Yebba, Inc.....		Advertising..... Engineering.....	40 72
Pondred circle from existing sewer to 110 feet northeasterly.			J. D'Amico, Inc.....		Engineering.....	84 08
Blasting rock for sewerage works in Washington street, from Grove street to Edgmere road.			John Williams.....		Advertising.....	11 00
DORCHESTER.						
Calf Pasture pumping station; new pump for No. 1 pumping unit.	March 25, 1936	Unfinished.....	Worthington Pump and Machinery Works.....		1 new pumping unit.....	6,635 16
Tennis road, from 700 feet northwest of Blue Hill avenue to 150 feet northeasterly.	June 27, 1935	Aug. 3, 1935	Roxbury Concrete Construction Company.....			301 57

King street, from Adams street to Neponset avenue.	Dec. 11, 1935	April 13, 1936	W. P. A.	740.00	12" pipe, surface drain 5 manholes.	2,301 54
Fuller street, from Dorchester avenue to Washington street.	Dec. 16, 1935	April 13, 1936	W. P. A.	265.00	12" pipe, surface drain 2 manholes, 1 catch-basin.	1,505 83
Magnolia street, from Dudley street to Magnolia square.	April 15, 1936	Aug. 24, 1936	W. P. A.	581.13 508.95 217.50 197.48	20" pipe, surface drain 18" pipe, surface drain 15" pipe, surface drain 12" pipe, surface drain.	2,480 54
Payson avenue, Ward 15, from Hancock street to Glendale street.	Aug. 26, 1935	Sept. 14, 1935	Standard Contracting Company.			86 99
Davenport brook in Hibbard avenue, Pleasant Hill avenue and Morton street.	Oct. 19, 1936	Unfinished.	Louis Ballboni	135.00 305.00	12" pipe, sanitary sewer 4' 6" concrete surface drain.	11,123 60
St. Brendan road.	Sept. 28, 1936	Nov. 30, 1936	W. P. A.	609.15 379.50	10" pipe, sanitary sewer 12" pipe, surface drain.	1,974 97
Weybosset street, Dorchester and Hyde Park.	July 9, 1936	Unfinished.	W. P. A.	320.75 143.75 247.55	15" pipe, surface drain 12" pipe, surface drain 10" pipe, surface drain.	2,242 67
Magdala street.	Nov. 30, 1936	Unfinished.	W. P. A.			505 17
Crescent avenue brook outlet in private land, between Strandway to 1,100 feet north-easterly.	July 17, 1933	April 11, 1934	James J. Coughlan & Sons.			200 00
Nonquit street, Ward 13, from Dudley street to 378 feet southwesterly.	Nov. 4, 1936	Nov. 14, 1936	Dooley Bros., Inc.	\$41.00 sq. yards	Resurfacing.	1,530 09
Milton avenue and Summit street.	May 1, 1936	Sept. 28, 1936	W. P. A.	739.47 291.00	15" pipe, surface drain 12" pipe, surface drain.	2,887 19
Fairmount avenue.	May 1, 1936	Oct. 17, 1936	W. P. A.	\$55.67	18" pipe, surface drain.	2,505 36
Camp ground area, outlet in Metropolitan park, Stanley street, Forest street and Hawthorne street.	Nov. 2, 1934	Sept. 7, 1935	N. Cibootti & Co.		Lengths reported in 1935 report.	1,710 64

## Sewerage Works Construction, January 1, 1936, to December 31, 1936, Inclusive. — Concluded.

LOCATION.	Began.	Finished.	Built by.	Length in Feet.	Character.	Amount Expended in 1936.
<b>HYDE PARK.—Concluded.</b>						
Chester street.....	May 27, 1936.	Nov. 21, 1936.	W. P. A.....	879.33	12" pipe, sanitary sewer.....	\$7,399.09
Neposet avenue.....	May 11, 1936.	Oct. 9, 1936.	W. P. A.....	600.92	20" circular concrete pipe, surface drain.....	1,389.29
Williams avenue.....	May 22, 1936.	Unfinished.....	W. P. A.....	742.43	2' 6" circular concrete, surface drain.....	5,509.65
Edwards street, Lewis street, private land and Frazer street.	April 21, 1936.	Unfinished.....	W. P. A.....	448.91 109.82	18" pipe, sanitary sewer..... 10" pipe, sanitary sewer.....	8,558.32
Ransom road, from Greenfield road, to 295 feet southwesterly.	March 19, 1934.	May 2, 1934.	John DiBartolomeo and Cefato.....		.....	184.04
Forest avenue and Linden street.....	Nov. 19, 1936.	Unfinished.....	W. P. A.....	678.91	10" pipe, sanitary sewer.....	614.15
Mercer street, from Tileston street to 180 feet northeasterly.	Nov. 24, 1936.	Dec. 4, 1936.	R. Zoppo.....	207.20	10" pipe, sanitary sewer.....	738.03
<b>ROXBURY.</b>						
Cheney street, about 90 feet east of Maple street to Elm Hill avenue.	May 21, 1936	June 29, 1936	Standard Contracting Company.....	422.15 541.80 40.00	12" pipe, sanitary sewer..... 12" pipe, surface drain..... 10" pipe, catch-basin drain..... 2 catch-basins. 7 manholes.	3,680.49
Hayden street, from Heath street to Lawn street.	Sept. 16, 1935	Oct. 15, 1935	J. J. Callahan.....		.....	139.25
<b>CITY PROPER.</b>						
Estes place, from Congress street to Aklie street.	June 8, 1936	July 8, 1936	M. Desisto Company.....	197.32 36.70	18" by 24" concrete sewer..... 12" cast-iron pipe, sewer..... 3 manholes.	3,311.60

North street, from Salutation street to Hanover avenue.	July 14, 1936	Aug. 12, 1936	R. Zoppo.....	16.80 153.30 22.00 14.80 158.00	12" pipe, sanitary sewer 1-8" by 2' concrete sewer, 20" cast-iron pipe, sewer, 24" pipe overflow, minor drain, 4 manholes, 124" tide-gate.	4,656 00
East Springfield street, from Harrison avenue to Washington street.	Aug. 17, 1936	Oct. 19, 1936	M. DeSisto Company.....	664.30	2' by 2' 6" U-shaped concrete sewer 189.00 Minor drain, 4 Manholes.	10,042 95
Summer Street Pumping Station, two new pumps.	Oct. 29, 1936	Dec. 29, 1936	The Marine Company.....		2 new pumps.....	1,455 62

## Sewerage Works Construction Under P. W. A. Supervision, January 1, 1936, to December 31, 1936.

LOCATION.	Began.	Finished.	Built by.	Length in Feet.	Character.	Amount Expended in 1936.
Miscellaneous accounts.....						\$14,507 42
<b>EAST BOSTON.</b>						
Collage street from Porter street to Maverick street.	Nov. 27, 1934	June 22, 1935	R. Zoppo			2,945 64
<b>WEST ROXBURY.</b>						
LaGrange street, from W. Border road to Newton line.	May 14, 1934	May 17, 1935	Charles Struzziery			150 00
Stony Brook, section 12, 150 feet northwest of Florence street to Neponset avenue.	July 12, 1934	Aug. 5, 1935	A. Piatelli & C. DiMartino			3,726 17
Hyde Park avenue from Metropolitan avenue, Hyde Park, to Larch place, West Roxbury.	Sept. 19, 1934	Jan. 7, 1935	Calia & Zarella, Inc.			1,381 72
Stony Brook, section 14, from 404 feet northeast of Mt. Hope street to 156 feet southwest of Mt. Hope street.	May 19, 1936	Dec. 4, 1936	A. Paruffioli Company.....	32 00 13.30 11.00 596.13	12" pipe, sanitary sewer 24" pipe, surface drain. 12" pipe, surface drain. 15' by 13' concrete conduit.	53,559 72
<b>DORCHESTER.</b>						
Dorchester brook sewer, from Dudley street to Quincy street.	Aug. 15, 1935	Dec. 23, 1935	P. DeCristoforo Company, Inc.	Lengths reported in 1935 report.		22,338 39
Teneau creek, from Victory road to 721 feet easterly to culvert under New York, New Haven & Hartford Railroad.	May 17, 1935	Dec. 2, 1935	Charles Struzziery			14 70
Teneau creek, from Pope's Hill street to 1,019 feet northerly to culvert under New York, New Haven & Hartford Railroad.	July 30, 1935	Nov. 7, 1935	A. Baruffaldi			3,987 49

