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AN ANALYSIS OF MICHIGAN'S
GRADE CROSSING SITUATION

Thesis for the Degree of B. S.

A. E. Howell

1927

THESIS

Railroads - Crossings

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SUPPLEMENTARY
MATERIAL
IN BACK OF BOOK

Civil engineering

Railroads + roads



AN ANALYSIS
OF
MICHIGAN'S GRADE CROSSING SITUATION

A Thesis
Submitted to the Faculty
of the
Michigan State College
of
Agriculture and Applied Science

By
A. E. Howell

Candidate
for the
Degree of Bachelor of Science.

June, 1927.

THESIS

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FOREWORD

The author believes that a real problem exists in the present condition and situation of Michigan's grade crossings. If this fragment will provoke either corrective or constructive criticism and, eventually, produce a definite program of complete and exhaustive analysis, it will have accomplished its purpose. An endeavor has been made in the physical construction of this thesis, to segregate statistical data to facilitate the reading.

The writer wishes to express his appreciation to members of the Michigan State Highway Department and the Public Utilities Commission for their kindness in placing the information in their files at his disposal. He is especially grateful to Mr. C. A. Melick for his personal interest and guidance.

A. E. Howell

May 1913

OUTLINE

A. Existing Conditions

1. Railroads of Michigan
2. Highways of Michigan
3. Existing Grade Crossings
4. Present Rate of Protection

B. Necessity for Improvements

1. Public Safety
2. Public Convenience

C. Methods of Improvement

1. Improvement of Site
2. Providing Protection
3. Control of Traffic
4. Elimination & Abandonment
5. Separation

D. Selection of Types & Estimated Costs

1. For Site Improvement
2. For Providing Protection
3. For Traffic Control
4. For Elimination
5. For Separation

E. Financing

1. Conditions in Michigan
2. Railroad Companies' Limitations
3. Conditions in Other States
4. Suggested Methods

F. Legislation

1. 1893 - Act 92 - Grade Separation
2. 1909 - Act 283 General Highway Law
3. 1909 - Act 300 Protection
4. 1925 - Act 92 Clear Vision - Stop
Crossing Law
5. 1925 - Act 114 Grade Separation Act
6. Suggested Legislation

G. Conclusion

1. Effect of Highway Growth on Program
2. Financing
3. Development Trend of Grade Separations

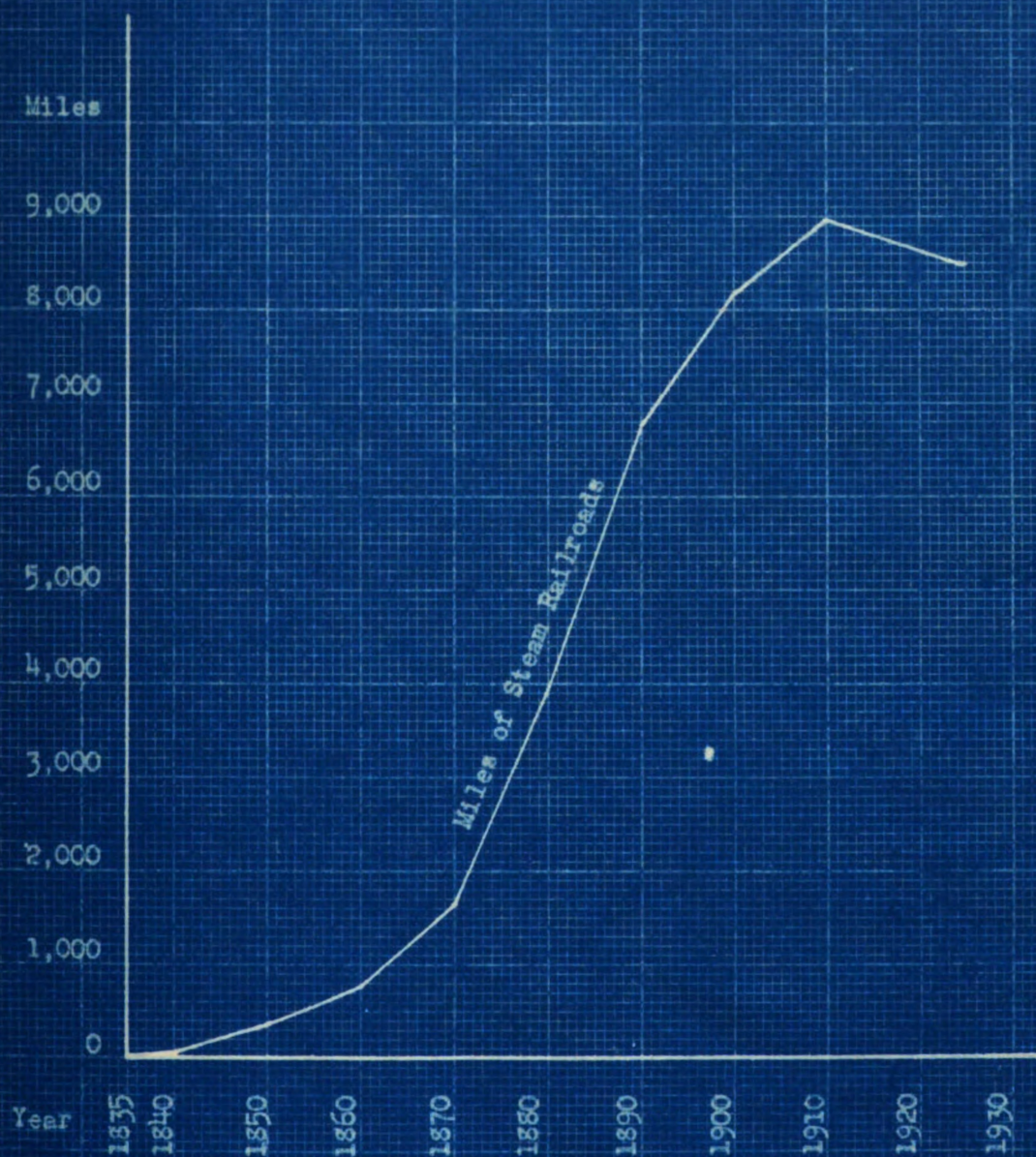
SUPPLEMENTARY
MATERIAL
IN BACK OF BOOK

Our forefathers generally conceded that a four rod street or highway was ample enough to care for all traffic consideration. Already, we have been forced to more than triple that ample width. It would be unjust to blame them for not foreseeing our requirements because the country was new and they had no working basis. We cannot, however, offer ourselves the same loophole in the treatment of our highways. We have the working basis of our already crying needs and the basis of the last score of years for predicting a very actual future.

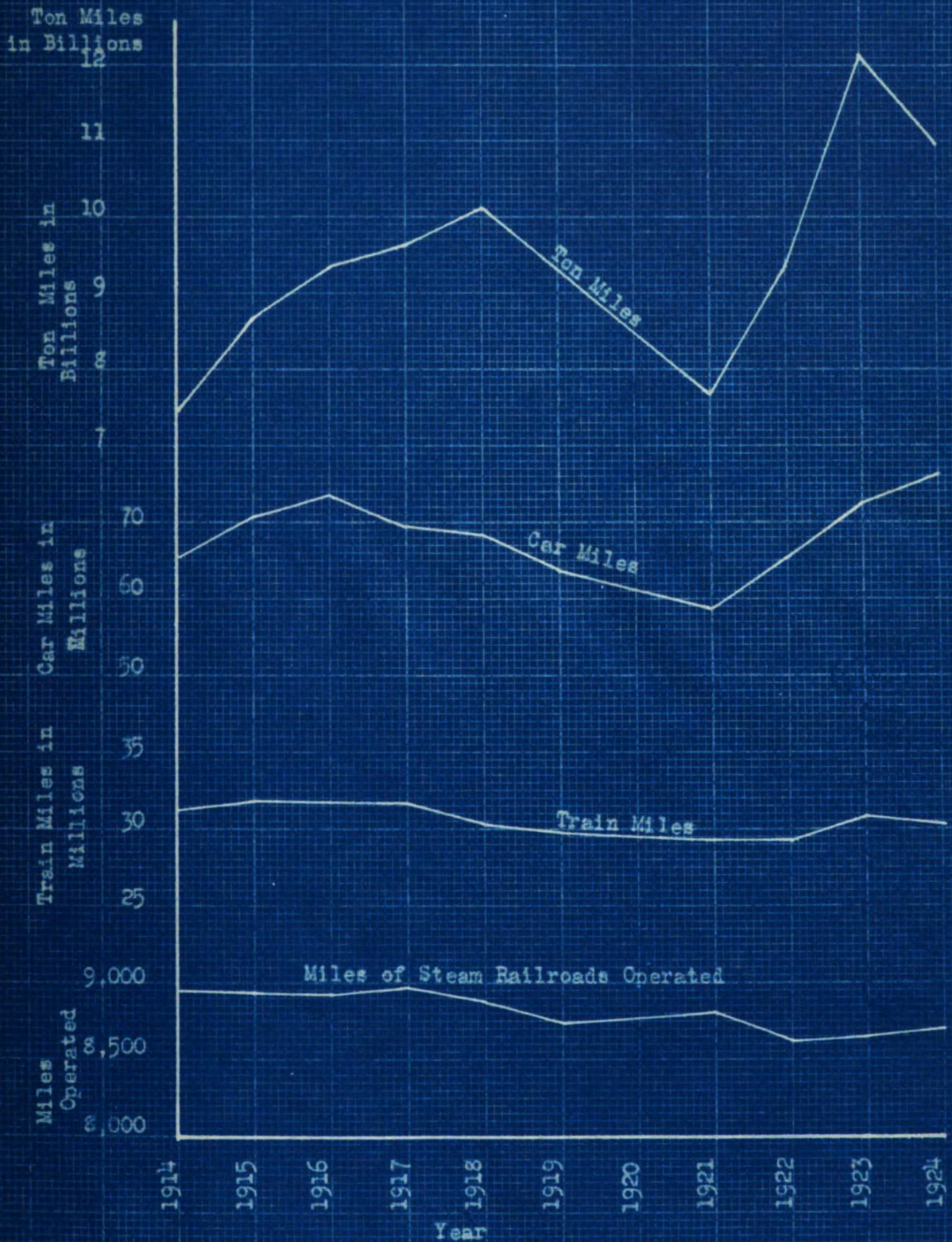
Existing Conditions

Michigan, in its early development, was chiefly a timber state. This called for an extensive use of the railroad in logging spurs and the eventual marketing. This had a tendency to create an excess railroad mileage in the state. Due to this heavy mileage, industry has been able to step in and hold the railroad from disappearing. A glance at the following chart, Page 2, will substantiate this: from 1870 to 1890, a sharp increase is evident; at 1910, the saturation point was reached and since 1914 (Chart Page 3) the railroad mileage has been practically constant. The electric railroad mileage, while it has fluctuated, does not show sufficient variation to predict a marked decrease.

