

FEDERAL AID ROAD MILEAGE ENORMOUS

Nearly Half Billion Spent on Highways Since 1916.

28,135 MILES IMPROVED

Almost One-Half Total Cost Put Up by Government, Remainder From State Funds.

WASHINGTON, D. C., Jan. 7.—Roads built under construction or under agreement for construction, throughout the United States in connection with federal-aid funds distributed among the states by the bureau of public roads, United States department of agriculture, since July 1, 1916, total 28,135 miles, according to a summary of the work just completed by the department. The summary by types shows the following mileage:

Material—Graded and drained 8,564.6
Sand-clay 3,205.2
Gravel 30,943.2
Macadam (water bound) 1,290.7
Macadam (bituminous) 1,122.7
Bituminous concrete 72.5
Concrete 44.6
Brick 44.6

In addition to the foregoing, bridges with their approaches to the total length of 47.4 miles were constructed or are now under agreement for construction with federal aid and state funds combined.

The table shows a large mileage of graded and drained, sand-clay, gravel and macadam roads, while there is less mileage of concrete, bituminous concrete and brick roads. This situation is due to the increased cost of construction for the higher types of roads. The average cost figures per mile of the different grades built during the four-year period, or now provided for, are as follows:

Per Mile Costs Given.

Material	Cost
Graded and drained	\$3,115
Sand-clay	2,052
Gravel	10,409
Macadam (water bound)	1,290
Macadam (bituminous)	1,122
Bituminous concrete	72
Concrete	44
Brick	44

The total cost of the 28,135 miles of roadway is \$499,151,683.43; the average cost per mile, \$17,739.09. Of the total cost of \$499,151,683.43, \$231,130,276.31 was made available through federal aid, the remainder through the states. This is at the average rate of \$7,900 per mile of federal-aid funds, for the total mileage built.

The estimate cost of their construction, the amount contributed to their cost through federal aid, and the mileage in each state, are shown in the following tabulation:

State	Federal Aid	State	Federal Aid
Alabama	8,365,697.33	North Dakota	2,273,194.70
Arizona	6,529,017.15	Ohio	2,273,194.70
Arkansas	6,529,017.15	Oklahoma	2,273,194.70
California	11,826,175.04	Oregon	2,273,194.70
Colorado	4,572,348.19	Rhode Island	1,533,979.36
Connecticut	2,901,600.89	South Carolina	1,533,979.36
Delaware	1,849,122.01	South Dakota	2,273,194.70
Florida	1,849,122.01	Tennessee	2,273,194.70
Georgia	15,408,450.74	Texas	22,283,536.04
Idaho	2,273,194.70	Utah	2,273,194.70
Illinois	25,277,737.05	Vermont	7,713,222.51
Indiana	19,728,129.76	Virginia	9,983,856.14
Iowa	2,273,194.70	Washington	14,311,704.19
Kansas	2,273,194.70	West Virginia	14,311,704.19
Kentucky	2,273,194.70	Wyoming	2,273,194.70
Louisiana	7,349,281.89		
Maine	2,273,194.70		
Maryland	4,966,417.88		
Massachusetts	2,273,194.70		
Michigan	11,826,175.04		
Minnesota	11,826,175.04		
Mississippi	11,826,175.04		
Missouri	11,826,175.04		
Montana	2,273,194.70		
Nebraska	2,273,194.70		
Nevada	2,273,194.70		
New Hampshire	2,273,194.70		
New Jersey	2,273,194.70		
New Mexico	2,273,194.70		
New York	22,432,989.07		
North Carolina	12,832,403.46		
North Dakota	2,273,194.70		
Ohio	2,273,194.70		
Oklahoma	2,273,194.70		
Oregon	2,273,194.70		
Pennsylvania	30,421,709.06		
Rhode Island	1,533,979.36		
South Carolina	1,533,979.36		
South Dakota	2,273,194.70		
Tennessee	2,273,194.70		
Texas	22,283,536.04		
Utah	2,273,194.70		
Vermont	7,713,222.51		
Virginia	9,983,856.14		
Washington	14,311,704.19		
West Virginia	14,311,704.19		
Wyoming	2,273,194.70		
Totals	\$499,151,683.43		

AUTO EXPORTS INCREASE

WILLYS-OVERLAND BUSINESS SHOWS HEAVY DEMAND.

