

STREETS AND SEWERS.

Great Improvements During the Past Year—Thoroughfares Which Were Graded and Paved—Sidewalks Laid and Sewers Built.

The march of improvements in Los Angeles has been wonderfully rapid in the past few years. When it is considered that a few years ago there were practically no graded streets here, and but few sewers, and that up to within less than four years there were no pavements in the city, it is a remarkable fact that there are today over seventy-five miles of graded streets and nearly eight miles of paved streets. The grading and paving of these thoroughfares has caused an outlay of money amounting to the aggregate of \$1,126,700, and has given employment to thousands of people.

Of this work, 11.46 miles of street have been graded during the past year, at a cost of \$171,184.55, or 15 per cent. of that done in previous years; and four-fifths of a mile of streets have been paved, at a cost of \$48,281.32.

There are, all told, about 76 1/2 miles of paved sidewalks in the city, which were laid at a cost of \$391,000; and 42 miles of curb have been laid at a cost of about \$104,000.

The following is a list of the year's improvements:

VROOMAN ACT.—GRADING, GRAVELING AND CURBING.

STREET.	BETWEEN	LENGTH.	TOTAL COST.
Orange	Kip and Alvarado	4,915.58	\$ 15,053.57
East Broadway road	Carroll avenue and Waters	1,081.30	3,090.84
Farrington	Seventh and Ward	1,148.12	2,841.18
Council	Hobart and Belmont	422.15	1,310.37
Alvarado	Ward and west city line	5,551.11	15,310.39
Calumet	Edgeware and Waters	577.67	1,322.60
Ward	Alvarado and Park View	1,474.72	3,159.94
Grand	Third and Fourth	381.25	1,143.23
Alta	Downey and Hawkins	508.51	1,053.61
Seguineda	Alameda and Lafayette	721.25	1,297.32
Aliso	Soledad and Main	381.25	1,143.23
Aliso	Los Angeles river and Angle	1,692.55	4,344.00
Loma Drive	Ward and Arch	1,702.39	5,536.27
Second street	Intersect of Belmont	449.06	1,319.67
Arnold	Loma drive and Columbia	1,186.12	2,309.64
First street	Mott and Evergreen	1,380.00	4,731.16
Bixel	Pine and a point 225 feet south	285.00	472.20
Flower	Downey and George	988.00	1,927.16
Flancon	Alameda and Commercial	1,391.61	3,774.02
Los Angeles	Main and Figueroa	296.00	530.63
Bailey	Beaudry and Lomitas	3,792.61	15,509.15
Bellevue	Bellevue and Temple	509.75	1,549.63
Brent	Main and Figueroa	2,441.85	3,964.54
Jefferson	Temple and Court	1,056.60	2,832.64
Edgeware road	Bixel and Beaudry	1,403.20	4,312.98
Third	Ward and Adams	114.38	114.38
Ward	Hancock and 150 feet west	150.00	351.86
Patrick	Bishop road and River	2,749.20	6,907.35
Sixth	Lucas and West	4,337.59	10,772.62
Twenty-third	Main and Maple	1,030.65	1,677.62
Fourth	Main and Los Angeles	376.40	784.11
Total		41,160.48	\$ 116,984.85

GRADED AND CURBED STREETS—PRIVATE CONTRACT.

STREET.	BETWEEN WHAT POINTS.	LINEAL FEET.
Sentosa street	Pico to Eleventh	1,064.00
Patton street	Temple to Bellevue avenue	423.00
San Julian street	Fifth to seventh	254.46
Tenth street	San Julian to Maple avenue	688.00
Ward street	Bixel to Lucas avenue	540.00
Scarf street	Twelfth to Adams	1,044.00
Lopez street	Aliso to Pennsylvania	339.00
Twenty-third street	Temple to Main street west	235.00
Twenty-second street	Pleasant to Grand avenue	1,188.00
Eighth street	Grand avenue to Pearl street	1,150.00
Hope street	Third to Fourth	609.00
Adams street	Fourth to Fifth	244.00
Maple street	Fifth to Twelfth	6,428.00
San Pedro street	Fifth to Pine	65.00
Belmont and Silver streets	Intersection	65.00
Total		19,330.00

PAVING—VROOMAN ACT—GRANITE BLOCKS.

STREET.	BETWEEN WHAT STREETS.	SQ. FEET.	TOTAL COST.
First street	Hewitt to Gary street	4,588.00	\$ 1,662.50
Los Angeles and First, int.		3,180.00	908.40
Second street	Main to Los Angeles—private contract	3,625.00	1,087.00
Total		11,393.00	\$ 3,657.90
Walters street	New High to Buena Vista street	6,414.80	\$ 892.53
Walters street	Alameda to Upper Main street	11,247.68	1,549.63
New High street	Alpine to Marchessault street	66,827.37	10,506.64
New High street	Temple to Marchessault—private contract	54,800.00	8,768.00
Total		139,389.78	\$ 21,510.98
New High street	Franklin to Temple street	23,651.75	\$ 7,236.63
Mott alley	Intersection of First street	254.46	45.52
Temple street	Spring to Grand avenue	45,083.61	15,731.88
Total		68,990.16	\$ 23,083.05

SIDEWALKS—VROOMAN ACT.