There is a general opinion that the automobile might displace the railroad. This is hardly feasible because one of the largest costs of the railroad is the initial cost. As this has already been expended, industry will be able to

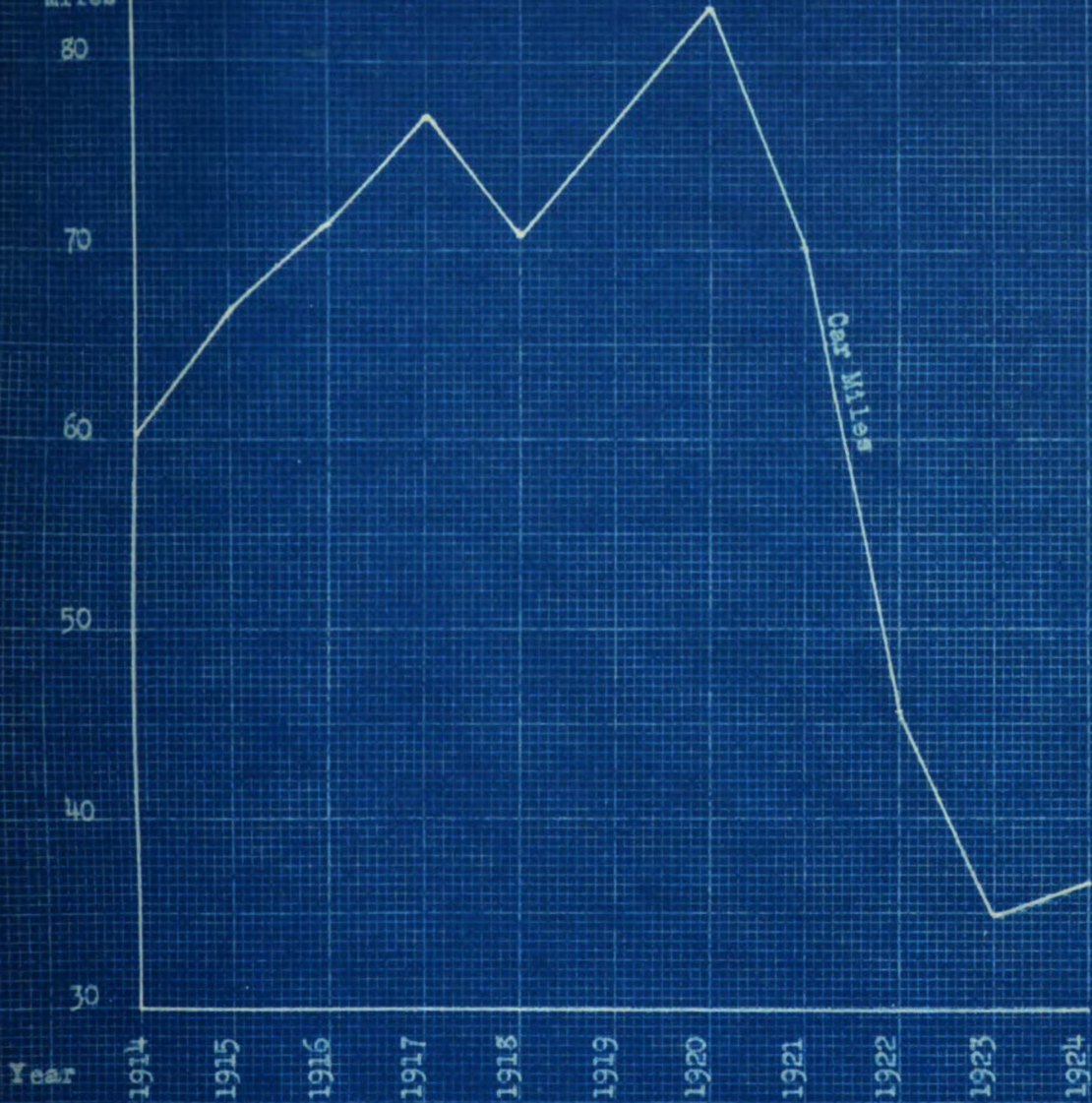
GROWTH OF MICHIGAN STEAM RAILROADS

MICHIGAN STEAM RAILROADS



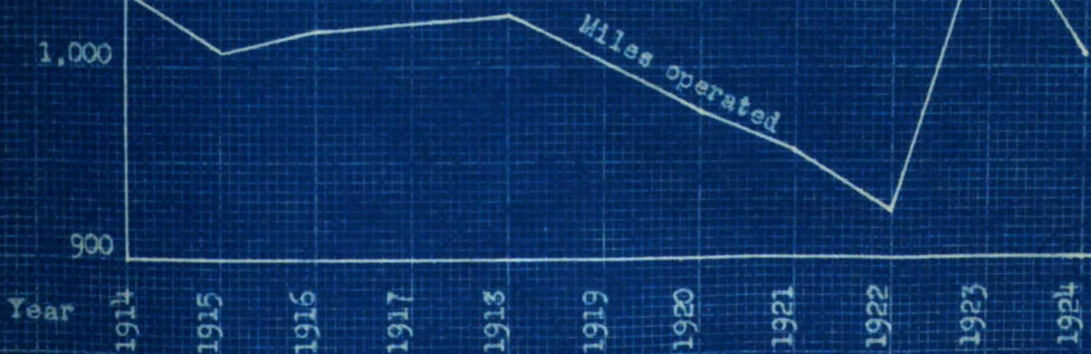
Million
Car
Miles

ELECTRIC RAILWAY CAR MILES FOR MICHIGAN



Miles
1,100
1,000
900

ELECTRIC RAILWAY MILES OPERATED

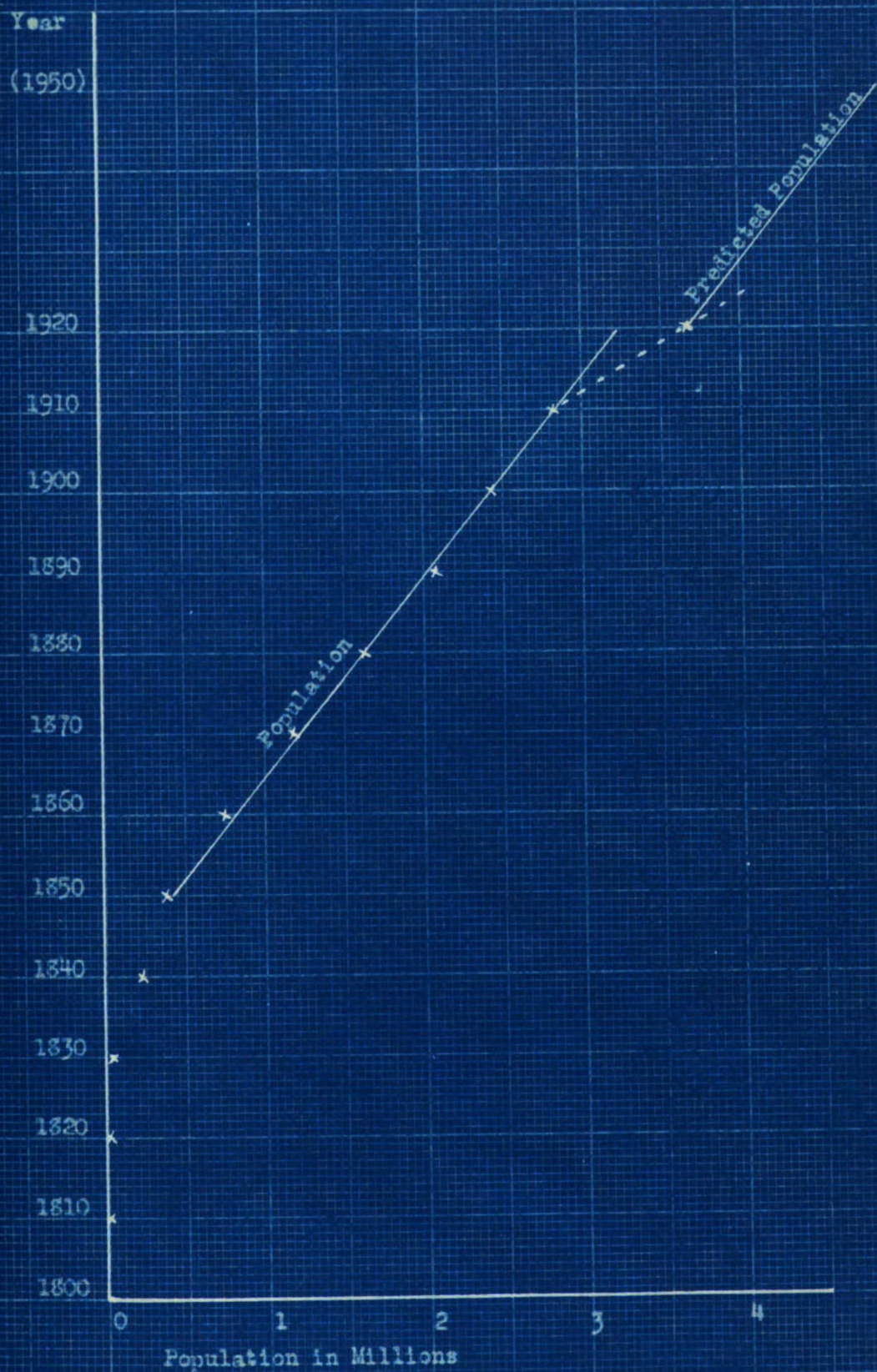


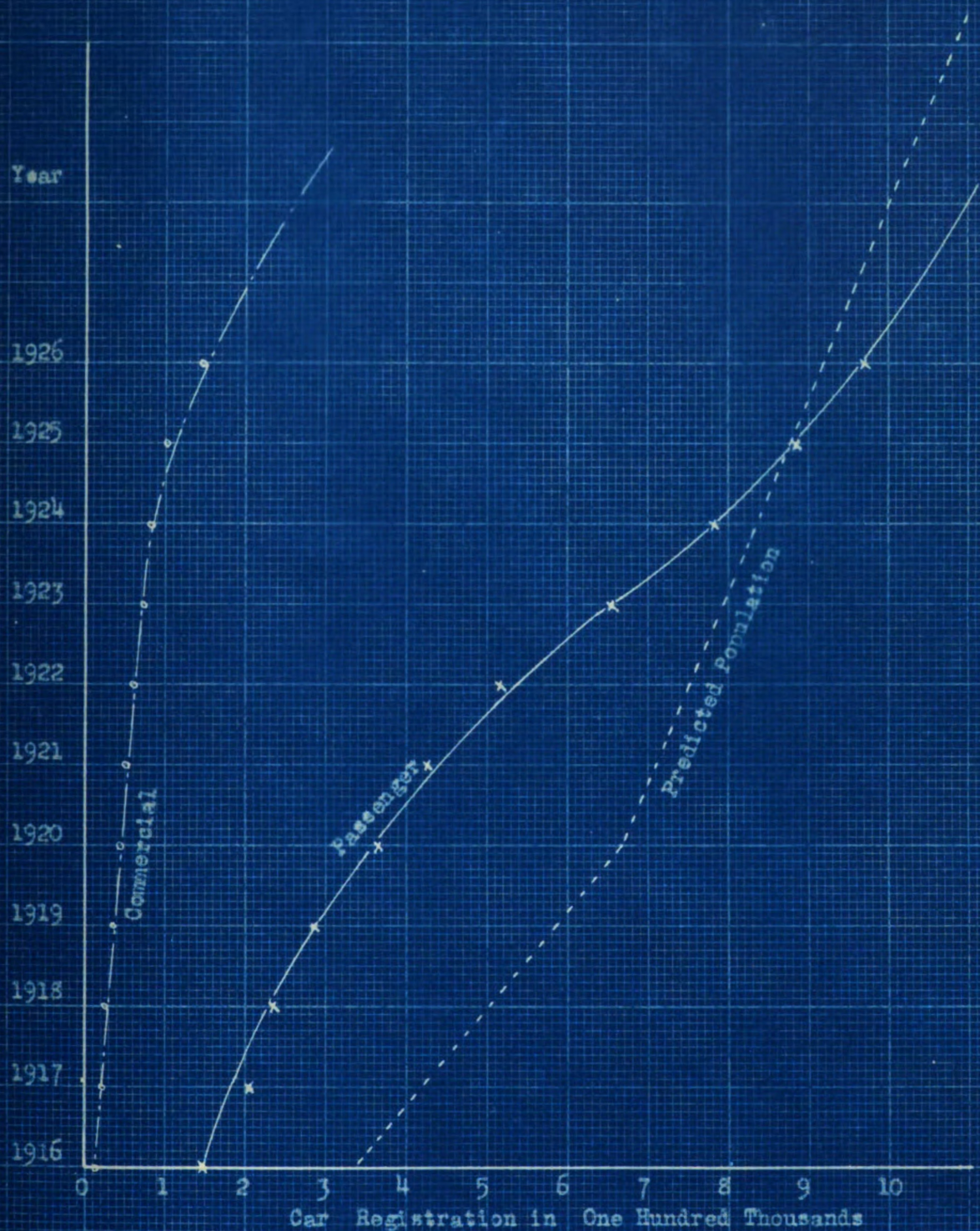
warrant the maintenance. The statistics seem to point even to a general increase in car miles and ton miles for steam railroads. We must accept, then, our railroad mileage as established for the future; 3,704 miles of operated steam railroads and 1,006 miles interurban and suburban electric railroads.

The public must be served and as long as the public purchases automobiles, the public must be served with highways. The graph of population given on the next page, indicates that the normal conservative growth is at the rate of one million for every twenty-five years. (This is on the assumption that the growth from 1910 to 1920 was abnormal, which the curve shows is logical.) The curves of motor vehicle registration point to a motor vehicle density of at least 1 to 3 by 1930 and even greater. Our highways must be capable of taking an approximate increase of 13,300 vehicles each year.