Ashmont street, from Adams street to Neponset avenue, and Ashmont street outlet in private land, between Neponset avenue and Ashmont street.	Aug. 27, 1934	Aug. 19, 1935	T. J. O'Connell	1,547 15
Savin Hill avenue, from railroad bridge to railroad bridge.	Sept. 17, 1934	Dec. 4, 1934	A. Singarella	6 00
HYDE PARK. Hyde Park branch, Oakland brook in Royal road, Raleigh road, Ralston road and Rutledge road, Hyde Park.	Oct. 29, 1934	June 25, 1935	Charles Andreassi & Co.	895 58
ROXBURY. Maywood brook in Circuit street, private land, Cathedral court, Ray street and Regent street, from Washington street to Dale street.	May 21, 1935	Dec. 30, 1935	John Williams	Measurements reported in 1935 report. 11,534 35
CITY PROPER. Beaver place, from Embankment road to Beacon street.	Dec. 4, 1934	July 17, 1935	A. Baruffaldi	10 00
Construction stock used, but not transferred,				\$116,604 33
				11 44
				<b>\$116,592 89</b>

## Summary of Sewer Construction for Twelve Months Ended December 31, 1936.

District.	Built by City by Contract or Day Labor.	Built by City Under E. R. A. Supervision.	Built by City Under P. W. A. Supervision.	Built by City Under W. P. A. Supervision.	Built by Private Parties.	Total Length Built.	
	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Miles.</i>
City Proper.....	1,105.22	.....	.....	.....	.....	1,105.22	0.209
Roxbury.....	963.95	.....	.....	.....	.....	963.95	0.183
South Boston.....	149.00	.....	.....	.....	.....	149.00	0.028
East Boston.....	.....	.....	.....	.....	.....	.....	.....
Charlestown.....	.....	.....	.....	.....	.....	.....	.....
Brighton.....	1,051.42	.....	.....	2,065.00	180.00	3,299.42	0.625
West Roxbury.....	2,591.79	.....	646.63	7,038.47	965.00	11,241.89	2.129
Dorchester.....	972.10	.....	.....	3,505.36	.....	4,477.46	0.848
Hyde Park.....	329.60	.....	.....	4,471.09	.....	4,800.69	0.909
<b>Totals.....</b>	<b>7,106.08</b>	.....	<b>646.63</b>	<b>17,079.92</b>	<b>1,145.00</b>	<b>26,037.63</b>	<b>4.931</b>



**Net Increase in Length of Sewers Built Between January 1, 1936,  
and December 31, 1936.**

DISTRICTS.	Length of Sewers Built During Twelve Months Ended December 31, 1936.	Length of Sewers Re-built or Abandoned During Twelve Months Ended December 31, 1936.	Net Increase for Twelve Months Ended December 31, 1936.	
	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Miles.</i>
City Proper .....	1,105.22	1,078.00	27.22	0.005
Roxbury .....	963.95	.....	963.95	0.183
South Boston .....	149.00	149.00	.....	—
East Boston .....	—	—	—	—
Charlestown .....	—	—	—	—
Brighton .....	3,299.42	.....	3,299.42	0.625
West Roxbury .....	11,241.89	.....	11,241.89	2.129
Dorchester .....	4,477.46	.....	4,477.46	0.848
Hyde Park .....	4,800.69	.....	4,800.69	0.909
Totals .....	26,037.63	1,227.00	24,810.63	4.699
<i>Total Lengths of Sewers.</i>				<i>Miles.</i>
Common sewers and surface drains built previous to January 1, 1936 .....				1,172.17
Net increase of common sewers and surface drains between January 1, 1936, and December 31, 1936 .....				4.70
Total common sewers and surface drains to December 31, 1936 .....				1,176.87
Total City intercepting sewers connecting with Metropolitan sewers to December 31, 1936 .....				* 6.81
Total Boston main drainage intercepting sewers to December 31, 1936...				* 24.12
Grand total of common and intercepting sewers to December 31, 1936,				1,207.80
Total mileage of streets containing sewerage works to December 31, 1936,				670.60

\* No additional lengths built during year 1936.

**Summary of Sewer Construction for Five Years Previous to  
December 31, 1936.**

	1932.	1933.	1934.	1935.	1936.
	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Linear Feet.</i>	<i>Linear Feet.</i>
Built by city by contract or day labor .....	96,452.48	93,434.36	16,637.61	8,530.08	7,166.08
Built by city under United States Government supervision ..	.....	.....	29,167.46	24,981.43	17,726.55
Built by private parties.	6,155.52	972.00	610.00	160.00	1,145.00
Totals .....	102,608.00	94,406.36	46,415.07	33,671.51	26,037.63

## Catch-Basins in Charge of the Sewer Division.

DISTRICTS.	CATCH-BASIN DATA FOR TWELVE MONTHS ENDED DECEMBER 31, 1936.			TOTAL FOR WHOLE CITY IN CHARGE OF SEWER DIVISION.	
	Number Built or Rebuilt.	Number Abandoned or Removed.	Net Increase.	Previous Report to January 1, 1936.	Grand Total to January 1, 1937.
City Proper.....	22	13	9	3,605	3,614
Roxbury.....	42	21	21	3,356	3,337
South Boston.....	16	12	4	1,397	1,401
East Boston.....	39	2	37	1,020	1,057
Charlestown.....	22	0	22	818	840
Brighton.....	16	1	15	1,883	1,898
West Roxbury.....	49	2	47	3,509	3,556
Dorchester.....	61	3	58	5,007	5,065
Hyde Park.....	13	0	13	663	676
Totals.....	280	54	226	21,258	21,484

## Table of Approximate Quantities, Lifts and Duties at Calf Pasture Pumping Station from January 1, 1936, to December 31, 1936, Inclusive.

MONTH.	Total Gallons Pumped.	Average per Day Gallons.	Minimum per Day Gallons.	Maximum per Day Gallons.	Average Lift. (Feet.)
January.....	3,288,756.183	106,088,909	82,895,125	143,028,200	39.2
February.....	3,076,344.999	106,080,862	80,695,018	156,462,011	39.2
March.....	3,552,187.928	114,586,707	93,004,701	158,886,381	39.2
April.....	3,372,452,500	112,415,083	64,680,000	144,835,000	39.2
May.....	3,131,624,605	100,697,568	77,252,319	146,930,000	39.2
June.....	3,065,753,516	102,191,784	91,520,322	174,518,320	39.2
July.....	3,070,800,793	99,058,090	82,462,450	103,424,248	39.2
August.....	3,392,584,715	109,438,217	91,799,194	144,573,952	39.2
September.....	3,203,111,273	106,770,376	87,891,106	168,878,612	39.2
October.....	3,424,019,951	110,452,257	91,947,859	145,112,700	39.2
November.....	2,922,294,293	97,409,809	86,002,642	136,772,202	39.2
December.....	3,779,330,009	121,913,871	84,310,997	179,756,596	39.2
Total.....	39,279,260,765				
Average.....	3,273,271,730	107,320,385			39.2

NOTES.—12,929,700,765 gallons pumped by oil; 658,316 gallons of fuel oil used.

26,349,560,000 gallons pumped by electric power; 4,476,470 kilowatt hours used.

Quantities are based on plunger displacement and pump ratings, no allowance having been made for slip or condition of pump.

Running Time of Pumps.—No. 1-A, 5,895 hours, 40 minutes; No. 2-A, 1,976 hours, 10 minutes; No. 2-B, 1,843 hours, 55 minutes; No. 3, 3,392 hours, 45 minutes; No. 4, 4,631 hours; No. 5, 7,324 hours, 31 minutes.

Total gallons pumped in 1936 . . . . .	39,279,260,765
Daily average gallons pumped . . . . .	107,320,385
Average dynamic head . . . . .	39.2
Foot gallons, total . . . . .	1,539,747,021,988
Foot pounds, total . . . . .	12,886,142,827,008

## Cost of Pumping for 1936.

ITEMS.	Cost.	Cost per Million Foot Gallons.
Labor.....	\$96,959 60	\$0.06298
Fuel oil.....	21,518 02	0.01397
Edison power.....	45,014 16	0.02923
Oils and waste.....	1,144 08	0.00074
Rubber valves and packing.....	371 09	0.00024
Miscellaneous renewals and supplies.....	3,129 95	0.00203
Totals.....	\$168,136 90	\$0.10919
Labor at screens.....	10,859 15	0.00705
Cleaning pump wells.....	825 00	0.00054
Cleaning oil tanks.....	400 00	0.00026
Grand totals.....	\$180,221 05	\$0.11704

## Amount of Refuse Removed from Filth Hoist.

MONTH.	Number of Cheeses.	Pounds.
January.....	109	26,269
February.....	107	25,787
March.....	99	23,859
April.....	97	23,377
May.....	138	33,258
June.....	126	30,258
July.....	120	28,920
August.....	97	23,377
September.....	100	24,100
October.....	80	19,280
November.....	91	21,931
December.....	63	15,183
Total.....	1,227	295,599 = 147.8 tons.