Last Quarter of Present Year Is Reported Unusual as Proving Return to Normal Trade.

TOLEDO, O., Jan. 7.—Recent large increases in orders for Willys-Overland motor cars for export to countries in almost every corner of the globe, not only reflect the response of the buying public to the new low prices, but is proof positive that business conditions the world over are growing steadily better, according to officials of the John N. Willys Export corporation.

The recent large orders for export cars came from England, Australia, Buenos Aires, Belgium, the West Indies and India.

Marked increases in demand for cars also came from many other sections of the world.

The increased export business is also reflected in domestic orders. At this time the Overland company has the largest number of unfilled orders on the books for closed cars in its history. The shortage is being rapidly met although new orders are coming in briskly.

New plans for effecting money-saving measures in the Willys-Overland company's factories are becoming operative day by day.

The latest change in production methods was announced by C. R. Wilson, vice-president in charge of operations in all Willys-Overland plants, when a statement was issued relative to a transfer of production of machinery engaged in building the Willys-Knight model 20 motor, the current model motor, from the Willys-Overland plant at Elkhart, Ind., to the Wilson Foundry & Machine company at Pontiac, Mich. The last Overland company car was produced at Elkhart, since the motor plant of the Edwards-Knight line at Elkhart was purchased by Willys-Overland at the time Willys secured the Knight franchise.

It was found, however, that marked savings in production costs could be made by assembling the car at the Toledo plant. As a result the aluminum forgings were made in Toledo and some of the forgings at the plant of the Wilson Foundry & Machine company plant at Pontiac. These units of the

motor were shipped to Elkhart, assembled with the motor, and the completed motor shipped back to Toledo. Under the new plan the double shipping of parts will be eliminated with a resultant marked reduction in the cost of placing the motor in the chassis at the Toledo plant.

The Elkhart plant remains as the property of Willys-Overland company and will be used in the manufacture of the model 28-4 Willys-Knight motor which are in use in seven passenger cars and in the new Knight motored Republic truck passenger bus.

MOTOR LIFE CHANGES HANDS

Automobile Blue Book Also Involved in Recent Sale.

CHICAGO, Ill., Jan. 7.—William (Pete) Shepard, for many years western advertising manager of Motor Life, has resigned, and will shortly announce a connection with a big publishing company of New York and Chicago. Motor Life and the Blue Book have been sold by Robert Wolfert to a Chicago publisher, and C. C. Sinabach, who has been editor-in-chief of Motor Life, has become general manager of the publication.

It is reported that the Motor Life as a publication will be continued in New York, but that the Blue Book is already being issued by the Chicago publishers at their Chicago plant.

TRUCK SPEEDS BUSINESS

G. M. C. PRAISED BY CHICAGO BAKING CONCERN.

Customers Want Quick Service Between Oven and Table and Get It, Manager Says.

CHICAGO, Jan. 7.—It is about as difficult to associate French pastry with motor trucks as it would be to associate a Chicago baker with locomotives, yet a Chicago baking concern has built up a business in this delicacy by the use of G. M. C. trucks, which could not have been accomplished without the aid of rapid, dependable delivery.

When asked how all this was accomplished, F. Boyesen, a prominent baker in Chicago, said: "If the proof of the pudding is in the eating, the proof in industry is in its freshness. That means, first of all, quick delivery. Our customers want quick service between the oven and the table."

"People don't realize the part delivery plays in the baking business. You expect the salesman and the salesman in industry every day because that is their business; but it is just as much our business to get our goods to our customers promptly and regularly."