At the present time, the state has 7,103.5 miles of determined trunk line roads; 14,170 miles of county roads (county road mileage was obtained by measuring the roads on county maps of about 3/8" scale, with map measurer); and an estimated mileage of 7,000 miles of improved township roads. The graph of improved road mileage is only approximate, with the exception of the trunk line roads, as county and township road information is incomplete and there are evidently errors in such information as is obtainable, as the curves indicate. (See Page 8.) There is an estimated total mileage of 80,000 miles of roads in Michigan, both improved and unimproved. Any additional roads built will probably be over the remaining unimproved stretches.

GRAPH SHOWING POPULATION OF MICHIGAN



MOTOR VEHICLE REGISTRATION IN MICHIGAN

Note:- Add Three Million to obtain correct figure for Population Curve.

IMPROVED ROADS OF MICHIGAN

Miles

30,000

20,000

10,000

0

1906

1908

1910

1912

1914

1916

1918

1920

1922

1924

1926

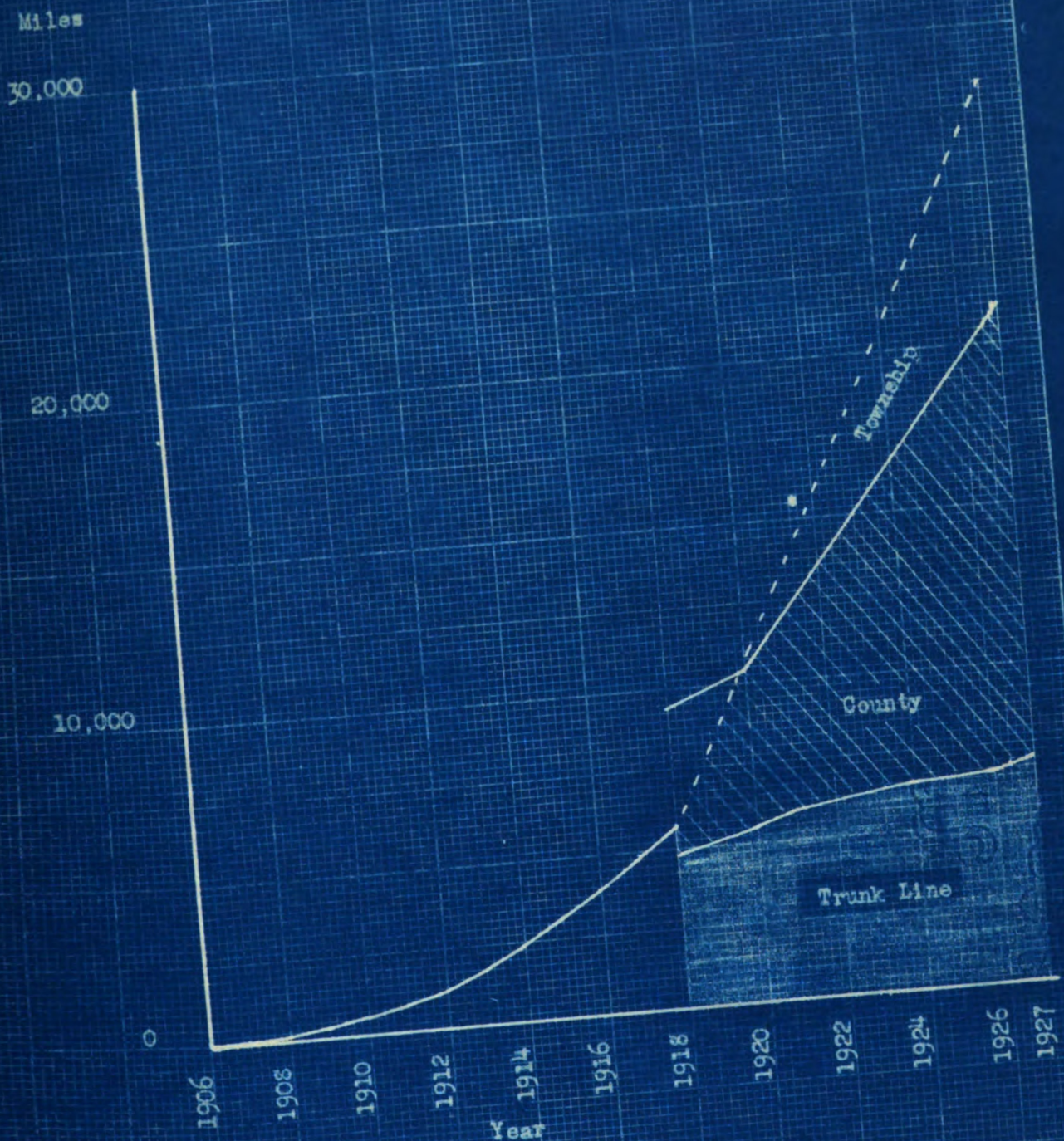
1927

Year

Township

County

Trunk Line



If we assume that our present improved mileage takes care of our present traffic, which is doubtful in many cases, we can calculate the mileage necessary to improve in order to take care of increased traffic each year. That is, 1,134,000 - present vehicle registration - is to 23,000 miles - approximate present improved mileage - as 13,300 - estimated vehicle increase each year - is to additional yearly required mileage, or approximately 330 miles.