Cheeses average 241 pounds.

	North Sewer.	South Sewer.	Total.
Cubic yards sludge in deposit sewers, January 1, 1936.....	1,817	926	2,743
Deposited during 1936.....	384	667	1,051
	2,201	1,593	3,794
Sludge removed during 1936.....	129	197	326
In sewers January 1, 1937.....	2,072	1,396	3,468

## APPENDIX E.

REPORT OF THE DIVISION ENGINEER OF  
THE WATER DIVISION.

BOSTON, January 2, 1937.

*To the Commissioner of Public Works:*

I respectfully submit the following report of the activities of the Water Division, operations and expenditures, for the fiscal year ending December 31, 1936:

The Engineering Branch of the division was engaged in the extension and improvement of the distribution system, most of the work being performed by the W. P. A. forces under the general supervision of the division's regular engineering and inspection forces. Pipe was purchased mainly with money supplied by the Federal Emergency Relief Administration and the funds of the Water Division were used to supply cast-iron specials, gates, hydrants, lead, boxes, etc. A total of 49,938 feet of pipe were either laid or relaid, of which the W. P. A. forces performed 44,700 feet of pipe laying varying in size from 6-inch to 24-inch, inclusive, the remainder being performed by the department forces or private contractors engaged by the Water Division.

In district the extension of water mains laid were:

City Proper . . . . .	0 feet.
East Boston . . . . .	191 feet.
Dorchester . . . . .	4,308 feet.
West Roxbury . . . . .	16,313 feet.
South Boston . . . . .	127 feet.
Roxbury . . . . .	0 feet.
Brighton . . . . .	134 feet.
Hyde Park . . . . .	836 feet.

Total, 21,909 feet or 4.15 miles.

Of the above work, 19,200 feet, or 3.64 miles, were laid by W. P. A. forces.

Some of the longer lengths were:

## DORCHESTER.

Old Colony Parkway, Mt. Vernon street to Savin Hill avenue, 3,600 feet.

This provides a second supply line to that section of Savin Hill avenue east of the New York, New Haven & Hartford Railroad which was dependent upon only one 12-inch feed.

## LONG ISLAND.

Boston Harbor, 600 feet.

## WEST ROXBURY.

Veteran of Foreign Wars Parkway, Bussey and South streets to Baker street, 6,700 feet.

The above provides an additional circumferential feed to the West Roxbury district from the 24-inch main in Bussey street.

Centre and Stimson streets, from Spring to Washington street, 20-inch pipe, 7,500 feet.

The above improves the system in the West Roxbury area by extending the terminus of the 20-inch feeder main from the junction of Centre and Spring streets to Washington and Stimson streets.

Other extensions in the West Roxbury area were occasioned by petitions for new building construction, as follows:

Hazelmere road, 8-inch pipe . . . . .	129 feet.
Havelock street, 8-inch pipe . . . . .	349 feet.
Morey road, 12-inch pipe . . . . .	132 feet.
West Roxbury Parkway, 8-inch pipe . . . . .	42 feet.
West Roxbury Parkway, 12-inch pipe . . . . .	241 feet.
George street, 8-inch pipe . . . . .	155 feet.
Portina road, 8-inch pipe . . . . .	197 feet.
Pine Lodge road, 8-inch pipe . . . . .	327 feet.
Farmington road, Maple street, Rendall road and Cranston street, 8-inch and 12-inch pipe . . . . .	767 feet.

In continuation of the policy of replacing older and smaller water mains with larger sizes for the improve-

ment of fire protection in the more densely populated section of the city, 28,029 feet, or 5.30 miles, of 4-inch, 6-inch and 8-inch pipes laid fifty years or more ago, were replaced with 8-inch and 12-inch pipes. Of this relay work, 25,500 feet, or 4.83 miles, were performed by the W. P. A. forces.

In districts the older and smaller size mains were relaid with new and larger size mains, as follows:

City Proper . . . . .	628 feet.
South Boston . . . . .	3,480 feet.
East Boston . . . . .	170 feet.
Charlestown . . . . .	6,328 feet.
Roxbury . . . . .	583 feet.
Dorchester . . . . .	1,204 feet.
Brighton . . . . .	6,230 feet.
West Roxbury . . . . .	0 feet.
Hyde Park . . . . .	9,406 feet.
Total . . . . .	<hr/> 28,029 feet.

The following streets were relaid:

- Mercantile street, City Proper, 200 feet 6-inch pipe with 8-inch pipe.
- Union Wharf, City Proper, 245 feet 6-inch pipe with 6-inch pipe.
- Pemberton square, City Proper, 90 feet 4-inch pipe with 6-inch pipe.
- Tavern road, Roxbury, 583 feet 6-inch pipe with 8-inch pipe.
- Wales street, Dorchester, 1,204 feet 6-inch pipe with 12-inch pipe.
- E street, South Boston, 2,250 feet 6-inch pipe with 12-inch pipe.
- F street, South Boston, 1,230 feet 6-inch pipe with 8-inch pipe.
- Under Shirley Gut to Deer Island, 170 feet 12-inch relaid with 12-inch pipe.
- Medford street Charlestown, 5,800 feet 20-inch relaid with 24-inch pipe; 520 feet 30-inch relaid with 30-inch pipe.
- Fairmount avenue, Summit avenue and Milton avenue, Hyde Park, 3,200 feet 14-inch relaid with 12-inch pipe.
- Warren avenue, Spring Hill road, Pleasant street, Albion street and New Bedford street, Hyde Park, 3,595 feet 4 and 6-inch relaid with 8-inch pipe.
- Loring street, Mt. Pleasant street, Summit street and Foster street, Hyde Park, 2,068 feet, 4 and 6-inch relaid with 8-inch and 12-inch pipe.
- Henshaw street, Menlo street and Sparhawk street, Brighton, 2,236 feet 6-inch relaid with 8-inch and 12-inch pipe.
- Saunders street, Barstow street, Gilford street, Pomeroy street and Gordon street, Brighton, 2,297 feet 6-inch relaid with 8-inch and 12-inch pipe.

Larch street, Brighton, 417 feet 12-inch relaid with 12-inch pipe.  
Academy Hill road, Hobart street and Parsons street, Brighton,  
1,085 feet 6-inch relaid with 12-inch pipe.

The regular work of the Distribution Branch, consisting of installation of new services and fire pipes, repairing of leaks, caring for complaints, shutting off and letting on of water, freeing of stoppages in service pipes, etc., was performed in such a manner and at such periods as to cause minimum delay and inconvenience to applicants for water, water takers and the general public.

A tremendous increase in the amount of the work performed was occasioned by the laying out of new streets with the resultant regulating of gate boxes, shut-off frames and covers, hydrants, services and the installation of new services on the relaying work by the W. P. A. forces. The machine shop and plumbing shop were forced to handle all the drilling and connecting of service pipes occasioned by the above-mentioned forces in addition to the regular work carried on in these shops, such as the assembling and machining of gates, valves and hydrants.

Respectfully submitted,

D. M. SULLIVAN,  
*Division Engineer.*



## 1936 — Financial Transactions — Water Division.

Balance after deducting expenditures of Water Income Division . . . . .		\$4,269,723 10
Expenditures from Revenue:		
Current expenses and extensions . . . . .	\$1,044,980 08	
Metropolitan Water Assessment . . . . .	3,142,714 27	
		<u>4,187,694 35</u>
		\$82,028 75
Expenditures on Debt Account:		
Payments on Boston water debt . . . . .	\$34,000 00	
Payments on Hyde Park water debt, . . . . .	16,000 00	
Payments on interest on water loans, . . . . .	32,028 75	
		<u>\$2,028 75</u>
		<u>\$00,000 00</u>
Loan Account:		
Balance outstanding January 1, 1936, . . . . .	\$1,012,000 00	
Incurred during year . . . . .	20,000 00	
		<u>\$1,032,000 00</u>
Total loans . . . . .	\$1,032,000 00	
Paid during year . . . . .	89,000 00	
		<u>\$943,000 00</u>
Balance outstanding December 31, 1936 . . . . .		<u>\$943,000 00</u>
Construction Account:		
Extension of mains from revenue . . . . .	\$206,076 09	
P. W. A. Project No. 4214, Brookline avenue, Federal loan . . . . .	36,281 47	
P. W. A. Project No. 7223, Water Main Construction, Federal loan, . . . . .	21,847 30	
P. W. A. Project No. 1123R, Chelsea North Bridge, Federal loan . . . . .	24,377 19	
		<u>\$288,582 05</u>
Total construction 1936 . . . . .		<u>\$288,582 05</u>
Cost of construction December 31, 1936 . . . . .	\$23,776,486 33	
Cost of construction December 31, 1935 . . . . .	23,487,904 28	
		<u>\$288,582 05</u>
Increase in plant cost during 1936, . . . . .		<u>\$288,582 05</u>
Cost of existing works December 31, 1936 . . . . .		
Pipe yards and buildings . . . . .	\$94,832 16	
Engineering expenses . . . . .	57,873 58	
Distribution system (additions during 1936, \$288,582.05) . . . . .	* 23,448,780 59	
Hyde Park water works . . . . .	175,000 00	
		<u>\$23,776,486 33</u>
High Pressure Fire Service . . . . .		† 2,293,316 75
		<u>\$26,069,803 08</u>
Total cost . . . . .		<u>\$26,069,803 08</u>

\* Includes \$155,023.89 expended for High Pressure Fire Service in 1925, 1926, 1931, 1932, 1933.