"We have been studying this delivery problem for years. We have always used horses, of course, but they have their limitations. We realized it would be a big thing for our business if we could find a satisfactory motor truck after years of trial."

Estimated cost	Per cent of total	Motor
Alabama	8,365,697.33	72.4
Arizona	6,529,017.15	35.9
Arkansas	6,529,017.15	35.9
California	11,826,175.04	36.3
Colorado	4,572,348.19	43.5
Connecticut	2,901,600.89	44.6
Delaware	1,849,122.01	34.1
Florida	1,849,122.01	14.2
Georgia	15,408,450.74	1,053.8
Idaho	2,273,194.70	11.4
Illinois	25,277,737.05	739.8
Indiana	19,728,129.76	1,399.2
Iowa	2,273,194.70	60.1
Kansas	2,273,194.70	29.2
Kentucky	2,273,194.70	62.9
Louisiana	7,349,281.89	17.0
Maine	2,273,194.70	47.6
Maryland	4,966,417.88	17.0
Massachusetts	2,273,194.70	38.9
Michigan	11,826,175.04	1,131.4
Minnesota	11,826,175.04	82.7
Mississippi	11,826,175.04	69.8
Missouri	11,826,175.04	1,312.4
Montana	2,273,194.70	38.9
Nebraska	2,273,194.70	162.3
Nevada	2,273,194.70	56.1
New Hampshire	2,273,194.70	99.6
New Jersey	2,273,194.70	99.6
New Mexico	2,273,194.70	32.9
New York	22,432,989.07	435.8
North Carolina	12,832,403.46	98.0
North Dakota	2,273,194.70	38.9
Ohio	2,273,194.70	32.9
Oklahoma	2,273,194.70	32.9
Oregon	2,273,194.70	32.9
Pennsylvania	30,421,709.06	98.0
Rhode Island	1,533,979.36	98.0
South Carolina	1,533,979.36	98.0
South Dakota	2,273,194.70	32.9
Tennessee	2,273,194.70	32.9
Texas	22,283,536.04	25.2
Utah	2,273,194.70	32.9
Vermont	7,713,222.51	40.3
Virginia	9,983,856.14	25.2
Washington	14,311,704.19	98.0
West Virginia	14,311,704.19	98.0
Wyoming	2,273,194.70	32.9
Totals	\$499,151,683.43	28,135.0

our experiments we decided the G. M. C. would best meet our requirements—and it has. We purchased our first G. M. C. in January, 1919. Just a year later we added another. Four months later we put on our third.

"The trucks operate ten hours a day, six days a week, usually making two trips a day. They average 40 miles a day, which is a pretty good mileage considering they make from 40 to 50 stops and our stuff can't be delivered with a bang, like coal or ice, and such slow stop cuts into the running time."

ANOTHER FORMER CADILLAC OFFICIAL JOINS PEERLESS.

Geo. H. Layne, former Cadillac official, has joined the Peerless Motor Car company, announced the appointment of George H. Layne as vice-president and manager of manufacturing. Layne held the same position with the Cadillac. In severing his connection with the latter organization to follow Collins, Mr. Layne severs association extending back over 16 years. In 1908 he joined the Cadillac as foreman of the chassis department. At that time the company was turning out single-cylinder cars. He rose steadily through the organization to the positions of assistant superintendent and superintendent of the engine shop, superintendent of machine shops, assistant to the general manager and finally manager of manufacturing, with the rank of vice-president and director.



Geo. H. Layne

In line with his policy of surrounding himself with his old associates at Cadillac, R. H. Collins, new president of the Peerless Motor Car company, has announced the appointment of George H. Layne as vice-president and manager of manufacturing. Layne held the same position with the Cadillac. In severing his connection with the latter organization to follow Collins, Mr. Layne severs association extending back over 16 years. In 1908 he joined the Cadillac as foreman of the chassis department. At that time the company was turning out single-cylinder cars. He rose steadily through the organization to the positions of assistant superintendent and superintendent of the engine shop, superintendent of machine shops, assistant to the general manager and finally manager of manufacturing, with the rank of vice-president and director.