The following chart on Page 10, tells its own story. Of the 11,082 grade crossings only 801 are protected by either gates or flagmen; 580, protected by crossing alarms; and the remaining 9,701 left unprotected. On steam railroads in the lower peninsula, there are 303 crossings on trunk line roads, outside of cities and villages; 875 crossings on county roads; 3,752 on township roads; 1,953 in cities; and 1,546 in villages, or a total of 8,429 crossings. The term "cities" as used here, includes all over 6,000 population, this division being used as the state statutes do not allow the state to participate in the cost of any improvements in these cities. Crossings in villages were segregated as the speed of both trains and vehicles is reduced and a different class of hazard is encountered.

The rate of protection is almost nil as far as the actual increased rate is concerned. That is, as many new crossings have been added each year as have been improved. With 80,000 miles of road in the state and 11,082 railroad crossings, there is approximately one crossing for every eight miles of road. If we must add 330 miles of improved roads each year to handle our

GRADE CROSSINGS IN MICHIGANNumber of
Crossings

10,000

8,000

6,000

4,000

2,000

0

Year

1919

1921

1922

1923

1924



Protected by Gates or Flagmen



Crossing Alarm



Unprotected

traffic, this will necessitate the improvement of approximately forty crossings. For the past seven years, the following number of crossings have been eliminated either by relocation, abandonment, or separation: 10,6,13,17,17,17, and 5. (The figure for 1926 is incomplete.) This is apparently about 17 per year. It is very evident that we are not only failing to improve our crossing situation but we are falling behind at the rate of approximately 23 crossings a year.

Necessity for Improvement

The safety of the public should be our greatest concern. During 1926, 176 persons were killed on grade crossings and 482 persons injured. Many of our crossings are dangerous due to the inadequate warning to the motorist. The old "Stop, Look and Listen" cross is no longer adequate if it ever was. The motorist of today does not and can not give the roadside his entire attention. "Henry" will not take a free reign as "Dobbin" did. Highway officials have done much toward adopting a standard sign, placed at adequate distance from the crossing and painted of such a color as to attract attention. The part that remains is to keep down the roadside planting and the unofficial roadside sign.

But even then, unless the presence of trains is indicated to the motorist there is danger of accident either in the confidence of seeing the car ahead safely cross, or through contempt of possible danger. Warning bells, flash and wigwag signals have been devised to fill this need but they have their mechanical imperfections. Perhaps, the best way to check the mechanical features would be as suggested by the Safety Office of the D. T. & I. Railroad:

"Adopt standard red light flasher which will flash when trains are approaching and remain still at other times. An additional feature to be a yellow light about 1500 feet from the crossing for the benefit of engineers. This light to work in conjunction with the flasher and flash intermittently when flasher is in working order. The engineer can then take the necessary precautions when flasher at the crossing is not working, and report the condition at the next stop."

ACCIDENTS ON RAILROAD GRADE CROSSINGS OF MICHIGAN



Pedestrian



Motor Vehicles (after 1922, otherwise



Other Vehicles unclassified)

As long as the crossing remains at grade there will be the danger of poor vision and inaudibility, as in the case of the bus driver for a consolidated school, who - during a storm - stopped the bus, got out and looked up and down the tracks. However, by the time he had returned to the bus and driven onto the track, a train had reached the crossing and the result was demolition.

There is a saying that "a car will run a thousand miles to stop on a railroad track." This occurrence cannot be blamed on the motorist as long as so many crossings are so rough, and approach grades so steep, as to stall motors.

The danger of a crossing is directly proportional to the amount of traffic but not uniformly so. That is, if the traffic, either railroad or highway, is doubled the danger is increased by more than two. Traffic in both branches have been developing higher speed, with attendant dangers.

In dollars and cents, public safety is hard to measure as long as the value of life is so indeterminate. Last year's loss of private property will estimate at \$125,000; railroad property loss about \$10,000; and (if we place the low value of \$25,000 for a life and \$10,000 for injury) loss of life, at \$4,400,000 and injury, at \$4,820,000. Consequently, we should be willing to spend a total of \$9,355,000 each year for grade crossing elimination or protection.

Next in importance to public safety is public convenience. The inconvenience of a grade crossing is most notable in cities where a few minutes' tie-up creates a traffic jam that takes

several times as long to straighten out. Probably the most inconvenient tie-up, and a rather indeterminate one, is the result of switching operations, where one train will stand or move back and forth over the same crossing for as long as five or ten minutes. This has the effect of choking traffic to the point where the prevention of accidents is almost impossible. That is, if the crossing, itself, does not produce the danger, the indirect result produces it on the highway.

The economic value of public inconvenience is measured in time loss, power loss, and emergency loss, all of which must be considered - time loss to delivery and transportation companies, power loss due to the waiting motor vehicles, and emergency loss of delayed fire, ambulance, and police trucks.

Methods of Improvement

A view of 600 feet in each direction along the railroad at a distance of 300 feet from the crossing on the highway, has been established as the minimum requirement for proper site conditions. This will mean the regulation of cultivated growths in the adjacent fields or, perhaps, the removal of brush or timbered growths. Artificial obstructions will have to be removed and often the embankments, graded down.

Protection at the site may be provided by merely indicating location of the crossing or by indicating the presence of trains. The location of the crossing should be established in such a manner that it may be as ascertainable at night as in the daytime. This may require the use of reflector, daylight lens, or artificial light. The presence of trains may be indicated by track circuit wigwag, flasher - either with or without gong - flagmen, or gates.

There are four possible phases of traffic control: (1) Stop Railroad; (2) Stop Highway; (3) Slow Railroad; and (4) Slow Highway. Protection of this type cannot be as effective as might at first be anticipated. Railroad employees can be depended upon but the average motorist, either through ignorance or neglect, cannot be depended upon to make the stop even if he is aware of the type of crossing. The same thing is encountered in cities, where stop streets are only observed when a traffic officer is in sight.

Elimination or abandonment is the most effective method of improvement, if it may be called improvement. Due to the fact

that the majority of dangerous crossings, in the past, have been improved by elimination, an erroneous deduction is often made. That is, that most of the existing crossings may be improved by this method. Reference to the railroad map (in the pocket of this treatise) will readily show that railroad lines extend in such directions as to make impossible very long stretches of roads without railroad crossings. The amount of crossing improvement by elimination is more or less fixed and this being the path of least resistance, has been followed in the past. However, this must soon end.

Improvement by separation is the best cure-all except for the one item of maintenance. Grade separation does not restrict either type of traffic, does not inconvenience the public either through traffic hold up or increased mileage of relocation, and is as safe as ordinary highways to even the careless motorist.

Selection of Types & Estimated Costs

In rural districts, site improvement can, in the vast majority of cases, be projected at very little cost, while in suburban and urban districts the cost would be prohibitive. Site improvement, when used alone, should be used for only low traffic roads of unimproved or rural nature. The cost of maintenance, which would consist of weed cutting and brushing, would be done by both Highway and railroad crews along with the regular roadside maintenance at practically no additional expense. The estimated average cost for site improvement where no grading is required, is from \$100 to \$500, which is chiefly the cost for land leases. If grading is required, it can be accomplished to the extent of cutting embankments down six to eight feet before the next class of improvement is encountered.

Protection by track circuit flasher or wigwag costs about \$200 a year to maintain, which capitalized would make protection of this nature worth \$3500. If improvement of site costs over this amount, protection by track circuit would be permissible on low traffic roads.

Roads of medium traffic, which would include at least all county outline roads, should have both site improvement and track circuit protection - cost ranging from \$3,500 to \$10,000. Failing in this type of protection, a flagman from part to full time should be required, with a capitalized cost ranging from \$10,000 to as high as \$25,000. On the heavier type roads and in cities where protection by gates is necessary, the capital-

ized cost may run as high as \$55,000. This is on the basis of a \$2,000 installation cost and capitalized cost of watchman and maintenance at \$3,130.

The last method of grade analysis is the regulation of traffic. The stop order on the railroad is the most effective and also the most expensive. Consequently, such measures could be applied only to crossings with light railroad traffic and, for economic considerations, crossings of heavy highway traffic. The average cost of a train stop is estimated at \$5.00. (The Illinois Central has given figures ranging from 74¢, for passenger trains, to \$6.39 for overtime charge on a heavy freight train. Santa Fe Coast lines have figured the cost to range from \$5.00 to \$30.00.) A capitalized cost of \$30,000 will be required for each train stopped per day.

The highway stop crossing, while not as effective, seems to be the favorite method of procedure - probably because the cost is spread out and hard to determine. In order for the highway stop order to retain its effectiveness, it should be used as little as possible so as not to create an indifferent attitude on the part of the public. The estimated cost of the vehicle stop is 1½¢ per vehicle. This would allow a traffic of 335 vehicles per day for the same capitalization cost as the stoppage of one train per day.

The slow train and slow highway orders are to be applied in conjunction with other methods of protection but cannot be considered of sufficient protection to warrant their use alone at any time. The cost will be chiefly a time loss and should

not be considered of sufficient magnitude to throw the balance to a lesser type of crossing analysis.

The two positive types of crossing improvement, elimination and separation, are to be used on all heavy traffic highways. Elimination is to be of first consideration and used wherever possible. In the case of building a new road, this cost is almost negligible or it may run to the full amount of the cost of relocation - the cost depending on the type of highway improvement and may run as high as \$30,000.

Separation cost depends upon the topographic features, angle of crossing, roadway widths, and the adjacent grades of the railroad and highway. The cost of modern structures will vary from \$40,000 to as high as \$150,000.

Summary:

Partial Protection

Site improvement without grading	\$100 - \$500
" " With "	\$500 - \$3,500
Track Circuit Protection	\$3,500
Track Circuit Protection & Site Improvement	\$3,500-\$10,000
Flagman, Part Time	\$10,000 - \$25,000
Flagmen & Gates	\$25,000 - \$55,000
Stop R.R., Per Train, Per Day	\$30,000
Stop Highway, Per 335 Vehicles Per Day	\$30,000

Complete Protection

Elimination	0 - \$30,000
Separation	\$40,000 - \$150,000

Financing

Regardless of danger or public convenience, unless a matter can be reduced to dollars and cents, it is quite liable to become a matter of conversation instead of action. In the past and at the present time, in Michigan, finances for grade crossing improvement have come from the general highway fund of the state, county, city or special district and the railroad. Finances have never been appropriated directly for this use by the highway organizations, and if used very extensively for this purpose, do not make an outstanding record as so many miles of roads would.

