

**STAN LINGEMAN**

**THE STATE OF MICHIGAN TRUNK LINE STORY**

Stanley D. Lingeman, P.E.  
Institute of Transportation Engineers  
February 8, 1995  
Holiday Inn Gateway Center  
Flint, Michigan

**Dedicated to the designers of the Interstate Highway Systems**

## **THE STATE OF MICHIGAN TRUNK LINE STORY**

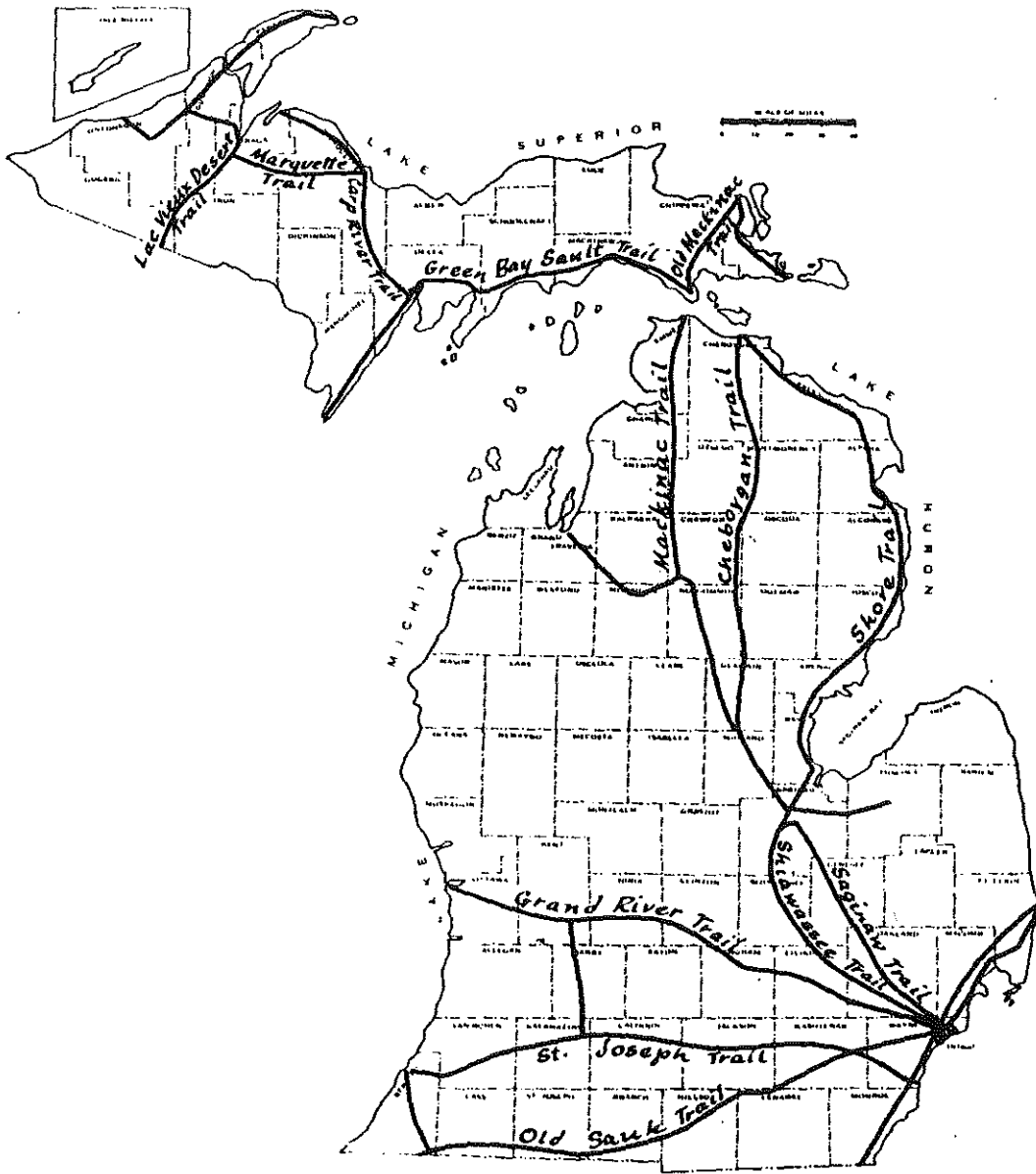
Institute of Transportation Engineers Meeting  
February 8, 1995  
Holiday Inn, Gateway Center  
Flint, Michigan

