# Municipal journal

Twenty-one automobiles in the service of the department—including 12 motor fire-fighting wagons, one telegraph line truck—traveled 30,787¾ miles during the year, at a total cost of maintenance, $3,033.32. These machines consumed 6,488½ gallons of gasoline and 309¼ gallons of oil.

## FIRST DOUBLE DECK BASCULE BRIDGE.

The first double-deck bascule bridge ever constructed has been practically completed and put into partial service in Chicago. It replaces the old Lake Street drawbridge, which was condemned by the Secretary of War because it obstructed navigation in the Chicago River. The lower deck was closed to traffic (street cars, vehicles and pedestrians) when work was commenced on the substructure of the new bridge in March, 1914. Traffic on the upper deck, which is used by the trains of the Chicago & Oak Park Elevated Railroad, has not been interrupted, however, throughout the construction of the new bridge, except for the work from February 27 to March 4, during which the old bridge was dismantled to permit the two leaves of the new bridge to be swung down, ties and rails laid on the upper deck and other details attended to.

When it was decided to erect a new bridge at Lake Street a clear unobstructed span of 200 feet had to be provided, and a lift bridge with hoisting towers at each end was first proposed as the simplest means of taking care of a double-deck structure. The rather sad experience of the city with this type of bridge at South Halsted street caused further study of the problem. After prolonged consideration the design chosen was declared to be entirely feasible, even though never attempted for a double-deck bridge heretofore. It is a two-leaf trunion bascule bridge. The total length of the steel work between extreme abutments is 355 feet.; the distance from center to center of trunnions is 245 ft. 3 in.; the width of the steel work over all is 70 ft. The lower deck has a 38 ft. roadway and two 14 ft. sidewalks. Sub-piers for the bridge are of concrete resting on solid rock about 110 ft. below river surface. About 7,200 cubic yards of concrete was used for the sub-piers, main piers and abutments. The sub-piers are so spaced as to permit of the possible future construction of a passenger subway.

The erection of the bridge has taken nearly two years. Delays were caused by the necessity for maintaining elevated train service uninterrupted, by a two-months' strike of bridge and structural iron workers, and by difficulty in obtaining flawless forgings for the large shafts. Each leaf was erected in upright position over the elevated tracks, to accommodate which the floor beams and stringers in two panels of each leaf were omitted until the bridge was lowered in place on February 28. That date the old drawbridge was swung open and its ends blocked up and then its entire center section cut away with oxy-acetylene blow pipes. The remainder of the old bridge was dismantled at leisure before the close of the week and entirely removed except the center pier. At the same time the double-deck viaduct over the tracks of the Chicago, Milwaukee & St. Paul Railway directly west of the bridge, was bodily moved south about four feet to allow erection of the north half of a new and longer viaduct required for increased trackage for the new Union Station now under construction. It was planned to take the old bridge out and put the new bridge into commission with an interruption in elevated train traffic of only about 64 hours, but unforeseen difficulties lengthened this to 6 days, 14 hours. During this time, however, passengers from the Chicago and Oak Park trains were able to reach the "Loop" or main business district, by transferring to trains of the Metropolitan Elevated Railway so that no very serious inconvenience was entailed.

It is expected to have the new Lake Street bridge entirely completed early in May. Its total cost will be about $650,000, of which part is borne by the Chicago & Oak Park Elevated Railroad. The design and construction has been under the general supervision of John Ericson, city engineer, and Thos. G. Pihlfeldt, city bridge engineer; Wm. A. Mulcahy, assistant engineer of bridge construction, was in local charge. The contractor for the substructure was the Fitzsimons & Connell Dredge & Dock Company; the contractor for the superstructure was the Ketler-Elliott Erection Company.

## CONTRACT WORK IN KANSAS CITY.

The report of the Engineering Department of Kansas City, Mo., relative to the street improvement work done by contract during 1915 contains some interesting items of information of a kind not often found in municipal reports. One of these is the number of contractors doing such work, showing apparently that there is no favoritism in awarding contracts and that there is plenty of competition. The 36 street grading contracts were performed by 29 contractors; 105 sidewalk contracts by 13 contractors, the maximum number to any one contractor being 17; 94 curbing contracts were let to 13 contractors, 19 being the largest number by any one contractor; 4 contractors performed 10 gutter contracts.

In street paving work 90 concrete contracts were let to 19 contractors, 19 being the largest number by any one contractor; asphalt pavement, 10 contracts to 4 contractors, 5 contracts to one; brick, 7 contracts to 4 contractors; asphalt macadam, 2 contracts; wood block, 1 contract. Eighteen contracts for alley paving were similarly distributed.

In all, 61 contractors are named as doing street improvement work; the maximum number of contracts to one party was 43, while 15 contractors had only one contract each. The largest single contract was $178,642, which was also the largest amount paid to any one contractor for all work done, the average amount to one contractor being $19,730, while the smallest was $123.55 for grading.

The average contract prices were as follows: Sidewalks, 10.9 cts. per square foot; curbing, 31.2 cts. per lineal foot; gutters, 37.4 cts. per lineal foot.

Concrete pavement: One course, 1:2½:4½, 6 in. thick, 90.1 cts.; 7 in. thick, $1.05; 8 in. thick, $1.17.

Asphalt pavement: 2 in. asphaltic concrete top on 6 in. concrete base, $1.69. Brick pavement: 6 in. concrete base, 1 in. sand cushion, 4 in. repressed brick, grout filler, $2.11; 4 in. vertical fiber brick, asphalt filler, $2.34; 3 in. vertical fiber brick, grout filler, $1.71.

Creosoted wood block: 8 in. concrete base, 1 in. sand cushion, 3½ in. deep yellow pine blocks, 16 lb. treatment, $3.01.

For repairing work, asphalt on 6 in. base cost $1.60, on 8 in. base, $1.80, and $1.33 on a patched base. Wood block on an 8 in. base cost $2.85. Brick, 4 in. repressed on 6 in. base, $1.81; 3 in. vertical fiber on 6 in. base, $1.67. Stone block on 8 in. base, $3.80; on 6 in. base, $3.15.

Altogether about 15 miles of streets were graded, 23.7 miles of sidewalks built, 37.3 miles of curb, and 3.4 miles of gutter. Of street paving there was 19.9 miles of concrete, 5.5 of asphalt, 1.1 of brick, 1.4 of wood block, 1.5 of asphalt macadam and 0.5 of stone block. Also 1.2 miles of alleys were paved with concrete, brick, stone block and asphalt.