† \$33,850.96 deducted from cost of High Pressure Fire Service, on account of abandonment of Pumping Station, Battery street.

Table No. 1.

Showing Length of Water Pipes and Connections Owned and Operated by the Public Works Department, Water Division, Water Service and Number of Valves in Same, December 31, 1936.

	DIAMETER OF PIPES IN INCHES.													Totals.			
	48.	42.	40.	36.	30.	24.	20.	16.	14.	12.	10.	8.	6.		4.	3.	2.
Length owned and operated December 31, 1935	41,385	15,980	9,599	44,448	90,623	83,549	86,581	311,139	4,966	1,731,170	453,398	1,123,514	1,045,000	72,206	11,225	6,509	5,131,29
Gate valves in same	27	4	5	25	56	77	73	739	18	4,932	1,570	4,162	3,390	553	18	16	15,665
Air valves in same	61	5	10	35	114	80	44	96	...	57	1	5	...	...	1	...	509
Blow-offs in same	11	4	6	11	33	35	48	75	...	162	40	201	144	66	15	2	853
Length laid and re-laid during 1936					525	1	7,405	6,777	...	18,035	14	10,202	1,240	318	...	...	44,517
Gate valves in same					...	1	6	4	...	70	2	52	3	4	...	...	144
Air valves in same					...	1	9	2	...	5	...	...	...	...	...	...	18
Blow-offs in same					...	1	6	2	...	2	...	8	...	...	...	...	23
Length abandoned during 1936					525	...	...	70	3,066	1,083	26	353	14,093	3,590	...	...	22,809
Gate valves in same					...	...	...	2	3	5	1	4	78	4	...	...	97
Air valves in same					1	...	...	...	...	...	...	...	...	...	...	...	1
Blow-offs in same					...	...	...	...	...	...	...	...	...	...	...	...	8
Length owned and operated December 31, 1936	41,385	15,980	9,599	44,448	90,623	83,549	93,987	317,846	1,900	1,748,122	453,386	1,133,363	1,032,147	68,934	11,225	6,509	5,153,003
Gate valves in same	27	4	5	25	56	78	79	743	15	4,937	1,571	4,210	3,315	553	08	16	15,712
Air valves in same	61	5	10	35	113	80	53	100	...	62	1	5	...	...	1	...	526
Blow-offs in same	11	4	6	11	33	36	54	77	...	162	40	205	144	68	15	2	868

975.94 miles in system.

Table No. II.

## HIGH PRESSURE FIRE SERVICE.

*Showing Length of Water Pipes, Connections, Hydrants and Valves in Same,  
December 31, 1936.*

	20-Inch.	16-Inch.	12-Inch.	8-Inch.	6-Inch.	Totals.
Length owned and operated December 31, 1935.....	20,140	46,953	31,756	.....	.....	98,849
Gates in same.....	.....	201	144	502	.....	847
Blow-offs in same.....	.....	.....	.....	.....	6	6
Length laid in 1936.....	—	—	—	—	—	—
Gate valves in same.....	—	—	—	—	—	—
Length owned and operated December 31, 1936.....	20,140	46,953	31,756	.....	.....	98,849
Gate valves in same.....	.....	201	144	502	.....	847
Blow-offs in same.....	.....	.....	.....	.....	6	6
High-pressure fire hydrants.....	.....	.....	.....	.....	.....	505

18.72 miles in system.

Table No. III.

Total Number of Hydrants in System December 31, 1936.

	Lowly.	Boston Lowly.	Boston Post.	Ordinary Post.	Batchelder and Fineran Post.	Ludlow Post.	Chapman Post.	Coffin Post.	Matthews Post.	Boston.	Totals.
Brighton (public).....	7	16	245	353	448					8	1,077
“ (private).....				8						2	10
Charlestown (public).....	33	14	115	42	141					2	347
“ (private).....	13	1	2	37						5	58
City Proper (public).....	400	26	357	208	475					46	1,512
“ (private).....	5		9	1	2					37	54
Dorchester (public).....	59	83	628	972	830					13	2,585
“ (private).....	1	1	9		2					4	17
East Boston (public).....	11	7	155	180	184					5	542
“ (private).....	8	1		9						25	43
Hyde Park (public).....			72	79	471	2	35	1			660
“ (private).....						13	55		4		72
Roxbury (public).....	20	30	290	240	959					1	1,540
“ (private).....	2	1	3	4	2					9	21
South Boston (public).....	57	15	187	168	218					14	659
“ (private).....	4	1	1	14	1					27	48
West Roxbury (public).....	8	123	353	926	873					13	2,296
“ (private).....				15	1					1	17
Deer Island (private).....			2	18							20
Gallup's Island (private).....				3						1	4
Long Island (private).....				6							6
Rainsford Island (private).....				3							3
Thompson's Island (private).....				2							2
Quincy.....				9							9
Total number (public).....	595	314	2,402	3,168	4,599	2	35	1		102	11,218
Total number (private and suburban).....	33	5	26	129	8	13	55		4	111	384

WATERWORKS STATISTICS, CITY OF BOSTON.  
FOR THE FISCAL YEAR ENDING DECEMBER 31, 1936.

## DISTRIBUTION.

*Mains.*

Kind of pipe: Cast-iron, wrought iron, steel.  
Size: 2-inch to 48-inch.  
Extended, miles, 4.173.  
Size enlarged, miles, 3.289.  
Total miles now in use, 975.94.  
Public hydrants added, 13.  
Public hydrants now in use, 11,218.  
Stop gates added, 47.  
Stop gates now in use, 15,678.  
Stop gates smaller than 4-inch, 34.  
Number of blow-offs, 868.  
Range of pressure on mains, 30 to 90 pounds.

*Service.*

Kind of pipe and size: Lead and lead lined,  $\frac{1}{2}$ -inch to 2-inch; cast-iron, 2-inch to 16-inch; wrought iron and cement lined,  $\frac{3}{4}$ -inch to 2-inch, brass and copper,  $\frac{5}{8}$ -inch to 2 $\frac{1}{2}$ -inch.  
Total service taps now in use as per metered services, 101,608.

## Cost of Abandoned Main Pipe.

STREET.	Location.	District.	Size (Inch.)	Feet.	Cost of Depart- ment Materials, etc.	Cost of Labor.	Cost of Inspec- tion.	Total Cost.	Remarks.
West Fifth Street place.....	From West Fifth street.....	South Boston.	6	200	\$50 40	\$93 90	.....	\$144 30	Private, gravel.
Ralston street.....	Between Dorchester avenue and Old Colony avenue.	South Boston.	10	12	.....	407 24	.....	407 24	Street abandoned.
Colwell road.....	Between Portina road and Chestnut Hill avenue.	Brighton.	12	114	.....	133 00	.....	133 00	Private, clay.

Cost of Relocation of Main Pipe.