### **PLATE 1: INDIAN TRAILS**

There were 13 Indian trails in all. The main trails were the St. Joseph, the Grand River, and the Saginaw-Mackinac. The St. Joseph Trail became US-12 and I-94. The Grand River Trail became US-16 and I-96. The Saginaw-Mackinac Trail became US-10 and I-75.

### **Public Act 146, 1905**

This act of the legislature created the department through the work of Horatio S. Early, who was State Highway Commissioner between 1905 and 1909.



**INDIAN TRAILS**

**PLATE 2: MICHIGAN'S ROAD TAXES 1901-1913**

Road taxes for this period totalled \$49.9 million:

- 80.3 percent were for township roads
- 15.7 percent were for county roads
- 4.0 percent were State Reward roads

# MICHIGAN'S ROAD TAXES 1901-1913

---

MILLION  
DOLLARS

TOTAL \$ 49,940,805.07

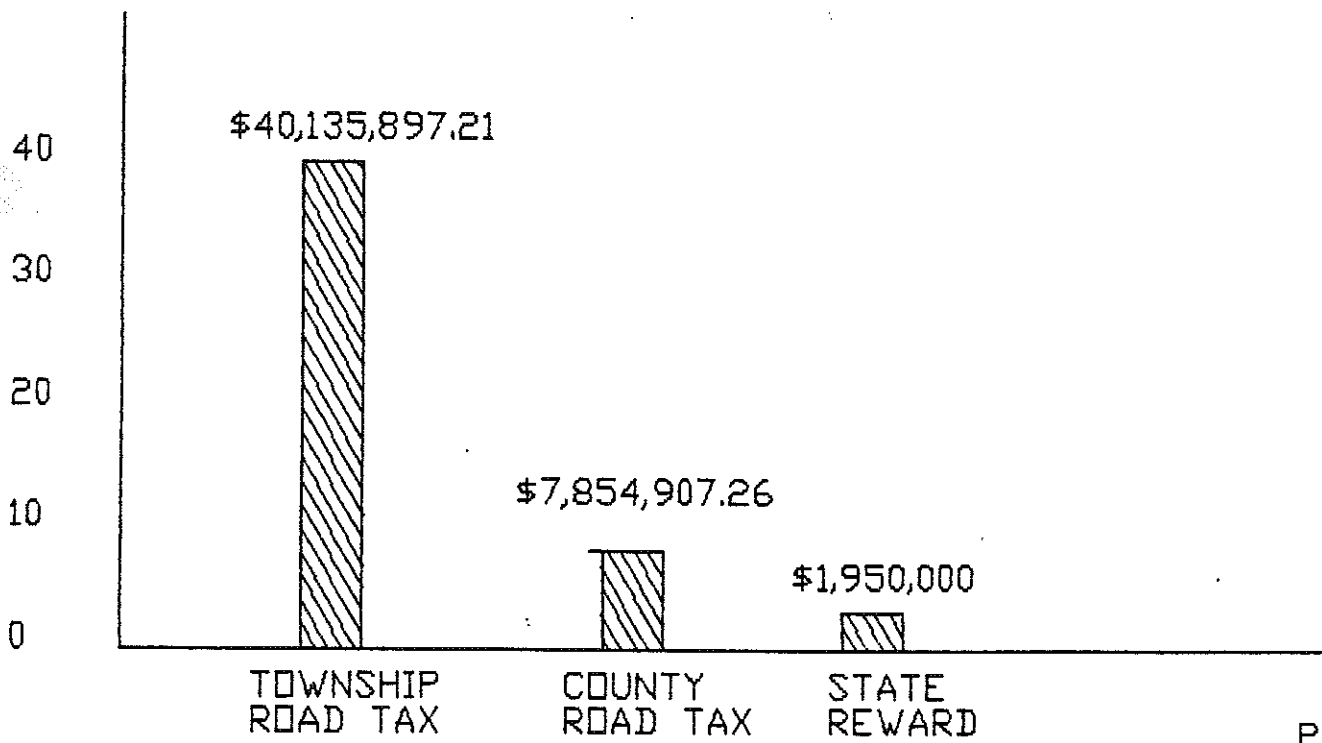


PLATE 2

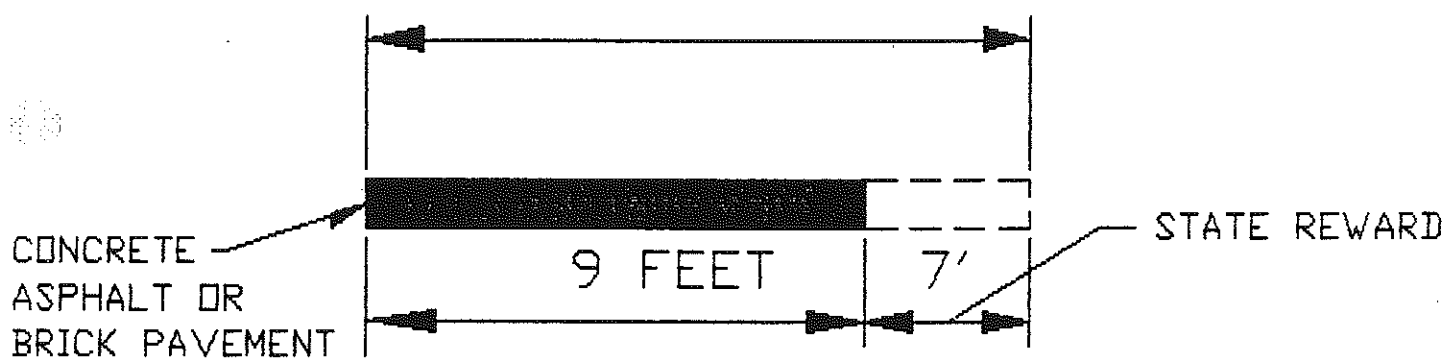
**PLATE 3: STATE REWARD ROADS**

Either township or county roads could be improved from a 9-foot width to a 16-foot width with state funds, which were then called State Reward Roads. State reward bridge payments on county roads amounted to \$1,162,153.51 in 1931 and \$623,607.75 in 1932, of which approximately one-half came from State Highway funds.