STREET.	BETWEEN WHAT POINTS.	LINEAL FEET.	SQ. FEET.	TOTAL COST.
Manhattan street	Grand avenue to Figueroa street	405.80	2,662.20	\$ 320.63
Requena street	Los Angeles to Wilmington street	618.15	3,920.15	309.71
Orange street	Pearl to Los Angeles	685.95	4,312.98	348.75
Requena street	Loma to	680.77	4,296.65	378.81
Hill street	Second to Pico street	4,280.06	34,885.30	7,759.30
Washington street	Figueras to Second street	2,417.63	14,914.62	1,414.62
Figueras street	Pico to Washington street	2,039.80	12,773.69	2,779.06
Figueras street	Jefferson to Washington	3,571.05	22,765.66	3,931.89
Olive street	Figueras to Main	280.00	1,760.80	176.08
Rosas street	Bellevue to Alpine street	1,585.55	6,610.94	728.91
Twelfth street	Main to San Pedro street	1,461.59	6,389.28	797.01
Adams street	Grand avenue to Figueroa street	64.00	384.00	72.19
Total		17,346.50	123,153.50	\$ 17,532.31
Cement walk	PRIVATE CONTRACT.	29,460.00		\$ 4,500.00
Total		46,806.50	123,153.50	\$ 22,032.31

STORM DRAINS AND ZANJAS.

There are over seventeen and a quarter miles of zanjias in operation in the city, the cost of which was about \$137,000, and they are not only used for irrigating purposes, but some of them, also, for the conveyance of storm water, the stormwater drains proper, most of which are built of cement pipe, being only about four miles long, and costing \$26,104. During the past year but little was accomplished in the way of extending or improving the storm drains or zanjias, not more than one and a half

miles of both being built, all told. This, however, cost \$6,006.15. The construction of storm drains large enough to carry off the immense volumes of water which accumulate every rainy season, was opposed by the people on the ground that there was no necessity for them. As a matter of fact, however, the amount of damage done by the storm water every winter amounts to a very few years to more than this work would cost, and it is undoubtedly only a question of time before the work is carried out.

The following table shows the amount of new work performed during the year:

ZANJAS AND STORM DRAINS.

NAME.	DESCRIPTION.	LENGTH.	SIZE.	TOTAL COST.
Zanja Madre	Flume	369.00	3x6	\$ 431.73
Zanja Madre	Brick arch near Buena Vista street	239.00		460.65
Zanja 9 E	Trestle across the Los Angeles river	225.00	22 in.	1,293.75
Zanja 9 H	On Figueroa street and 218 feet of conduit.	1,061.75	16 in.	928.89
Zanja 8 R	On Figueroa street and 218 feet of conduit.	1,125.00	22 in.	950.25
Zanja No. 3	Central ave	585.00	22 in.	358.31
Zanja 8 R	On Washington street	1,235.00	16 in.	530.40
Zanja No. 5	On Jefferson street	1,300.00	16 in.	620.00
Zanja No. 7	Boyle Heights	174.00	30 in.	170.52
Zanja No. 6-1	Main street, near Temple	800.00		800.00
Zanja No. 5	Aliso street, between Railroad and Elmlyr sts.	300.00	30 in.	65.00
Storm drain	Two catch basins			
Nicho's ditch	Orange street	350.00	9 1/2 in.	
Woolen Mill ditch	Second street	2,471.00	22 in.	
Total		11,193.25		\$ 6,006.15

The receipts from the various zanjias for the year, as taken from the zanjer's annual report, are as follows:

Zanja No. 1	\$ 1,082.50
Zanja No. 2	2,331.00
Zanja No. 3	2,033.00
Zanja No. 4	2,122.50
Zanja No. 5	1,969.50
Zanja No. 6-1	80.00
Zanja No. 7	309.00
Zanja No. 8	2,651.00
Zanja No. 9 E	85.00
Zanja No. 9 R	194.50
Zanja C and R	367.50
Zanja N D	94.00
Total	\$14,172.00

The zanjer recommends that something be done in order to abandon that portion of zanja No. 7, along the bluff from Macy street, and the supplying of water for irrigation from reservoir No. 5, zanja 8-R, as the cost of repairing and maintaining the present ditch is very great, necessitating the building of a dam every year near the covered bridge and the opening up, some years, of the entire ditch. Especially is this the case after a very wet winter.