STREET.	Location.	District.	Size (Inches).	Feet.	Cost of Department Materials, etc.	Cost of Labor.	Cost of Inspection.	Total Cost.	Original Size (Inches).	Feet.	Remarks.
Portina road.....	At Cobwell avenue.....	Brighton.	8	63	\$135 96	\$128 46	\$7 33	\$271 75	8	63	Private, clay.
Mt. Hope street.....	At Stony Brook conduit.....	West Roxbury.	8	72	85 61	104 47	6 37	196 45	8	72	Public, sandy clay.
Larch street.....	Between Kenrick street and South Crescent Circuit.	Brighton.	12	481	\$221 57	\$232 93	\$13 70	\$468 20	8	135	
Point Shirley.....	Winthrop.....	East Boston.	12	170	\$643 18	.....	\$40 27	\$683 45	12	481	W. P. A. Project 10083.
Vaughan street.....	Between Stark and Mamla avenues.	Hyde Park.	12	170	348 41	\$823 46	.....	1,171 87	12	170	At Shirley Gut.
			12	276	122 84	600 06	100 40	823 30	12	276	Private, peat bottom, swamp land.
			12	927	\$1,114 43	\$1,423 52	\$140 67	\$2,678 62	12	927	
			12	20	.....	.....	.....	.....	12	20	
			16	46	.....	.....	.....	.....	16	46	
			16	24	.....	.....	.....	.....	16	24	
			12	20	.....	.....	.....	.....	12	20	
			16	70	.....	.....	.....	.....	16	70	
			30	525	\$3,803 08	\$24,420 43	\$238 30	\$28,461 81	30	525	On account bridge construction.
Tremont street.....	At Temple place.....	City Proper.	12	20	\$538 74	\$304 24	.....	\$842 98	12	20	Public, on account subway work.
			16	46	.....	.....	.....	.....	16	46	
			16	24	.....	.....	.....	.....	16	24	
			12	20	.....	.....	.....	.....	12	20	
			16	70	.....	.....	.....	.....	16	70	
Chelsea North drawbridge.	Over Mystic river.....	Charlestown.	30	525	\$3,803 08	\$24,420 43	\$238 30	\$28,461 81	30	525	On account bridge construction.

## Cost of Replacement of Main Pipe.

STREET.	Location.	District.	Size. (Inches.)	Feet.	Cost of Depart- ment Materials, etc.	Cost of Labor.	Cost of Inspec- tion.	Total Cost.	(Original Size) (Inches.)	Feet.	Remarks.
Union wharf.....	Between Commercial street and end of wharf.	City Proper.	6	245	\$436 87	\$833 06	\$15 98	\$1,285 91	6	245	Private, granite block and concrete base.
Barstow street.....	From Saunders street to dead end.	Brighton.	8	207	\$629 40	.....	\$43 98	\$673 38	6	207	W. P. A. Project 8731.
Pomeroy street.....	Between Saunders and Gor- don streets.	Brighton.	8	368	890 85	.....	40 32	931 17	6	368	W. P. A. Project 8731.
Guilford street.....	Between Saunders and Pom- eroy streets.	Brighton.	8	347	866 77	.....	58 64	925 41	6	347	W. P. A. Project 8731.
Gordon street.....	Between North Beacon and Cambridge streets.	Brighton.	8	535	1,480 95	.....	109 95	1,590 90	6	535	W. P. A. Project 8731.
Pemberton square.....	In Pemberton square.....	City Proper.	8	90	92 59	\$210 77	.....	303 36	4	90	Public, asphalt.
Mercantile street.....	Between South Market and Clinton streets.	City Proper.	8	200	971 00	938 68	23 91	1,933 59	6	200	Public, granite block and concrete base.
Warren avenue.....	Between Summit and High- land streets.	Hyde Park.	8	70	158 51	.....	4 58	163 09	6	70	W. P. A. Project 4567.
Spring Hill road.....	Between Highland street and Milton avenue.	Hyde Park.	8	675	1,037 82	.....	87 96	1,125 78	4	675	W. P. A. Project 8680.
Pleasant street.....	Between Milton avenue and Yose street.	Hyde Park.	8	905	2,267 30	.....	212 57	2,479 87	4	905	W. P. A. Project 8680.
Milton avenue.....	Between Beacon and Pleas- ant streets.	Hyde Park.	8	114	.....	.....	.....	.....	4	114	W. P. A. Project 8680.
Warren avenue.....	Between Beacon and High- land streets.	Hyde Park.	8	679	1,263 64	.....	43 98	1,307 62	4	679	W. P. A. Project 8680.



Albion street	Between Beacon and High-land streets.	Hyde Park.	8	669	1,228 11	95 29	1,323 40	4	669	W. P. A. Project 8680.
New Bedford street	From Beacon street	Hyde Park.	8	554	874 45	95 29	969 74	6	554	W. P. A. Project 8680.
Foster street	At Loring street	Hyde Park.	8	227	596 71	21 99	618 70	6	227	W. P. A. Project 10351.
Chittick road	At Loring street	Hyde Park.	8	14	596 71	21 99	618 70	6	14	W. P. A. Project 10351.
Garfield avenue	At Loring street	Hyde Park.	8	58	596 71	21 99	618 70	6	58	W. P. A. Project 10351.
Mt. Pleasant street	Between Pond and Summit streets.	Hyde Park.	8	458	1,150 37	54 98	1,205 35	4	458	W. P. A. Project 10351.
Clenwood avenue	At Loring street	Hyde Park.	8	63	304 57	7 33	311 90	6	63	W. P. A. Project 10351.
Tavern road	Between Field and Ruggles streets.	Roxbury.	8	574	1,374 42	169 50	1,543 92	6	574	W. P. A. Project 9332.
F street	Between West, Fourth and West Seventh streets.	South Boston.	8	887	4,196 37	372 00	4,568 37	6	887	W. P. A. Project 5271.
West Seventh street	Between E and F streets	South Boston.	12	12	304 57	7 33	311 90	6	12	W. P. A. Project 5271.
Tudor street	East and west of F street	South Boston.	{ 6 8 59	{ 8 59	304 57	7 33	311 90	{ 6 12	{ 8 67	{ W. P. A. Project 5271. W. P. A. Project 5271.
West Sixth street	East and west of F street	South Boston.	{ 6 12 55	{ 4 55	304 57	7 33	311 90	{ 6 6	{ 59 59	{ W. P. A. Project 5271. W. P. A. Project 5271.
West Fifth street	East and west of F street	South Boston.	{ 6 12 50	{ 2 50	304 57	7 33	311 90	{ 6 6	{ 52 52	{ W. P. A. Project 5271. W. P. A. Project 5271.
Gold street	East and west of F street	South Boston.	{ 6 4 54	{ 4 54	304 57	7 33	311 90	{ 6 6	{ 58 58	{ W. P. A. Project 5271. W. P. A. Project 5271.
Totals			{ 6 18 7,807 12 117	{ 18 117	\$19,383 83	\$1,149 45	\$21,975 55	{ 4 3,590 6 4,340 12 12	{ 6 939 36 34	{ W. P. A. Project 4567. W. P. A. Project 4567.
Sparhawk street	Between Menlo and Cambridge streets.	Brighton.	12	975	\$3,516 98	\$315 26	\$3,832 24	{ 6 8	{ 939 36	{ W. P. A. Project 4567. W. P. A. Project 4567.
Elko street	At Sparhawk street	Brighton.	8	34	\$3,516 98	\$315 26	\$3,832 24	6	34	W. P. A. Project 4567.

## Cost of Replacement of Main Pipe.—Concluded.

Street.	Location.	District.	Size (Inches).	Feet.	Cost of Depart- ment Materials, etc.	Cost of Labor.	Cost of Inspection.	Total Cost.	Original Size (Inches).	Feet.	Remarks.
Menlo street	Between Sparhawk and Henshaw streets.	Brighton.	12	483	\$1,594 19		\$73 31	\$1,667 50	6	483	W. P. A. Project 5282.
Henshaw street	Between Menlo and Market streets.	Brighton.	12	648					6	648	W. P. A. Project 5282.
Bentley street	At Henshaw street	Brighton.	8	28	2,339 14		168 67	2,507 81	6	28	W. P. A. Project 5282.
Waldo terrace	At Henshaw street	Brighton.	8	7					8	7	W. P. A. Project 5282.
Wirsh street	At Henshaw street	Brighton.	8	6					8	6	W. P. A. Project 5282.
Market street	Between Washington and Henshaw streets.	Brighton.	12	72	693 87		44 00	737 87	8	72	W. P. A. Project 5282.
Saunders street	Between North Beacon and Cambridge streets.	Brighton.	12	859	3,640 62		315 19	3,955 81	6	859	W. P. A. Project 8731.
Academy Hill road	Between Washington street and Chestnut Hill avenue.	Brighton.	12	718	2,744 49		161 26	2,905 75	6	718	W. P. A. Project 9347.
Parkland street	At Academy Hill road	Brighton.	8	18					6	18	W. P. A. Project 9347.
Parsons street	Between Bennett and Surrey streets.	Brighton.	12	367	1,329 36		175 92	1,505 28	6	367	W. P. A. Project 9347.
Wales street	Between Blue Hill avenue and Harvard street.	Dorchester.	12	1,215	4,038 53		350 92	4,389 45	6	1,215	W. P. A. Project 4730.
Milton avenue	Between Prospect and Summit streets.	Hyde Park.	12	450	974 37		168 63	1,143 00	14	450	W. P. A. Project 4567.
Reservoir road	At Milton avenue	Hyde Park.	8	8					8	8	W. P. A. Project 4567.
Summit street	Between Milton avenue and Mt. Pleasant street.	Hyde Park.	12	1,043					14	1,043	W. P. A. Project 4567.
Norway park	At Summit street	Hyde Park.	8	27	2,844 84		153 97	2,998 81	8	27	W. P. A. Project 4567.
Farwell avenue	At Summit street	Hyde Park.	8	2					8	2	W. P. A. Project 4567.