Railroad companies do establish definite improvement programs but their resources are limited and they are built primarily to produce dividends. In order for them to participate, with justice to the other features of their enterprise, they must have a financial program arrangement for a period of at least ten years in advance.

In New York, a \$300,000,000 bond issue has been provided by the state statutes to improve crossings at grade. This statute provides that the state or state and municipality pay 50% and the railroad, 50% of the cost of improvement. Provision is also made to loan money to the railroads for their share in such cases as are necessary.

Maryland has adopted a policy of making an advance agreement with all the principal railroad companies in the state. This method secures better cooperation with the railroads but does not necessarily produce active results where finances are lacking.

It is suggested that this state adopt a policy combining both features; that is, make agreements with the leading railroad companies to cover a certain definite program and establish, by statute, a basis for financing.

Legislation

No. 92
1893

An act to provide separate grades for roads and public highways and streets where roads intersect such highways and streets.

This act specified as to whom the agreements were to be made for crossing protection; in general, between the official having jurisdiction over the highway and the railroad company. The agreement was to contain plan provision and specify grades and apportionment of cost.

A Board of Railroad and Street Crossings was appointed to investigate the petitions of those desiring grade separations - the board having the power to employ an engineer to make accurate plans. The petition was then to be filed with the court and a jury of twenty-four impanelled to determine the necessity. Either party had the right to appeal the case.

A maximum grade of 10% was allowable on the highway and of 17% on the railroad.

The railroad company was to maintain the structure either for over pass or under pass and the highway authorities were to maintain the highway approaches in both cases.

Act 233
1909

An act to revise, consolidate and add to the laws relating to the establishment, opening, improvement, maintenance and use of the public highways and private roads, the condemnation of property and gravel therefor; the building, repairing and preservation of bridges; setting and protecting shade trees, drainage, cutting weeds and brush within this state, and providing for the election and defining the powers, duties and compensation of state, county, township and district highway officials.

Section 27 of this act provided for the securing of right of way for the highway at crossing. The railroad company was entitled to just compensation. The Railroad Commissioner of the state, upon application of the Highway Commissioner, furnished plans for approaches, safeguards, etc. Supervision of the work at crossing was to be furnished by the railroad company. The cost of such supervision was specified and fines imposed if the railroad obstructed or delayed construction of crossings.

Act 300
1909

An act to define and regulate common carriers and the receiving, transportation and delivery of persons and property, prevent the imposition of unreasonable rates, prevent unjust discrimination, insure adequate service, create the Michigan Railroad Commission, define the powers and duties thereof and to prescribe penalties for violation hereof.

Flagmen, electric bells, etc. as a means of crossing protection, was established by this act, the Railroad Commissioner determining the need therefor. Such protection was to be assumed by the railroad company.

Act 92
1925

An act to provide for the better protection of human life at crossings at grade of railroads, interurban and suburban railways with public streets, highways, alleys, private roads and ways and crossings.

State Administrative Board is empowered to establish stop crossings for the highway, a list of crossings being furnished by the State Highway Commissioner which, in his opinion, should be so designated. Signs designating crossings as stop crossings are to be placed by the State Highway Commissioner

and all other signs of advertisement or of such nature, are to be removed within 500 feet of any railway and highway intersection. However, railroad companies are not relieved of any responsibility or obligations.

Act 114
1925

An act to regulate the separating of grades at crossings of railroads with public streets and highways; to authorize the relocation of such crossings; and to provide for apportioning the cost thereof against the railroad company and the state, county, township, city or village, or the board, commission or other agency interested therein.

The Michigan Public Utilities Commission is given supervision and regulation of crossings, except in cities of over 6,000 population, by this act. Applications are made to the Commission for separations of grades together with plans and agreements with the railroad company, if any, by the authority having jurisdiction over the street or highway. The Michigan Public Utilities Commission then sets a date for hearing and after the hearing, reports the findings which govern.

The cost distribution is established at a 50% share for the railroad and 50% for the state, county, or other highway body. Any controversies in amounts are governed by the Commission, as is also the division of maintenance. The cost of right of way, detouring of traffic, either railroad or highway, or operation of trains is not to be included in the division of cost.

A further clause provides that if the railroad does not file a consent or waiver to new street crossings, the Commission

will be empowered to distribute improvement costs irrespective of the 50-50 basis and the highway authorities may obtain right of way by the same procedure as for other highway purposes.

Our traffic laws carry with them sufficient fines, so we hope at least to pay for our traffic regulation. To promote education, our legislatures have provided a special tax for this purpose. However, in conjunction with the railroads, we have the traffic but not the finances to furnish the proper protection; we have the "ad valorem" tax to obtain the money but not the use to which it is to be put; hence, it goes to support the insane or what not, along with the rest of the general fund. What could be more justifiable than the use of the railroad tax for railroad purposes?

Conclusion

A conservative analysis of our highway growth would lead us to assume that grade crossings should be eliminated at least at the rate of forty a year - that is, after we have caught up with our present needs. The steam railroads are here to stay. We may reasonably expect the motor truck to supplant a large portion of the electric lines, but that is merely taking from one hand and adding to the other insofar as crossing protection is concerned.

To finance our railroad crossing improvement projects, we have a total "ad valorem" tax of about \$7,330,000. Deducting 10% for collections and departmental costs, we have available over \$7,000,000 from this source alone. If we add to this our accident bill of \$9,000,000, we have a total of \$16,000,000 for railroad grade crossing improvements or an equivalent of at least 160 grade separation structures.

On the following pages are a few photographs showing the general development and trend of the grade separation structure. Page 23 shows the old timber trestle with narrow roadway. The caution sign as to load limit is a clear indication that this type should be replaced. Page 29 shows a through girder type under pass with timber approaches, also a structure not capable of withstanding modern loads and, incidentally, a structure of high maintenance costs.

The type of through plate girder on Page 30 is of sufficient strength but is high in maintenance costs.



OLD TIMBER TRESTLE

Narrow Roadway

Inadequate Strength



PLATE GIRDER

Narrow Roadway High Maintenance



URBAN & SUBURBAN TYPE
High Maintenance

On pages 32 and 33 are also shown the latest grade separation under pass and over pass, as developed by the Michigan State Highway Department. At the top of Page 32 is shown the type of structure built three years ago - the "Camel Back" - already obsolete, due to its twenty-four foot limit for roadway width. The other structures have roadway widths of forty and forty-two feet. This type, we believe ample to take care of all future needs.



"CAMEL BACK"
Narrow Roadway



ENCASED PLATE GIRDER



CONCRETE T-BEAM

APPENDIX

Michigan Steam Railroad (1924)	1
Growth of Steam & Electric Railroad	2
Progress of Grade Crossing Protection	2
State Population Statistics	3
Growth of Trunk Line Mileage	3
Trunk Line & County Outline Mileage	4-5
Vehicle Registration	6
Cities of over 6,000 Population	7
Accidents on Grade Crossings	8
Classification of Railroad Crossings	
by Counties & Railroads	9-15
Sample Railroad Report of Clinton County	16-19

POCKET

Railroad Map of Lower Peninsula.

MICHIGAN'S STEAM RAILROADS

<u>Railroad</u>	<u>T'l Mileage</u>	<u>Tons Freight</u>
Chicago, Mil. & St. Paul	264.65	3,509,804
Chicago & North Western	516.94	11,108,995
Copper Range R.R.	113.62	1,394,115
Duluth, South Shore & Atlantic	473.59	4,369,327
Escanaba & Lake Superior	75.72	737,617
Lake Superior & Ishpeming	161.51	3,011,381
Manistique & Lake Superior	33.47	236,164
Mineral Range	88.97	1,309,330
Minneapolis, St. Paul & S.Ste.Me.	249.73	2,602,508
Ontonagon R. R.	15.00	50,001
Ann Arbor	233.14	3,233,231
Boyer City, Gaylord & Alpena	91.52	408,330
Chi., Kalamazoo & Saginaw	45.91	-----
Cincinnati Northern	41.09	697,438
Cleveland, Cin., Chi. & St. Louis	34.97	425,628
Detroit, Bay City & Western	99.30	363,786
Detroit & Mackinac	375.42	1,175,249
Detroit Terminal	26.77	-----
Detroit, Toledo & Ironton	116.62	5,051,179
Detroit & Toledo Shore Line	57.63	5,631,964
Det. & Canada G.T. Junction	59.55	4,609,006
Cincinnati, Saginaw & Mackinaw	54.27	542,410
Detroit, Grand Haven & Milwaukee	139.83	7,156,157
Grand Trunk Western	236.06	6,769,901
Michigan Air Line	105.92	983,850
Pontiac, Oxford & Northern	99.89	1,169,453
St. Clair Tunnel Co.	1.01	-----
Toledo, Saginaw & Muskegon	116.23	403,325
Manistee & North Eastern	191.17	311,524
Michigan Central	1,256.79	25,893,187
New York Central	533.10	2,935,409
Pennsylvania	504.19	No Data
Perc Marquette	1,736.15	15,250,772
Port Huron-Detroit	19.03	264,900
Wabash	119.81	6,075,898
Blaney & Southern	7.56	59,895
Houghton, Chassell & S. Western	11.75	-----
Quincey & Torch Lake	-----	-----
Wisconsin & Michigan	57.79	216,689
Arcadia & Betsey River	17.30	12,663
Delray Connecting	12.94	544,002
Detroit & Huron	18.53	62,235
Detroit & Western	.66	-----
East Jordan & Southern	49.55	224,267
Erie & Mich. Ry. & Navigation Co.	10.92	-----
Kalamazoo, Lake Shore & Chi.	15.94	6,576
Wyandotte Terminal	6.32	-----
	<u>8,703.08</u>	<u>119,308,721</u>