Owing to the deepening of the channel of the river at Macy street, it will be more expensive every year to build a dam at that point, and the demand for irrigating water at Boyle Heights being quite limited, zanja 9-R can be made to

supply all the land irrigated at present from No. 7 in the city.

ZANJAS.

Following is a list of the zanjias:

Zanja Madre	Feet.	Cost.
Brooklyn street	1,231	\$ 5,034.19
Nichols ditch	6,964	7,312.20
Jefferson street	1,100	693.00
Woolen mill	80	8.00
East side	7,449	17,655.12
Supply pipe	19,355	23,992.91
Washington	6,474	11,523.72
Main street	5,108	4,699.36
Central avenue	4,211	7,158.70
Zanja 6-1	8,772	16,071.07
Zanja 8 R	13,621	14,972.08
Zanja Madre	5,070	12,404.60
Total	91,241	\$136,977.41

SEWERS.

There are nearly twenty-one miles of sewers in operation in the city, draining the principal business portions of the city, located west and south between Virgin and Seventh streets, and east and west between Los Angeles street and Grand avenue. During the past year about nine and one-half miles of main and intercepting sewers have been built by the city bonds, and over three miles of lateral sewers have been constructed

under the Vrooman act, principally in the College-street hill district.

The Arroyo de los Reyes main sewer has been completed, at a cost of \$40,991, of which \$23,970 was for pipe and \$17,021 for labor and manholes.

The western intercepting sewer is completed to about one-half of its length, that is to say, from Jefferson street to Pico street, and has cost \$26,880.53, of which \$17,387.02 was for pipe and the balance for labor and manholes.

About one-fourth of the southern intercepting sewer has been built, viz., from Grand avenue to San Pedro street, where it meets the present outfall sewer. So far it has cost \$10,357.46, of which the cost of the pipe amounted to \$7,202.40.

Only two sections of the central intercepting sewer have been built; but it has already cost \$94,064.00 for material and labor. The rest of the sewer, with the exception of one and a half miles, between Mission and Sixth streets, for which no arrangements have yet been made, is contracted for and will soon be completed, as will also the Mozart street main sewer, which is under construction.

Ground has not yet been broken for the Hollenbeck arroyo main sewer, but it is to be hoped that the existing difficulties, which have prevented its construction, will soon be overcome so that the drainage of the territory on Boyle Heights need not be delayed when the main system is ready for the reception of its sewage.

The problem still remains to be solved, as to the disposition of the sewage when all these sewers, for which bonds were issued last year, are completed. It will be remembered that the question of building an outfall sewer to the sea, was submitted to the people in March last, and by them defeated, apparently for the reason that the expense to be incurred thereby was too great.

The city engineer in his annual report for the past year lays before the council the following proposition for the temporary relief of the city:

The route for this outfall sewer is practically the same as that of the plan of 1887, through Inglewood. It will, however, not be delivered all the sewage which the interior system can carry to it, but it will suffice for a population of 100,000 inhabitants, and can be built for \$250,000. He advises the construction of this sewer as planned by the engineering commission, from the southwest corner of the city to the intersection of Wesley and Santa Monica avenues; thence in as direct a line as possible to Hyde park station. This section of the pipe 3-16 of an inch thick, and 36 inches in diameter, under a maximum pressure of 20 feet. Thence to Inglewood, the sewage would be conducted in a cement pipe by gravity; thence through Inglewood to a point some distance away, in another steel pipe of the same dimensions, but under a maximum pressure of 30 feet; thence in an open ditch to the ocean.

Whether or not satisfactory arrangements for this route can be made with the property owners along the line remains to be seen; but as the sewage can be used for the irrigation of from 4000 to 6000 acres of sandy land en route, and in rainy weather can be turned into the ocean, there is no reason why they should be averse to it. Of course the sewage would have to be carried into the ocean through an iron pipe for some distance, but 1000 feet would be ample at the beach beyond Inglewood.

Steel pipe is advocated because it cheapens the construction considerably, as it can be laid under pressure, and therefore practically in a straight line, thus shortening the distance. The sewer can be kept perfectly clean by turning into it the surplus river water at Sixth street, thus creating an estimated maximum velocity of four feet per second.

The following table shows the amount of work done during the past year:

STREET.	BETWEEN WHAT POINTS.	LINEAL FEET.	SQ. FEET.	TOTAL COST.
Manhattan street	Grand avenue to Figueroa street	405.80	2,662.20	\$ 320.63
Requena street	Los Angeles to Wilmington street	618.15	3,920.15	309.71
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PRIVATE CONTRACT.

Cement walk

29,460.00

Total

46,806.50

123,153.50

\$22,032.31

SEWERS LAID UNDER VROOMAN ACT.