Highland street.....	Hyde Park.	12	79	336 28	.....	3 67	339 95	6	79	W. P. A. Project 4567.
Fairmount avenue .....	Hyde Park.	12	1,573	4,028 18	.....	267 60	4,295 78	14	1,573	W. P. A. Project 4567.
Tilston street.....	Hyde Park.	12	123	311 44	\$358 20	19 20	688 84	6	123	Public, peat bottom.
Summit street.....	Hyde Park.	12	570	1,960 24	.....	84 30	2,044 54	6	570	W. P. A. Project 10351.
Loring street.....	Hyde Park.	12	895	3,185 82	.....	212 57	3,398 39	6	895	W. P. A. Project 10351.
Tyler street.....	Hyde Park.	12	6	44 01	110 82	55 45	210 28	12	6	W. P. A. Project 10351.
Old Colony avenue .....	South Boston.	12	4	.....	.....	.....	.....	12	4	Public, asphalt.
E street.....	South Boston.	12	2,017	.....	.....	.....	.....	6	2,017	W. P. A. Project 5271.
Tudor street.....	South Boston.	8	54	.....	.....	.....	.....	6	54	W. P. A. Project 5271.
West Sixth street.....	South Boston.	10	14	.....	.....	.....	.....	10	14	W. P. A. Project 5271.
Bowen street.....	South Boston.	8	30	.....	.....	.....	.....	6	30	W. P. A. Project 5271.
West Fifth street.....	South Boston.	{ 6 12	{ 4 54	.....	.....	883 27	12,186 25	6	58	W. P. A. Project 5271.
Gold street.....	South Boston.	{ 6 8	{ 4 53	.....	.....	.....	.....	6	57	W. P. A. Project 5271.
Silver street.....	South Boston.	{ 6 8	{ 4 54	.....	.....	.....	.....	6	58	W. P. A. Project 5271.
West Broadway.....	South Boston.	{ 12 56	{ 4 56	.....	.....	.....	.....	8	60	W. P. A. Project 5271.
Athens street.....	South Boston.	{ 6 8	{ 4 54	.....	.....	.....	.....	6	58	W. P. A. Project 5271.
Totals.....	.....	{ 6 8 10 12	{ 16 379 14 2,207	\$44,885 34	\$469 02	\$3,453 19	\$48,807 55	.....	.....	.....

## Cost of Extension of Main Pipe.

STREET.	Location.	District.	Size (Inches).	Feet.	Cost of Department Materials, etc.	Cost of Labor.	Cost of Inspection.	Total Cost.	Remarks.
Bennet place.....	Between Marion and Brooks streets.	East Boston.	4	191	\$428 73	\$716 44	\$5 25	\$1,150 42	Private, artificial stone and gravel.
Lawrence court.....	Between West Third street and dead end.	South Boston.	4	127	345 92	612 49	76 50	1,034 91	Private, artificial stone and gravel.
	Totals.....		4	318	\$774 65	\$1,328 93	\$81 75	\$2,185 33	
Andrews place.....	From dead end to new dead end.	City Proper.	6	30	\$31 72	\$59 40	.....	\$91 12	Private, gravel.
Victor street.....	Between Dean street and Brook avenue.	Roxbury.	6	108	226 59	421 75	23 91	672 22	Public, gravel.
Eliot place.....	Between Eliot street and dead end.	West Roxbury.	6	224	267 22	385 00	20 08	672 30	Private, clay, gravel.
Long Island.....	Boston Harbor.....		6	599	444 85	563 36	.....	1,008 21	Private.
	Totals.....		6	961	\$970 38	\$1,429 51	\$43 99	\$2,443 88	
Portina road.....	Between Embassy road north of Colwell road.	Brighton.	8	134	\$218 97	\$241 50	\$29 32	\$489 79	Private, clay, rock.
Ruskin road.....	From Tacoma street.....	Hyde Park.	8	42	94 56	79 60	14 66	188 82	Private, gravel, rock.
George street.....	From end of existing public street.	Hyde Park.	8	155	367 22	243 52	26 77	637 51	Private, gravel, rock.
Mercer street.....	Between Tileston street and dead end.	Hyde Park.	8	229	510 47	375 86	40 14	926 47	Private, boulders, clay.
Glenwood avenue.....	East of Loring street.....	Hyde Park.	8	17	77 86	.....	3 66	81 52	W. P. A. Project 10351.
Hazlemere road.....	Between Knoll street and dead end.	West Roxbury.	8	129	179 15	337 30	35 06	551 51	Private, ash fill, peat bottom.
Haviland road.....	Between Hazlemere road and dead end.	West Roxbury.	8	134	249 78	332 83	14 66	597 27	Private, ash fill, peat bottom.

Hobson street	West Roxbury.	8	42	94 14	62 68	1 83	158 65	Private, sandy, wet clay.
Cranston road	West Roxbury.	8	177	300 55		20 16	320 71	W. P. A. Project 8664.
Crehore road	West Roxbury.	8	24	28 85	72 57	6 69	108 11	Private, clay, rock.
Pine Lodge road	West Roxbury.	8	327	542 92	738 77	40 14	1,321 83	Private, gravelly, clay, ledge.
Haviland road	West Roxbury.	8	213	377 44	333 88	26 76	738 08	Private, ash fill, peat bottom.
Rendall road	West Roxbury.	8	258	479 78		77 14	556 92	W. P. A. Project 8664.
Totals		8	1,881	\$3,521 69	\$2,818 51	\$836 99	\$6,677 19	
Old Colony Parkway	Dorchester.	12	3,383	\$9,165 69		\$1,019 10	\$10,184 79	W. P. A. Project 7090.
Old Colony terrace	Dorchester.	12	215	783 29		122 97	906 26	W. P. A. Project 7090.
Williams avenue	Hyde Park.	12	170	317 71	\$253 73	12 75	584 19	Public, clay, wet gravel.
Morey road	West Roxbury.	12	130	476 32	282 15	35 06	793 53	Private, clay, rock.
East Border road	West Roxbury.	12	222	444 31	371 64	47 66	863 61	Metropolitan Parks District.
Orange street	West Roxbury.	12	20	41 06	29 85	9 18	80 09	Public, clay.
Maple street	West Roxbury.	12	144	588 83		49 47	638 30	W. P. A. Project 8664.
Veterans of Foreign Wars Parkway.	West Roxbury.	12	135	379 45		69 64	449 09	W. P. A. Project 8664.
Farmington road	West Roxbury.	12	185	570 91		82 65	653 56	W. P. A. Project 8664.
Totals		12	4,604	\$12,767 57	\$937 37	\$1,448 48	\$15,153 42	

Cost of Extension of Main Pipe.—Concluded.

STREET.	Location.	District.	Size (Inches.)	Feet.	Cost of Depart-ment Materials, etc.	Cost of Labor.	Cost of Inspe-ction.	Total Cost.	Remarks.
Veterans of Foreign Wars Parkway.	Between Corey street and West Roxbury Parkway.	West Roxbury.	16	4,686	\$23,743 08	.....	\$2,100 20	\$25,933 28	W. P. A. Project 5279.
Bridle Path, .....	Between Walter and Centre streets.	West Roxbury.	16	1,007	5,022 28	.....	286 27	5,308 55	W. P. A. Project 5279.
Veterans of Foreign Wars Parkway.	Between La Grange and Baker streets.	West Roxbury.	16	1,014	4,102 97	.....	228 37	4,331 54	W. P. A. Project 5279.
Centre street, .....	Totals.....	.....	16	6,707	\$32,868 33	.....	\$2,705 04	\$35,573 37	.....
Stimson street, .....	Between Stimson and Spring streets.	West Roxbury.	20	5,805	\$50,605 13	.....	\$1,979 82	\$52,584 95	W. P. A. Project 1822.
Stimson street, .....	Between Washington and Centre streets.	West Roxbury	20	1,601	.....	.....	.....	.....	W. P. A. Project 1822.
Stimson street, .....	At Washington street.....	West Roxbury.	12	27	.....	.....	.....	.....	W. P. A. Project 1822.
Centre street, .....	At Stimson street.....	West Roxbury.	12	21	.....	.....	.....	.....	W. P. A. Project 1822.
Centre street, .....	At Grove street.....	West Roxbury.	12	94	.....	.....	.....	.....	W. P. A. Project 1822.
Centre street, .....	At Baker street.....	West Roxbury.	12	18	.....	.....	.....	.....	W. P. A. Project 1822.
	Totals.....	.....	{ 20	7,406	\$50,605 13	.....	\$1,979 82	\$52,584 95	.....
		.....	{ 12	160	.....	.....	.....	.....	.....