<u>Year</u>	<u>Miles Oper.</u>	<u>STEAM R.R.</u>			<u>ELECTRIC R.R.</u>	
		<u>Thous. Train Miles</u>	<u>Mill. Car Miles</u>	<u>Mill. Ton Miles</u>	<u>Miles Oper.</u>	<u>Thous. Car Miles</u>
1914	8,947	32,467	654	7,450	1,040	60,201
1915	8,925	33,563	708	8,674	1,007	66,792
1916	8,922	34,363	733	9,323	1,019	71,398
1917	8,972	33,133	696	9,622	1,023	77,110
1918	8,870	30,547	682	10,132	1,027	70,755
1919	8,743	29,745	638	9,302		
1920	N.Y.C. and M.C. not reported				976	32,931
1921	8,803	23,446	537	7,666	956	70,237
1922	8,614	23,450	653	9,331	924	45,669
1923	8,643	31,966	726	12,130	1,034	34,930
1924	8,708	30,625	762	10,969	1,006	36,635

GRADE CROSSINGS

<u>Year</u>	<u>Gates or Flagman</u>	<u>Crossing Alarm</u>	<u>Unprotected</u>	<u>Total</u>	<u>Eliminated</u>
1919	781	502	8,770	10,053	10
1921	743	522	8,710	9,970	6
1922	856	460	9,643	10,959	18
1923	798	579	9,670	11,047	17
1924	301	580	9,701	11,082	17

STATE POPULATION

<u>Year</u>	<u>Population</u>
1800	551
1810	4,762
1820	3,896
1830	31,639
1840	212,267
1850	397,654
1860	749,113
1870	1,184,234
1880	1,636,937
1890	2,093,839
1900	2,420,932
1910	2,810,173
1920	3,663,412

TRUNK LINE MILEAGE

<u>Year</u>	<u>Mileage</u>
1913	4,786
1920	5,500
1921	5,914
1924	6,530
1926	6,700
1927, to date	7,103.5

ROAD MILEAGECOUNTIESTRUNK LINECOUNTY OUTLINE

Alcona	54.9	80
Alger	90.0	9
Allegan	106.0	395
Alpena	47.7	292
Antrim	76.7	132
Arenac	56.3	52
Baraga	110.5	6
Barry	102.5	169
Bay	57.9	172
Benzie	53.9	0
Berrien	109.2	314
Branch	59.2	275
Calhoun	102.1	311
Cass	76.1	227
Charlevoix	49.3	149
Cheboygan	83.2	125
Chippewa	149.1	93
Clare	52.8	169
Clinton	75.7	137
Crawford	55.5	31
Delta	105.1	100
Dickinson	84.4	32
Eaton	103.8	170
Emmet	56.1	135
Genesee	92.6	493
Gladwin	69.4	42
Gogebie	94.2	79
Grand Traverse	52.1	61
Gratiot	76.6	149
Hillsdale	91.6	166
Houghton	100.3	74
Huron	136.7	232
Ingham	70.3	237
Ionia	135.5	302
Iosco	63.3	131
Iron	95.9	63
Isabella	61.1	232
Jackson	111.2	234
Kalamazoo	65.6	346
Kalkaska	37.9	104
Kent	151.2	344
Keweenaw	51.8	7
Lake	53.2	87
Lapeer	103.4	253
Leelanau	64.5	143
Lenawee	132.8	150
Livingston	75.1	344

(Road Mileage Conc'd)

<u>COUNTIES</u>	<u>TRUNK LINE</u>	<u>COUNTY OUTLINE</u>
Luce	58.9	9
Mackinac	119.7	0
Macomb	81.3	286
Manistee	45.2	168
Marquette	157.9	85
Mason	45.1	123
Mecosta	80.7	240
Menominee	105.8	160
Midland	83.0	165
Missaukee	80.7	95
Monroe	98.6	198
Montcalm	112.3	127
Montmorency	40.5	23
Muskegon	79.1	162
Newaygo	106.1	158
Oakland	106.5	559
Oceana	69.6	0
Ogemaw	54.6	129
Ontonagon	117.5	125
Osceola	93.8	75
Oscoda	45.2	4
Otsego	53.1	17
Ottawa	85.3	157
Presque Isle	52.3	105
Roscommon	85.9	44
Saginaw	131.6	444
Sanilac	160.5	244
Schoolcraft	101.5	11
Shiawassee	73.0	318
St. Clair	140.0	304
St. Joseph	83.7	252
Tuscola	110.3	336
Van Buren	65.2	158
Washtenaw	106.2	365
Wayne	114.6	360
Wexford	53.9	162
	7108.5	14,171.0

VEHICLE REGISTRATION

<u>Year</u>	<u>Passenger</u>	<u>Commercial</u>	<u>Trailers</u>	<u>Total</u>
1916	143,495	11,557		160,052
1917	206,380	20,313		226,693
1918	235,608	26,517		262,125
1919	233,708	37,105		325,813
1920	366,946	45,771	3,711	416,428
1921	426,934	50,053	4,330	431,367
1922	518,553	60,422	5,311	534,291
1923	657,148	73,510	6,730	737,388
1924	784,778	83,909	8,635	877,222
1925	836,878	103,831	10,601	1,001,310
1926	970,880	149,561	13,636	1,134,077

CITIES OF MICHIGAN OVER 6,000 POPULATION

1920 Census

Adrian	Lansing
Albion	Laurium
Alma	Ludington
Alpena	Manistee
Ann Arbor	Manistique
Battle Creek	Marquette
Cadillac	Menominee
Coldwater	Monroe
Detroit	Mount Clemens
Escanaba	Muskegon
Flint	Muskegon Heights
Grand Haven	Negaunee
Grand Rapids	Niles
Hamtramck Village	Owosso
Hancock	Pontiac
Highland Park	Port Huron
Holland	River Rouge
Ionia	Royal Oak
Iron Mountain	Saginaw
Ironwood	Sault Sainte Marie
Ishpeming	St. Joseph
Jackson	Traverse City
Kalamazoo	Wyandotte
	Ypsilanti

ACCIDENTS ON GRADE CROSSINGS

KILLED

<u>Year</u>	<u>Pedes-</u> <u>trians</u>	<u>Motor</u> <u>Vehicles</u>	<u>Other</u> <u>Vehicles</u>	<u>Total</u>
1915				93
1916				122
1917				103
1918				83
1919				103
1920				143
1921				89
1922	21	110	6	137
1923	30	159	5	194
1924	38	162	2	202
1925	20	135	2	157
1926	17	157	2	176

INJURED

1915				221
1916				342
1917				272
1918				130
1919				191
1920				236
1921				282
1922	21	297	64	382
1923	21	409	11	441
1924	11	459	20	490
1925	17	435	16	468
1926	13	461	3	482

COUNTY	RAILROAD	T.L.	RAILROAD CROSSINGS				Total
			Co. Rd.	Twp. Rd.	City	Vil.	
Alcona	D & M	3	6	33	00	8	50
Allegan	N.Y.Cen.	0	11	13	0	3	37
	G.R.&I.	1	4	17	0	5	27
	P. M.	1	21	42	0	20	<u>34</u> 148
Alpena	BC, G.&A.	1	2	3	2	0	8
	D & M	3	3	30	29	0	<u>65</u> 73
Antrim	BC, G.&A.	0	0	1	0	0	1
	M. C.	1	6	10	0	0	17
	G.R.&I.	1	1	5	0	4	11
	P. M.	0	3	14	0	11	<u>28</u> 57
Arenac	Det. Term.	1	1	28	0	7	37
	M. C.	0	1	14	0	5	<u>20</u> 57
Barry	C., K. & S.	3	7	32	0	13	55
	M. C.	0	0	17	0	14	31
	P. M.	0	0	2	0	3	<u>5</u> 91
Bay	D. & M.	0	6	25	1	0	32
	GT-CS&M	0	0	2	49	0	51
	M. C.	6	12	57	97	5	177
	P. M.	1	1	11	61	0	74
	B.C. Term.	0	0	0	5	0	<u>5</u> 339
Benzie	Ann Arb.	0	0	13	0	15	28
	P. M.	0	0	7	0	3	<u>10</u> 38
Berrien	CCC & SL	3	6	17	17	3	46
	M. C.	2	10	35	32	23	102
	P. M.	7	12	36	8	11	<u>74</u> 222
Branch	M. C.	1	3	25	36	11	81
	N. Y. C.	2	7	18	0	19	<u>46</u> 127
Calhoun	GT-GTW	0	4	8	27	0	39
	M. C.	3	19	37	15	13	92
	N. Y. C.	0	2	6	11	2	<u>21</u> 152

COUNTY	RAILROAD	T.L.	RAILROAD CROSSINGS				Total
			Co. Rd.	Twp. Rd.	City	Vil.	
Cass	CCC & SL	0	3	7	0	0	10
	GT-GTW	2	7	26	0	11	46
	M. C.	3	9	22	0	11	45
							<u>101</u>
Charlevoix							
	BC, G. & A.	2	0	1	0	4	7
	M. C.	0	1	0	0	0	1
	G. R. & I.	3	0	2	0	2	7
	P. M.	0	1	3	0	2	11
							<u>26</u>
Cheboygan	D & M	2	2	10	0	25	39
	M. C.	2	2	32	0	13	54
							<u>93</u>
Clare	Ann Arb.	1	2	12	0	5	20
	P. M.	2	4	11	0	14	31
							<u>51</u>
Clinton	Ann Arb.	0	1	4	0	0	5
	GT-DGH&M	0	1	13	0	13	32
	M. C.	0	1	11	0	4	16
	P. M.	2	0	12	0	0	14
							<u>67</u>
Crawford	M. C.	3	1	13	0	1	23
Eaton	C. R. & S.	1	0	0	0	0	1
	GT-GTW	2	3	23	0	19	52
	M. C.	1	1	21	0	19	42
	N. Y. C.	0	4	11	0	10	25
	P. M.	1	0	13	0	10	29
							<u>149</u>
Emmet	G. R. & I.	6	5	7	0	23	46
	P. M.	0	0	2	0	2	4
							<u>50</u>
Genesee	GT-CS&M	2	10	9	0	4	25
	GT-DGH&M	0	6	4	0	16	26
	GT-GTW	1	11	15	37	3	67
	M. C.	0	0	0	0	1	1
	P. M.	2	15	20	35	15	97
							<u>206</u>
Gladwin	M. C.	1	1	8	0	1	11
	P. M.	0	0	4	0	5	9
							<u>20</u>