STREET.	BETWEEN WHAT POINTS.	LINEAL FEET.	SQ. FEET.	TOTAL COST.
Alpine to College		1,637.00	10,418.75	\$ 1,218.38
Bellevue to Alpine		1,088.00	6,750.40	\$ 814.15
Day and Hoff		1,088.00	6,750.40	\$ 814.15
Pine and Grand avenue		1,088.00	6,750.40	\$ 814.15
Main and Ninth		1,088.00	6,750.40	\$ 814.15
Main and Washington		1,088.00	6,750.40	\$ 814.15
Olive and Ninth		1,088.00	6,750.40	\$ 814.15
Pearl and Ninth		1,088.00	6,750.40	\$ 814.15
Olive and Twelfth		1,088.00	6,750.40	\$ 814.15
Bellevue avenue and New High		1,088.00	6,750.40	\$ 814.15
San Fernando and Sotello		1,088.00	6,750.40	\$ 814.15
Buena Vista and College		1,088.00	6,750.40	\$ 814.15
Total		10,176.00	63,904.00	\$ 7,600.37

Wedding bells at the Violet florist store, 235 South Spring street.

IN GOOD SHAPE.

The City Fire Department Well Organized.

Its Present Status and Scope—The Record for the Year—The Fire Alarm System and the Location of the Boxes.

Of all the departments under the control of the municipal authorities, perhaps no one is of more importance to the general public than that which is maintained for the sole purpose of protecting property from the ravages of fire; nor is there one which more justly deserves to be congratulated upon the good work it has uniformly performed throughout the past year.

The Los Angeles fire department, which is directly under the control of a board of fire commissioners appointed by the city council, which acts in conjunction with the mayor, consists of seventy-six men, all told. This number includes a chief engineer, an assistant chief, an electrician, seven engineers, sixteen expert drivers, nine foremen, a pipeman, a tillerman for the hook and ladder truck, and thirty-nine callmen; of these twenty-eight are permanently employed by the department at salaries ranging from \$60 to \$175 per month, the other forty-eight "callmen" receiving a remuneration of from \$20 to \$25 per month each, for their services, which seldom interfere with their duties elsewhere.

The men are divided into nine companies which are stationed in various parts of the city as follows:

Engine Company No. 1—Located on the corner of Pasadena avenue and Hoff street, East Los Angeles. Is equipped with a second-class Amoskeag engine, drawn by two horses, and a two-wheel hose cart, drawn by one horse, carrying 800 feet of hose. Foreman, engineer, two drivers and four callmen.

Engine Company No. 2—Located on Sixteenth street, near Grand avenue. Equipped with a second-class Amoskeag engine, drawn by two horses, and a hose cart, drawn by one horse, carrying 800 feet of hose. Foreman, engineer, two drivers and four callmen.

Engine Company No. 3—Located on West Third street, between Main and Spring streets. Equipped with a second-class Amoskeag engine, drawn by two horses, and a hose cart, carrying 800 feet of hose, drawn by one horse. Foreman, engineer, two drivers and four callmen.

Engine Company No. 4—Located at the Plaza. Equipped with a second-class Ahrens coil engine, drawn by two horses, and a hose cart carrying 800 feet of hose, drawn by one horse. Foreman, engineer, two drivers and four callmen.

Engine Company No. 5—Located on Ninth street, near Main street. Equipped with a second-class Ahrens engine drawn by two horses, and a hose cart carrying 800 feet of hose, drawn by one horse. Foreman, engineer, two drivers and four callmen.

Engine Company No. 6—Located on Virginia avenue, Boyle Heights. Equipped with a second-class Ahrens engine, drawn by two horses, and a hose cart carrying 800 feet of hose, drawn by one horse. Foreman, engineer, two drivers and four callmen.

Engine Company No. 7—Located on Temple street, near the cable power house. Equipped with a second-class Ahrens coil engine, drawn by two horses; and a hose cart carrying 800 feet of hose, drawn by one horse. Foreman, engineer, two drivers and four callmen.

Park Hose Company No. 1—Located on South Spring street, near Fifth. Equipped with a new four-wheel hose carriage with all the latest modern improvements, carrying 1000 feet of hose, drawn by two horses. Foreman, driver and five callmen.

Hook and Ladder Company No. 1—Located on Aliso street, near Alameda street. Equipped with a Hayes extension ladder truck complete, drawn by two horses. Foreman, driver, tillerman and six callmen.

One of the most interesting branches of the department is that which is known as the fire alarm system, and it has so far proved a very satisfactory one. It consists of an electric battery of 146 cells, which are stored in the basement of the city hall building, which is connected by over thirty miles of wire stretched upon over 500 poles, with forty-two boxes placed at various points in different parts of the city, with every engine house, and with the huge alarm bell, which weighs 2100 pounds and is suspended in the tower of the city hall. Each box is numbered so as to distinguish it from its fellows, and by a system of intricate machinery the electric current, by the simple pressure