APPENDIX F.  

---

REPORT OF THE DIVISION ENGINEER OF  
THE WATER INCOME DIVISION.  

---

BOSTON, January 2, 1937.

*To the Commissioner of Public Works.*

I respectfully submit data and tables showing the activities of the Water Income Division for the year ending December 31, 1936.

Yours respectfully,

JAMES A. McMURRY,  
*Division Engineer.*

## Financial Transactions, Water Income Division.

Revenues:		
Receipts for water . . . . .	\$4,505,718 49	
All other receipts . . . . .	55,357 36	
	<hr/>	\$4,561,075 85
Transfer from Paving Service appropriation . . . . .	\$29,812 91	
Transfer from Sanitary Service appropriation . . . . .	30,645 83	
	<hr/>	
Total amount transferred to cover deficit . . . . .	60,458 74	
	<hr/>	\$4,621,534 59
Expenditures from revenue:		
Total receipts and credits . . . . .		
Current expenses of Water Income Division . . . . .	\$257,088 89	
Refunded water rates . . . . .	79 97	
Transfer to Collecting Department appropriation . . . . .	94,642 63	
	<hr/>	
Total . . . . .	351,811 49	
	<hr/>	\$4,269,723 10
Balance available for other water purposes . . . . .		



**Shutting Off and Turning On of Water in 1936.**

Number of shut-offs for repairs . . . . .	4,566
Number of premises turned on after repairs . . . . .	4,216
Number of shut-offs for vacancy . . . . .	1,449
Number of premises turned on for occupancy . . . . .	1,247
Number of shut-offs for nonpayment of water rates, Number of premises turned on again after being shut off for nonpayment . . . . .	327 281
Number of premises shut off on account of waste . . . . .	28
Number of premises turned on again after being shut off for waste . . . . .	14
Number of new service pipes turned on for first time, . . . . .	202
	<hr/>
Total number of times water was shut off or turned on . . . . .	<u>12,330</u>

**Statement of Each Year's Water Rates, 1912 to 1936, Inclusive,  
as of December 31, 1936.**

YEAR.	Amount Assessed.	Amount Abated.	Amount Collected.	Amount Outstanding.
1912 .....	\$3,001,771 87	\$58,369 39	\$2,943,402 48	
1913 .....	3,004,331 52	50,147 90	2,954,183 62	
1914 .....	3,034,885 83	64,653 01	2,970,232 82	
1915 .....	2,960,797 45	57,782 09	2,903,015 36	
1916 .....	3,130,590 53	67,771 69	3,062,818 84	
1917 .....	3,120,878 86	77,353 75	3,043,525 11	
1918 .....	3,359,714 95	162,415 52	3,197,299 43	
1919 .....	3,210,147 91	95,812 76	3,114,335 15	
1920 .....	3,503,677 88	123,509 90	3,380,167 98	
1921 .....	3,615,663 51	90,946 23	3,524,717 28	
1922 .....	3,612,715 51	90,453 27	3,522,262 24	
1923 .....	3,817,642 72	77,449 02	3,740,193 70	
1924 .....	3,832,531 26	43,663 01	3,783,363 20	\$5,505 05
1925 .....	3,875,434 21	39,069 54	3,829,117 89	7,246 78
1926 .....	3,910,119 54	44,694 94	3,858,293 66	7,130 94
1927 .....	3,979,153 63	44,172 42	3,916,844 97	18,136 24
1928 .....	4,418,039 84	37,785 78	4,371,225 00	9,029 06
1929 .....	5,018,524 39	44,913 83	4,958,606 40	15,004 16
1930 .....	4,864,180 27	44,120 22	4,799,707 79	20,352 26
1931 .....	4,749,546 18	45,709 43	4,672,789 34	31,047 41
1932 .....	4,611,460 09	37,257 12	4,525,109 21	49,093 76
1933 .....	4,572,539 96	34,178 29	4,429,707 95	108,653 72
1934 .....	4,703,851 58	48,810 89	4,435,074 31	219,966 38
1935 .....	4,630,082 58	38,016 41	4,108,748 01	483,318 16
1936 .....	4,664,439 46	13,580 79	2,842,775 59	1,808,083 08
Total outstanding water rates January 1, 1937 .....				\$2,782,567 00

## METER BRANCH.

Table No. 1. Statement of Work Done During the Year 1936.

MAKE.	New Sets.	Discontinued.	CHANGED.		Tested.	Repaired in Shop.	Repaired in Service.	Resets.
			Out.	In.				
Hersey disc . . . . .	153	536	4,067	4,887	9,376	6,294	1,179	392
Worthington disc . . . . .	19	72	915	595	1,686	724	53	36
Watch dog . . . . .	94	184	1,937	2,045	2,323	2,840	209	161
King . . . . .	4	24	519	14	547	18	235	1
Federal . . . . .		6	41	3	47	6	12	1
American . . . . .	4	11	112	165	180	289	59	20
Lambert . . . . .		2	21		23	4	23	
Crown . . . . .		5	27	1	33		25	
Trident . . . . .		1	13	1	15	1	14	
Hersey rotary . . . . .	1	1	12	2	16	6	26	
Keystone . . . . .		1	13		14			
Arctic . . . . .	4		5	4	13	5	8	1
Empire . . . . .			2		2			
Nash . . . . .			33		33		14	
Hersey detector . . . . .	5					1	135	
Totals . . . . .	284	843	7,717	7,717	14,308	10,188	1,992	612

Table No. 2. Meters in Service December 31, 1936.

MAKE.	DIAMETER IN INCHES.											Totals.
	$\frac{3}{8}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	3	4	6	8	10	12	
Hersey disc.....	52,822	3,673	1,789	952	387	160	116	30	1	.....	.....	59,930
Worthington disc.....	7,792	32	32	11	50	14	.....	.....	.....	.....	.....	7,931
Watch dog.....	22,235	986	1,061	725	425	339	78	.....	.....	.....	.....	25,849
King.....	2,524	175	11	20	13	.....	.....	.....	.....	.....	.....	2,743
Federal.....	721	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	721
American.....	734	277	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,011
Lambert.....	231	84	55	.....	13	.....	2	.....	.....	.....	.....	385
Crown.....	207	315	54	66	86	23	26	6	.....	.....	.....	783
Trident.....	141	3	6	1	12	10	11	1	1	2	.....	188
Hersey rotary.....	330	239	136	102	184	53	21	15	.....	.....	.....	1,080
Keystone.....	148	142	.....	7	3	.....	.....	.....	.....	.....	.....	300
Arctic.....	.....	.....	.....	25	18	21	10	.....	.....	.....	.....	74
Empire.....	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
Nash.....	112	244	23	5	6	.....	.....	.....	.....	.....	.....	390
Hersey detector.....	.....	.....	.....	.....	.....	4	48	61	35	26	5	179
Hersey compound.....	.....	.....	.....	.....	.....	1	11	13	.....	.....	.....	25
Totals.....	88,016	6,170	3,167	1,914	1,197	625	323	126	37	28	5	101,608

Table No. 3. Meters in Shop December 31, 1936.

MAKE.	DIAMETER IN INCHES.								Totals.
	$\frac{3}{8}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	3	4	6	
King.....	1,250	50	50	30	8	.....	.....	.....	1,388
Trident.....	.....	.....	.....	.....	.....	20	5	1	26
Hersey detector.....	.....	.....	.....	.....	.....	.....	5	.....	5
Hersey disc.....	1,571	21	.....	.....	.....	2	1	1	1,596
Watch dog.....	521	9	.....	.....	.....	.....	.....	.....	530
American.....	.....	37	.....	.....	.....	.....	.....	.....	37
Crown.....	.....	.....	.....	.....	.....	.....	.....	1	1
Keystone.....	.....	.....	.....	.....	.....	2	.....	1	3
Totals.....	3,342	117	50	30	8	24	11	4	3,586

Table No. 4. Meters Purchased in 1936.