TYPICAL CROSS SECTIONS OF STATE ROADS  
IN MICHIGAN

16 FEET

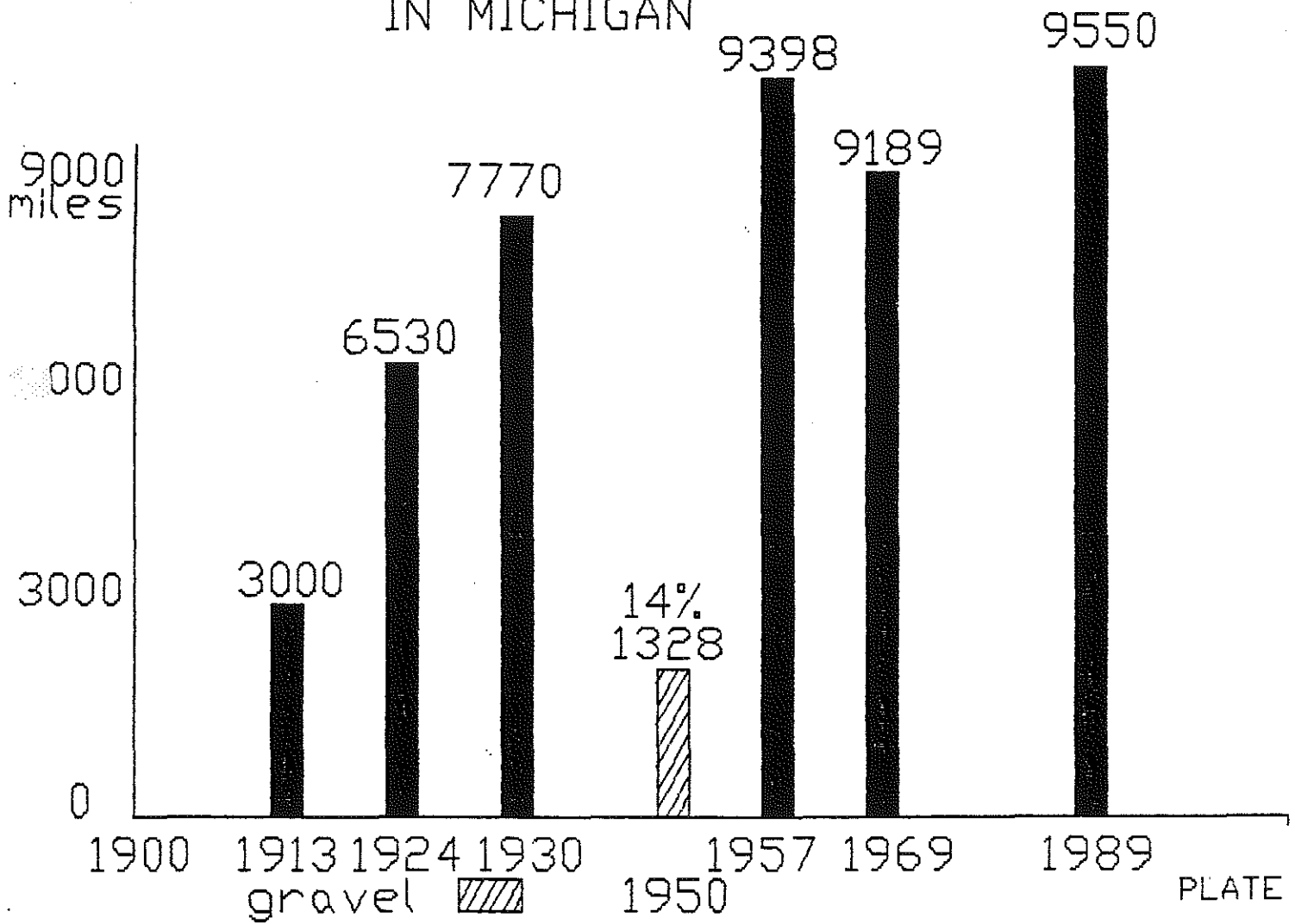


STATE REWARD 1901-1913

**PLATE 4: STATE TRUNK LINE MILEAGE**

Frank F. Rogers, 1852-1942—Chief Engineer; 1905-1913—State Highway Commissioner; 1913-1929: He was responsible for Act 334, P.A. 1913 that was called the "Trunk Line Highway Act," which created the State's responsibility for 3,000 miles of highway in Michigan. He was also responsible for Act 19, P.A. 1919, which gave the State Highway Commissioner for the first time the authority and the duty to plan, construct, and administer the State Trunk Line System. This system had been expanded to 6,530 miles in 1924 at the beginning of the U.S. Highway System Construction period. By the mid-point of the U.S. Highway Construction Program—1930—the system had expanded to 7,770 miles. In 1957, at the beginning of the Interstate Highway Construction period, the mileage had increased to 9,398. At the completion of the I system, the Trunk Line System had decreased to 9,189 miles in length. Today the Trunk Line System is about 9,550 miles in length.