RAILWAY EXPRESS USES MOTOR TRUCK

City Delivery Service Becoming Motorized.

EFFICIENCY IS GREATER

Increased Economy, Larger Volume of Business and Greater Satisfaction Among Returns.

The efficiency of the motor truck as a transportation unit is attested to by officials of the American Railway Express company, which rapidly is becoming completely motorized for its extensive city delivery service in the cities throughout the country. At the request of the motor truck division of the National Automobile Chamber of Commerce leading officials of the express company recently gave out interviews telling of the way in which use of motor trucks has speeded up delivery service for the company and increased efficiency. These interviews have been printed in pamphlet form and are being sent out by the national chamber. They are as follows:

By R. E. M. Cowie, vice-president, American Railway Express company:

"The value of the motor vehicle as a means of transportation cannot be overestimated; the things that it has accomplished even thus far are marvelous in the extreme. From an experience of great many years, I have come to the conclusion that there is very much to be said for the motor vehicle, either propelled by electricity or by gasoline."

"Until a few years ago the express traffic of the country was conducted very largely by horses and wagons, which are in these days regarded as a slow and tedious means of transport. It is very unfortunate that horse-drawn vehicles and motor vehicles have to operate on the same highways, because the horse-drawn vehicle is very apt to keep the speed of the traffic strained back, recognizing the theory that the speed of your fleet is the speed of the slowest collier in your fleet."

By E. E. La Schum, general superintendent, motor vehicle equipment:

"The principal reason for using motor trucks in haulage work is increased economy. Increased volume of business, and greater satisfaction in some installations, the truck buyer has been able to obtain several or all of these advantages."

"There are businesses in which the increased volume is so great that the factor of economy is temporarily lost sight of, or becomes of secondary consideration. In other lines, economy will be the prime reason for considering motor trucks, the volume of business being secondary. In many instances both will be given due consideration. No two businesses are exactly alike; even in the same line of business no two trucks are handled exactly the same. For this reason it is impossible to predict in advance exactly what a motor truck will do; too many variables enter into the problem. It can, however, be estimated closely."

"It is now generally understood that on long hauls motor trucks are cheaper than horses. This is true when the loading and unloading time bears a reasonable ratio to the actual hauling time; under these circumstances it is impossible for horses to compete with motor trucks. On short hauls, where the difference is not so great, the prospective customer must have pointed out to him the advantages of quick loading and unloading facilities, demountable and detachable bodies, self-dumpers and interchangeable forms. The prime advantage of these is to keep the mechanical part of the installation, the chassis, moving on actual haulage the largest possible part of the time to bring the short haul business into the long haul class as well as the long haul, where its economy is indisputable."

"A motor truck increases the area in which business can be done in the ratio of its daily mileage. The maximum daily horse mileage is in heavy and medium heavy haulage 20 and 24 miles, respectively. The average is not much more than half this, 12 and 14 miles. A motor truck can cover from 30 to 100 miles a day, and it is seldom as low as 30, and not often above 60; the average is below 40."

"The greater mileage of the motor truck may be used to give better and more frequent service within the area formerly served by horses. Or, it may be used partly to extend the area and partly to improve the frequency of delivery."

"Being mechanical, motor truck delivery is precise and regular, it is not affected by weather or road conditions, which is seriously interfered with and sometimes stopped by the snow and ice of winter and the excessive heat of mid-summer."

"Just as a machine is more efficient than a man or an animal, so the motor truck adds efficiency to the delivery system. This refers to every phase of it, not the more rapid running of the truck only."