RAILROAD CROSSINGS

COUNTY	RAILROAD	T.L.	Co.Rd.	Twp.Rd.	City	Vil.	Total
G.Trav.	G.R.&I.	1	1	11	0	13	26
	P. M.	5	6	22	16	1	50
							<u>76</u>
Gretiot	Ann Arb.	1	5	29	9	12	56
	GT-TS&M	1	2	16	0	6	25
	P. M.	1	4	23	12	18	58
							<u>139</u>
Hillsdale	Cin.North	0	4	8	0	1	13
	M. C.	0	0	1	0	0	1
	N. Y. C.	5	13	59	0	30	107
							<u>121</u>
Huron	GT-M&L	1	1	17	0	5	24
	M. C.	0	1	8	0	1	10
	P. M.	9	3	76	0	32	120
	D & M	0	2	9	0	1	12
							<u>166</u>
Ingham	GT-GTW	2	2	8	8	0	20
	GT-M&L	0	1	0	0	3	4
	M. C.	0	6	22	26	13	67
	N. Y. C.	0	2	2	14	0	18
	P. M.	0	4	14	12	3	33
							<u>142</u>
Ionia	GT-DH&M	0	0	3	7	9	19
	P. M.	8	14	47	10	25	104
							<u>123</u>
Iosco	D & M	3	11	35	0	25	74
	LAIR&MIV.	0	3	2	0	0	5
							<u>79</u>
Isabella	Ann Arb.	2	7	17	0	3	29
	M. C.	1	2	13	0	2	18
	P. M.	0	9	33	0	7	42
							<u>96</u>
Jackson	Cin.North	1	2	6	2	0	11
	GT-M&L	0	4	16	3	0	23
	M. C.	2	7	44	43	9	105
	N. Y. C.	0	3	18	7	5	33
							<u>172</u>
Kalama- zoo	C.K.& S.	0	1	11	21	0	33
	GT-GTW	0	10	25	23	9	72
	M. C.	3	5	25	31	5	69
	N. Y. C.	2	2	14	24	3	45
	G.R.&I.	0	3	18	15	2	38
	P. M.	0	4	4	0	0	9
							<u>265</u>

RAILROAD CROSSINGS

COUNTY	RAILROAD	T.L.	Co.Rd.	Twp.Rd.	City	Vil.	Total
Kalkaska	G.R.&I.	3	3	9	0	7	22
Kent	GT-DGH&M	3	3	8	13	0	32
	GT-TS&M	1	5	27	0	1	34
	M. C.	2	2	13	14	2	33
	N. Y. C.	1	3	13	7	0	24
	G.R.&I.	0	7	19	53	5	89
	P. M.	2	17	50	70	19	158
	G.R.Ter.	0	0	0	2	0	<u>2</u>
							377
Lake	P. M.	3	8	22	0	3	41
Lapeer	GT-GTW	1	3	14	5	2	25
	GT-POLN	1	4	23	0	6	39
	M. C.	2	2	20	11	5	40
	P. M.	0	3	15	0	5	<u>23</u>
							127
Leelanau							0
Lenawee	Cin.North	3	3	13	0	4	23
	D.T.&I.	2	3	22	22	2	51
	N. Y. C.	4	10	54	9	29	<u>106</u>
							130
Livingston	Ann Arb.	4	8	19	0	5	36
	GT-MAL	5	6	17	0	1	29
	P. M.	0	4	24	0	11	<u>39</u>
							104
Macomb	GT-CD&C	0	6	31	6	5	43
	GT-MAL	1	4	20	0	6	31
	M. C.	3	7	3	0	3	<u>21</u>
							100
Manistee	Ann Arb.	0	1	5	0	1	7
	P. M.	1	4	21	19	3	<u>53</u>
							60
Mason	P. M.	3	6	29	6	7	51
	L & No.	1	1	3	4	0	<u>9</u>
							60
Mecosta	G.R.& I.	6	3	9	0	9	27
	P. M.	4	7	39	0	17	<u>67</u>
							94
Midland	M. C.	0	0	2	0	13	15
	P. M.	3	1	22	0	15	<u>41</u>
							56

RAILROAD CROSSINGS

COUNTY	RAILROAD	T.L.	Co. Rd.	Twp. Rd.	City	Vill.	Total
Missaukee	Ann Arb.	0	1	5	0	4	10
	G.R. & I.	3	3	5	0	3	<u>19</u> 29
Monroe	Ann Arb.	2	3	23	0	6	39
	D.T. & I.	1	12	47	0	14	74
	D.T.S.L.	2	5	33	4	0	44
	M. C.	2	5	27	4	0	38
	N. Y. C.	2	9	44	1	3	59
	Penn.	0	2	1	0	0	3
	P. M.	1	7	23	3	2	<u>36</u> 293
Montcalm	GT-TS&M	0	1	21	0	12	34
	G.R. & I.	0	1	10	0	4	15
	P. M.	3	6	34	0	34	<u>132</u> 181
Mont- morency	B.C.G.&A.	2	0	3	0	2	7
	D & M	0	0	1	0	2	3
	M. C.	3	0	9	0	0	<u>12</u> 22
Muskegon	GT-TS&M	0	6	15	36	0	57
	G.R.&I.	0	4	10	21	0	35
	P. M.	5	7	40	61	3	121
	MR&Nav.	0	0	2	36	0	<u>38</u> 251
Newaygo	P. M.	11	6	32	0	23	72
Oakland	GT-DGH&M	0	10	29	23	16	83
	GT-MAL	2	9	25	13	6	60
	GT-PO&N	0	3	21	6	7	37
	M. C.	1	1	9	0	11	22
	P. M.	1	11	25	0	17	<u>54</u> 256
Oceana	P. M.	0	0	31	0	21	52
Ogemaw	D & M	2	4	11	0	6	23
	M. C.	0	2	6	0	4	<u>12</u> 35
Osceola	Ann Arb.	0	0	10	0	2	12
	G.R. & I.	3	0	15	0	10	28
	P. M.	5	0	16	0	14	<u>35</u> 75
Oscoda	D & M	2	0	6	0	0	8

RAILROAD CROSSINGS

COUNTY	RAILROAD	T.L.	Co.Rd.	Twp.Rd.	City	Vil.	Total
Otsego	B.C.G&A.	2	4	4	0	2	12
	M. C.	5	2	29	0	5	41
							<u>54</u>
Ottawa	GT-DGN&M	0	4	19	6	13	42
	GT-TS&M	0	1	6	0	0	7
	G.R.& I.	0	4	3	0	0	7
	P. M.	1	5	51	50	6	113
							<u>169</u>
Presque Isle	D & M	2	5	21	0	15	43
Roscommon	M. C.	1	0	6	0	6	13
Saginaw	GT-CS&M	0	8	11	17	17	53
	M. C.	0	4	38	47	25	114
	P. M.	5	22	73	103	11	219
							<u>386</u>
Sanilac	P. M.	3	7	52	0	13	75
	D & H	1	2	3	0	0	6
							<u>81</u>
Shiawassee	Inn Arb.	0	3	25	11	14	53
	GT-CS&M	2	2	4	0	3	11
	GT-DGN&M	2	4	19	9	13	46
	GT-GTW	0	3	22	0	10	35
	M. C.	0	5	14	14	4	37
							<u>182</u>
St. Clair	GT-CD&CGT	0	7	12	0	0	19
	GT-GTW	0	4	24	17	4	49
	M. C.	0	3	12	0	0	15
	N. Y. C.	1	1	21	0	8	31
	P. M.	2	12	63	37	9	123
	Pt.H.&D.	0	1	7	20	29	57
							<u>294</u>
St. Joseph	GT-GTW	0	1	1	0	0	2
	M. C.	2	12	28	0	9	51
	N. Y. C.	3	4	6	0	17	30
	G.R.& I.	1	4	19	0	5	29
							<u>112</u>
Tuscola	GT-PO&N	0	4	17	0	6	27
	M. C.	0	10	43	0	18	71
	N. Y. C.	0	4	3	0	7	14
	P. M.	4	6	49	0	26	84
	D & H	1	1	4	0	0	6
							<u>202</u>

RAILROAD CROSSINGS							
COUNTY	RAILROAD	T.L.	Co. Rd.	Twp. Rd.	City	Vil.	Total
Van Buren	M. C.	0	9	42	0	14	65
	P. M.	2	4	50	0	36	92
							157
Wash- tenaw	Ann Arb.	2	4	18	19	1	44
	N. Y. C.	2	4	17	2	6	31
	P. M.	0	2	3	0	0	5
							80
Wayne	Det. Ter.	0	0	0	2	0	2
	D.T.&I.	3	5	17	32	16	73
	DT S.L.	0	2	7	12	3	29
	GT-CD&C&T	0	0	0	50	0	50
	M. C.	3	11	40	133	27	264
	N. Y. C.	0	2	1	0	0	3
	Penn.	2	4	4	3	0	13
	P. M.	4	11	33	53	12	118
	Del. Conn.	0	0	0	2	0	2
	Wy. Term.	0	0	0	7	0	7
	Wy. South	0	0	1	0	1	2
							563
Wexford	Ann Arb.	0	11	13	17	4	45
	G. R. & I.	2	2	14	11	5	34
		303	875	3752	1953	1546	79
							8429

MICHIGAN STATE HIGHWAY DEPARTMENT
RAILROAD GRADE CROSSING REPORT.

Sheet No. _____
of _____ Sheets

R.R.