MAKE.	DIAMETER IN INCHES.								Totals.
	$\frac{3}{8}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	3	4	6	
King.....	1,250	50	50	30	8	.....	.....	.....	1,388
Trident.....	.....	.....	.....	.....	.....	20	5	.....	25
Hersey disc.....	.....	.....	14	12	4	.....	.....	.....	30
Hersey detector.....	.....	.....	.....	.....	.....	.....	5	2	7
Totals.....	1,250	50	64	42	12	20	10	2	1,450

Table No. 5. Meters Reset.

MAKE.	DIAMETER IN INCHES.							Totals.	Occupied.	Connection Pieces.
	$\frac{3}{8}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	3	4			
Hersey disc.....	350	18	8	9	6	.....	1	392	78	314
Worthington disc.....	36	.....	.....	.....	.....	.....	.....	36	9	27
Watch dog.....	133	9	11	3	4	1	.....	161	30	131
King.....	1	.....	.....	.....	.....	.....	.....	1	.....	1
Federal.....	.....	.....	1	.....	.....	.....	.....	1	.....	1
American.....	17	3	.....	.....	.....	.....	.....	20	6	14
Arctic.....	.....	1	.....	.....	.....	.....	.....	1	.....	1
Totals.....	537	30	20	13	10	1	1	612	123	489

Table No. 6. Meters Repaired in Service.

MAKE.	Defaced.	Clock Broken.	Spindle Leak.	Coupling Leak.	Stoppage.	Miscellaneous.	Totals.
Hersey disc.....	117	15	422	580	34	11	1,179
Worthington disc.....	2	5	27	17	.....	2	53
Watch dog.....	44	7	88	56	5	9	209
King.....	21	28	161	12	.....	13	235
Federal.....	.....	.....	11	1	.....	.....	12
American.....	28	7	14	8	.....	2	59
Lambert.....	2	.....	7	7	2	5	23
Crown.....	3	2	.....	15	1	4	25
Trident.....	3	3	.....	4	1	3	14
Hersey rotary.....	5	.....	.....	17	.....	4	26
Arctic.....	2	2	2	1	.....	1	8
Nash.....	.....	.....	2	9	1	2	14
Hersey detector.....	36	55	.....	.....	.....	44	135
Totals.....	263	124	734	727	44	100	1,992

Table No. 7. Meters Changed in Year 1936.

MAKE.	METERS OUT. DIAMETER IN INCHES.						Totals	METERS IN. DIAMETER IN INCHES.						Totals		
	1/2	1	1 1/2	2	3	4		1/2	1	1 1/2	2	3	4			
															1/2	1
Hersey disc.....	3,565	250	119	65	37	25	6	4,067	4,297	305	137	74	47	20	7	4,887
Worthington disc.....	915							915	592			3				595
Watch, dog.....	1,638	101	96	52	36	14		1,937	1,716	130	90	59	38	12		2,045
King.....	496	16	3	3	1			519	14							14
Federal.....	41							41	3							3
American.....	62	50						112	120	45						165
Lambert.....	10	5	3	1	2			21								
Crown.....	12	5	2	1	4	1	2	27					1			1
Trident.....	12	1						13						1		1
Hersey rotary.....	1	5	3	2	1			12			1					2
Keystone.....	10		1			2		13								
Arctic.....				2	2		1	5					2	1	1	4
Empire.....	1		1					2								
Nash.....	25	7	1					33								
Totals.....	6,788	440	229	126	83	42	9	7,717	6,742	481	228	136	88	34	8	7,717

Table No. 8. Causes for Meter Changes.

MAKE.	Tested.	Don't Register.	No Force.	Enlarged.	Spindle Leak.	Coupling Leak.	Frost.	Set Backwards.	Defaced.	Totals.
Hersey disc.....	209	1,271	30	17	1,611	515	318	9	87	4,067
Worthington disc.....	34	456	17	3	276	8	76	1	44	915
Watch dog.....	15	1,029	.....	2	387	356	114	1	33	1,937
King.....	11	118	2	1	284	16	79	.....	8	519
Federal.....	.....	30	.....	.....	3	4	2	.....	2	41
American.....	9	63	.....	1	32	5	.....	.....	2	112
Lambert.....	.....	11	.....	.....	6	2	2	.....	.....	21
Crown.....	1	4	2	.....	.....	7	1	.....	12	27
Trident.....	2	7	.....	.....	.....	2	.....	.....	2	13
Hersey rotary.....	.....	9	.....	.....	.....	2	1	.....	.....	12
Keystone.....	.....	11	.....	.....	.....	1	.....	.....	1	13
Arctic.....	.....	3	.....	.....	.....	2	.....	.....	.....	5
Empire.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2
Nash.....	2	19	1	.....	.....	2	.....	.....	9	33
Totals.....	283	3,033	52	24	2,599	922	593	11	200	7,717

Table No. 9. Meters Applied in 1936.

MAKE.	DIAMETER IN INCHES.								Totals.
	$\frac{3}{8}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	2	3	4	6	
Hersey disc.....	112	8	9	10	7	6	1	.....	153
Worthington disc.....	18	.....	.....	.....	.....	1	.....	.....	19
Watch dog.....	70	3	7	8	3	.....	3	.....	94
King.....	.....	.....	2	2	.....	.....	.....	.....	4
American.....	3	1	.....	.....	.....	.....	.....	.....	4
Hersey rotary.....	.....	.....	.....	1	.....	.....	.....	.....	1
Arctic.....	.....	.....	.....	.....	1	.....	3	.....	4
Hersey detector.....	.....	.....	.....	.....	.....	.....	3	2	5
Totals.....	203	12	18	21	11	7	10	2	284

Meters applied on new pipes . . . . . 276  
Meters applied on old pipes . . . . . 8

Total applied . . . . . 284



Table No. 10. Meters Discontinued in 1936.

MAKE.	DIAMETER IN INCHES.								Totals.	Connection Pieces.	Vacant.	Discontinued.
	$\frac{5}{8}$	$\frac{3}{4}$	1	1½	2	3	4	6				
Hersey disc.....	445	43	22	15	8	1	1	1	536	200	176	160
Worthington disc.....	71			1					72	32	21	19
Watch dog.....	148	11	8	10	6	1			184	82	56	46
King.....	24								24	8	7	9
Federal.....	6								6	3	2	1
American.....	10	1							11	4	2	5
Lambert.....	1	1							2	1	1	
Crown.....	1	1	1		1			1	5	2	2	1
Trident.....	1								1	1		
Hersey rotary.....				1					1	1		
Keystone.....		1							1			1
Totals.....	707	58	31	27	15	2	1	2	843	334	267	242

## APPENDIX G.

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REPORT OF THE BOSTON AND CAMBRIDGE  
BRIDGES COMMISSION.

---

BOSTON, January 2, 1937.

*To the Honorable the Mayor.*

SIR,—As Commissioner for the City of Boston, I respectfully submit herewith the annual report of the Boston and Cambridge Bridges Commission for the year ending December 31, 1936.

The commission is composed of two members, one appointed by the Mayor of the City of Boston and the other by the Mayor of the City of Cambridge, under provisions of chapter 467, Acts of 1898.

The commission has charge of the maintenance of the following named bridges between Boston and Cambridge:

Cottage Farm, Longfellow and Prison Point.

As there is no separate appropriation made for the City of Boston's portion of the expenses of this commission, the same is taken from the appropriation for the Bridge and Ferry Division, Bridge Service. The amount expended during the fiscal year ending December 31, 1936, was \$5,069.28.

Respectfully submitted,

C. J. CARVEN,  
*Commissioner for the City of Boston.*

**Boston and Cambridge Bridges. Expenditures for the Year Ending  
December 31, 1936.**

*Being the Portion Paid by the City of Boston, Which is One Half of the Total Expenditure.*

	Administration.	Cottage Farm Bridge.	Longfellow Bridge.	Prison Point Bridge.	Totals.
Salaries .....	\$50 00		\$1,570 00		\$1,620 00
Inspection .....		\$164 00	218 00	\$224 00	606 00
Light .....		946 27	1,756 32		2,702 59
Repairs .....		42 09	35 42		77 51
Supplies .....		10 50	52 68		63 18
Printing and stationery .....					
Totals .....	\$50 00	\$1,162 86	\$3,632 42	\$224 00	\$5,069 28









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