"There is no limit to the motor truck's endurance; it is simply a question of drivers. This is advantageous during rush seasons or at rush times of the day or month, since no extra delivery service need be rented or otherwise provided for."

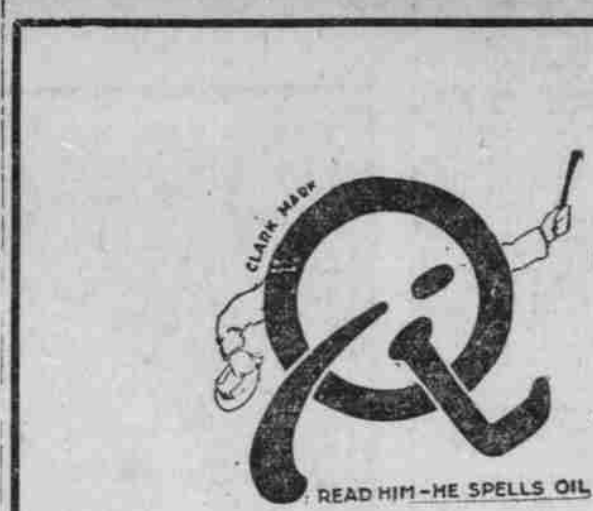
"As pointed out under increase of business the motor truck saves time in every possible way: in running time through greater speed in loading, unloading and routing; by the greater efficiency which its use implies in all other work; by its continuity or maintained speed as compared with the need of horses for occasional rest; indirectly through the firm's reputation for being up-to-date, businesslike and hustling."

"The mechanical equipment is precise and regular, installing in the employee similar regular and exact habits. When well started, after proper installation, motor equipment allows the owner to forget his delivery service."

"Better or more frequent service is bound to result in customers' greater satisfaction. Using the greater mileage ability of the truck to deliver at greater distances also brings satisfaction in that customers can be supplied who were formerly obliged to depend upon much slower methods of transportation."

"Next to making his delivery service as frequent and efficient as possible and at the lowest possible cost, the owner will get much satisfaction from motor trucks which cannot be expressed in miles, deliveries or dollars. For instance, the handling of special and rush deliveries after regular hours, as pointed out above, is a very little change. Two of the federal aid jobs are for paving on the Pacific highway, while seven of the state jobs are for improving the same road."

The contracts to be advertised under the federal aid plan follow: Paving from Seattle to Lake Forest