DIVISION

DATE

HIGHWAY	LOCATION OF XING.	Xing Angle	Hwy. View Obstructed	HIGHWAY SURFACE	HIGHWAY TRAFFIC	TRACK CLASS	Number Tracks	No. Trains Bound	No. Trains Bound	KIND PROTECTION	HOURS PROTECTION	Number Accidents past 10 Years	CROSSING File No. To be filled in by State Hwy. Dept.
Ann Arbor R. R.													
	Co. Line Clinton & Shiawassee	63	No	Gravel	Medium	Main	1	9	9	None			
	S. Line Sec. 12; T8N, R1W	27	Yes	Gravel	Medium	Main	1	9	9	None		One	
	W. Line Sec. 12 (Elsie)	35	Yes	Gravel	Medium	Main	1	9	9	None			
	S Line Sec. 2	55	No	Dirt	Light	Main	1	9	9	None			
	N Line Sec. 2	55	No	Dirt	Light	Main	1	9	9	None			
Ord. Trunk West.													
	Co. Line Ionia & Clinton Cos.	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. 7&8 T8N, R4W	88	No	Gravel	Light	Main	1	6	6				
	N&S Sec. 8&9 T7N, R4W	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. 9&10 T7N, R4W	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. 10&11 T7N, R 4W	89	No	Gravel	Light	Main	1	6	6				
	Fowler, Henderson St.	89	Yes	Gravel	Light	Main	1	6	6				
	Fowler, Main St.	89	Yes	Gravel	Light	1 Main 2 Yard	6	6	6	Flagman	8 AM-8PM		
	Twp. line, Bengal & Dallas	89	No	Earth	Light	Main	1	6	6				
	N&S Sec. Line 7&8, T7N, R3W	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. line 8&9, T7N, R3W	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. line 9&10 T7N, R3W	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. line 10&11 T7N, R3W	89	No	Gravel	Light	Main	1	6	6				
	Twp. Line, Bengal & Bingham	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. line 7&8, T7N, R2W	89	No	Gravel	Light	Main	1	6	6				
	St. Johns, Morton St.	89	Yes	Gravel	Light	Main	1	6	6				
	St. Johns, Lansing St.	89	Yes	Cement	Medium	1 Main 4 Yard	6	6	6	Gates	7:30 AM-7:30 PM		
	St. Johns, Ottawa St.	89	Yes	Gravel	Light	1 Main 3 Yard	6	6	6	Gates	" " " "		
	St. Johns, Clinton St.	89	Yes	Brick	Light	1 Main 2 Yard	6	6	6	Gates	" " " "		
	St. Johns, Meade St.	89	Yes	Gravel	Light	1 Main 5 Yard	6	6	6				
	N&S Sec. line 9&10 T7N, R2W	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. line 11&12 " "	89	No	Gravel	Light	Main	1	6	6				
	Twp. line, Ovid & Bingham	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. 7&8, T7N, R1W	89	No	Earth	Light	Main	1	6	6				



MICHIGAN STATE HIGHWAY DEPARTMENT
RAILROAD GRADE CROSSING REPORT.

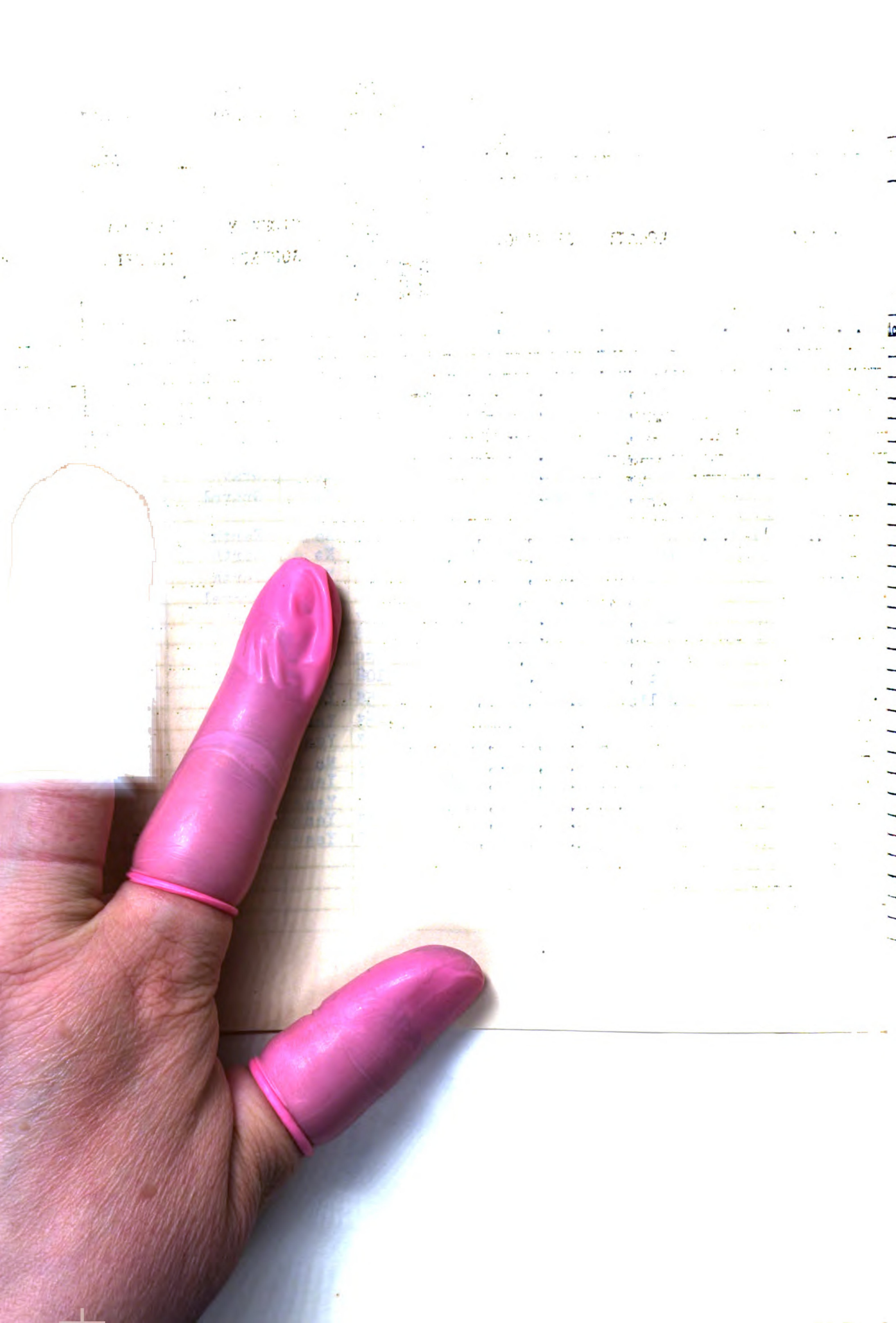
Sheet No. _____
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R.R.

DIVISION

DATE

HIGHWAY	LOCATION OF XING.	Xing Angle	Hwy. View Obstructed	HIGHWAY SURFACE	HIGHWAY TRAFFIC	TRACK CLASS	Number Tracks	No. Trains Bound	No. Trains Bound	KIND PROTECTION	HOURS PROTECTION	Number Accidents past 10 Years	CROSSING File No. To be filled in by State Hwy. Dept.
G.T. West. Cont.	N&S Sec. 8&9, T7N, R1W	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. 9&10 " "	89	No	Gravel	Light	Main	1	6	6				
	N&S Sec. 10&11 " "	89	No	Gravel	Light	Main	1	6	6				
	Ovid, West St.	89	Yes	Gravel	Light	Main	1	6	6				
	Ovid, Mill St.	89	Yes	Earth	Light	Main	1	6	6				
	Ovid, Gratiot St.	89	Yes	Gravel	Light	1 Main 3 Yard		6	6				
	Ovid, Main St.	89	Yes	Gravel	Light	1 Main 2 Yard		6	6	Xing Gates	8AM-8PM		
	Ovid, Park St.	89	Yes	Gravel	Light	1 Main 2 Yard		6	6				
	Ovid, Bast St.	89	Yes	Gravel	Light	1 Main 2 Yard		6	6				
Mich. Gen'l R.R.	E Line Sec. 25, T5N, R2W	137	No	Earth	Light	Main	1	7	7	None			
	E&W 1/4 Line Sec. 19 T5N, R 2W	71	No	Earth	Light	Main	1	7	7	None			
	E line Sec. 19, T5N, R 2W	136	No	Earth	Light	Main	1	7	7	None		1	
	N line, Sec. 20, T5N, R1W	64	Yes	Gravel	Heavy	Main	1	7	7	Wigwag & bell	24 hours	1	
	Bath, Vine St.	87	Yes	Earth	Light	Main	2	7	7	None			
	Bath, Main St.	88	Yes	Earth	Light	Main	2	7	7	None			
	Bath, Walnut St.	89	Yes	Earth	Light	Main	2	7	7	None			
	Bath, North St.	102	Yes	Earth	Light	Main	1	7	7	None			
	N line Sec. 16, T5N, R1W	58	Yes	Earth	Light	Main	1	7	7	None		1	
	E&W 1/4 Sec. 9 T5N, R1W	63	Yes	Earth	Light	Main	1	7	7	None			
	N 1/8 Sec. 9, T5N, R1W	123	Yes	Earth	Light	Main	1	7	7	None			
	N line Sec. 9, T5N, R1W	33	No	Gravel	Light	Main	1	7	7	None			
	E Line Sec. 4, T5N, R1W	142	Yes	Earth	Light	Main	1	7	7	None			
	N Line Sec. 3, T5N, R1W	124	Yes	Earth	Medium	Main	1	7	7	None			
	N Line Sec. 4, T5N, R1W	43	Yes	Earth	Medium	Main	1	7	7	None			
	E Line Sec. 26, T6N, R1W	132	Yes	Gravel	Light	Main	1	7	7	None			



Sheet No. _____
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File No.
To be filled
in by State
Hwy. Dept.



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MICHIGAN STATE HIGHWAY DEPARTMENT
RAILROAD GRADE CROSSING REPORT.

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DIVISION

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RAILROAD MAP
OF
MICHIGAN LOWER PENINSULA

Showing Cities of over 6,000 Population
1920 Census.



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