These Independent Dealers will drain your crank case and

Refill with HyVis

The Pennsylvania Motor Oil of Guaranteed Specifications

TEAR OUT THIS LIST OF HYVIS DEALERS AND KEEP IT IN YOUR CAR

PORTLAND	PORTLAND	OREGON—(Continued)
East Side	West Side	Eagle Creek—A. C. Cogswell
Boulevard Garage, 42d and Sandy Rd.	Buchel & Volden, 75 North 10th St.	Hermiston—Neil & Barker
Brooklyn Garage, 668 Milwaukee Ave.	L. H. Buntzel Co., 15th & Flanders	Marshfield—Auto Service Co.
O. C. Burnham, 290 Grand Ave.	Columbia Storage Battery Co., 45 North Park St.	Maupin—Fisher's Garage
Bybee Ave. Garage, 1392 Milwaukee Ave.	Dapp & Neubauer, 783 Front St.	Medford—Wm. Offutt
Conwell & Mullen, Union Ave. & Knott	R. O. Emerick, 428 Couch St.	Milwaukee Station—Milwaukee Service Station
Eagle Garage, 5802 92d St.	Evening Repair Shop, 23d & Raleigh	Molalla—P. N. Stevens
East Side Central Garage, East Sixth and Taylor Sts.	Gill's Automotive Service, 129 North 10th St.	Monroe—T. H. Carpenter
Eveready Service Station, E. 12th & Hawthorne Ave.	Globe Garage, 50 North 20th St.	Moro—Deschutes Garage
S. P. Gaither, 1322 E. Glisan St.	S. H. Kauffman, 6th & Ankeny Sts.	Multnomah Station—Multnomah Garage
Gatzka Auto Supply Co., E. 33d & Hawthorne Ave.	P. W. Kinney, 1050 Corbett St.	No. Portland—Exchange Garage
P. E. Graham, 1133 Albina Ave.	P. A. Mullen, 605 First St.	Oak Grove—Skog Brothers
J. J. Greiner, E. 42d & Belmont St.	A. G. Onslow, 23d & Washington	Oregon City—Seventh St. Garage
Gribble Bros., 5037 Powell road.	Portland Buick Repair Shop, 16th & Jefferson	Pendleton—Round-Up Garage
H. & H. Garage, 103d St. & Foster road	Portland Garage, 5th & Taylor Sts.	Pendleton—Glen Long
Harmon & Co., 37th & Division Sts.	Pratt Motor Car Co., 11th and Couch	Pendleton—W. E. Smith
Chris F. Heick, 993 Belmont St.	L. E. Taylor, 12th & Flanders	Prineville—L. V. Sears
Long & Silva, 462 Hawthorne Ave.	Uden Motor Co., 704 Kearney St.	Prineville—Elkins Motor Sales Co.
McMahon Bros. Service Station, 1264 Division	Union Depot Garage, 335 Hoyt St.	Redmond—Dobkins Garage
Mulford's Service Sta., 363 E. 11th St.	Universal Lubricating Co., 248 Flanders St.	Roseburg—Devaney & Burnett
Pioneer Garage, 1601 E. 17th St.	Anson A. Webster, 20th & Jefferson	Roseburg—Roy Caching
H. C. Rhodes Auto Repair Co., 7 North Grand Ave.		St. Helena—Copeland Auto Co.
Serve-U-Garage, 61 Union Ave. N.		Salem—Marion Auto Co.
Tourist Garage, 121 E. 6th St.		Salem—Ray Gilbert
Union Ave. Garage, Union & Weidner		Severson—Allen Brothers
Union Ave. Tire & Battery Shop, Union Ave. North		
J. F. & B. R. Van Slyke, E. 21st & Division		
Weber's Garage, E. 30th & Belmont		
F. R. Woodbury, 1438 E. Stark St.		

HyVis Dealers Make Less Profit They Sell HyVis Because They Know It's Better

HyVis was first refined to U. S. Government specifications, during the war, when oil-quality was of the utmost importance—when costs were disregarded, and when extra life was needed in every army motor. "Too expensive to make for commercial and pleasure cars" was the thought at that time. But in use it proved cheap—economical. It makes bearings last longer—and the price of a new bearing will pay for

lots of oil! Besides, Hy-Vis wears longer itself! Hy-Vis is refined by the most improved and scientific methods, from pure Pennsylvania paraffine base crude. Each drum is sealed at the refinery with a label bearing the specifications of the oil it contains. When you buy Hy-Vis you know exactly what you are getting, and the more you know about oil the greater will be your appreciation of Hy-Vis.

USE HYVIS IN YOUR MOTOR

WIGGINS COMPANY, Inc., Refinery Distributors, Portland, Or.

CONTRACTS TO BE GIVEN

WASHINGTON TO TAKE FIRST DIP IN FEDERAL MONEY.

Four Contracts to Be Paid For by State and Government Jointly to Be Let February 28.

OLYMPIA, Wash., Jan. 7.—The first dip into Washington's share of the new \$75,000,000 federal aid fund for good roads will be taken February 28 when four contracts are to be awarded to the lowest bidders. Eight other jobs to be paid for with state money will be parceled out on the same date, the state highway committee has decided.

Next to making his delivery service as frequent and efficient as possible and at the lowest possible cost, the owner will get much satisfaction from motor trucks which cannot be expressed in miles, deliveries or dollars. For instance, the handling of special and rush deliveries after regular hours, as pointed out above