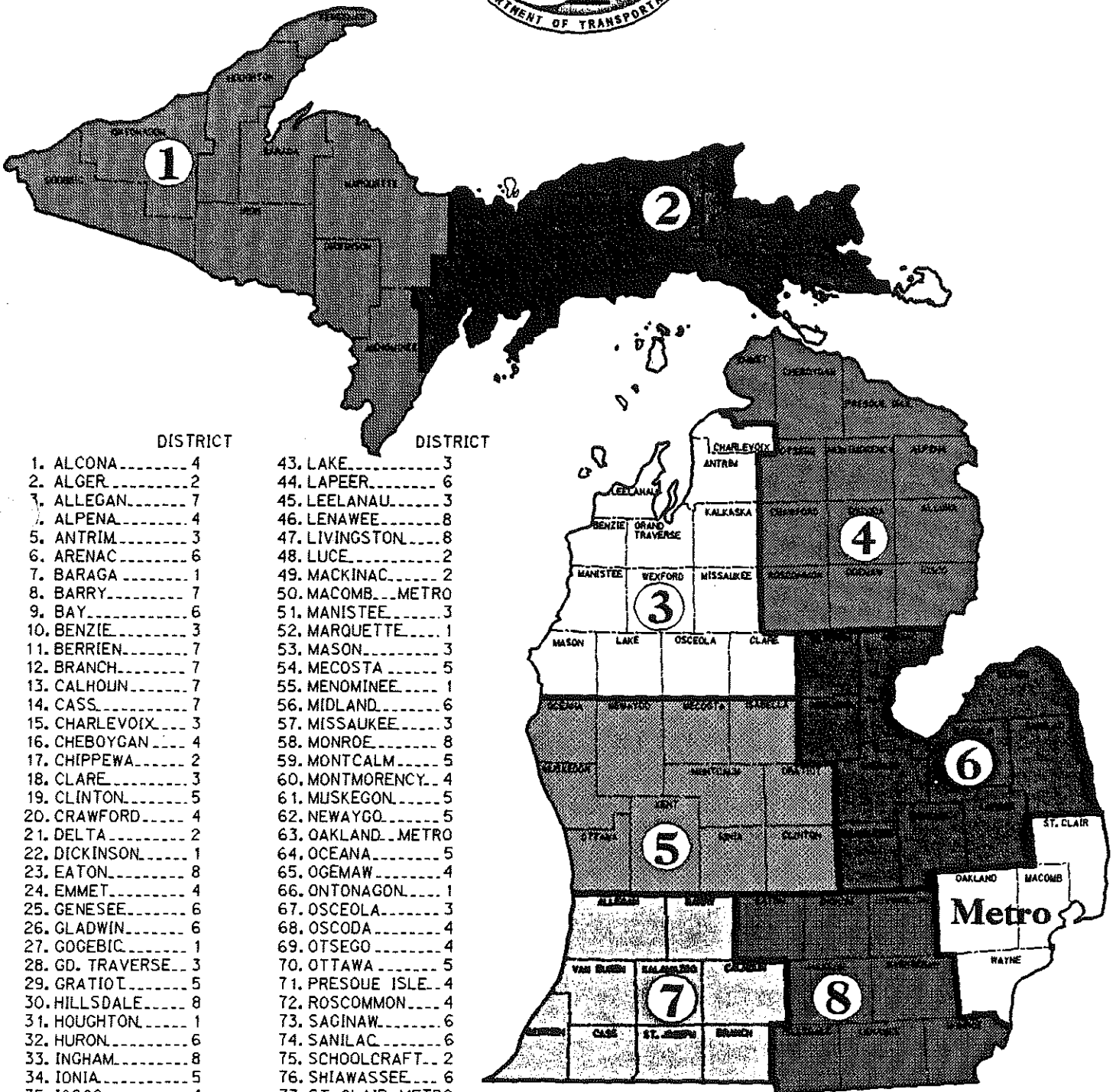
STATE TRUNK LINE MILEAGE  
IN MICHIGAN



**PLATE 5: HIGHWAY DISTRICTS, CONVERT ROAD LAW 1915**

This law permitted the organization of districts for highway financing and construction.

# DISTRICT and COUNTY NUMBERS



DISTRICT		DISTRICT	
1. ALCONA.....	4	43. LAKE.....	3
2. ALGER.....	2	44. LAPEER.....	6
3. ALLEGAN.....	7	45. LEELANAU.....	3
4. ALPENA.....	4	46. LENAWEE.....	8
5. ANTRIM.....	3	47. LIVINGSTON.....	8
6. ARENAC.....	6	48. LUCE.....	2
7. BARAGA.....	1	49. MACKINAC.....	2
8. BARRY.....	7	50. MACOMB.....	METRO
9. BAY.....	6	51. MANISTEE.....	3
10. BENZIE.....	3	52. MARQUETTE.....	1
11. BERRIEN.....	7	53. MASON.....	3
12. BRANCH.....	7	54. MECOSTA.....	5
13. CALHOUN.....	7	55. MENOMINEE.....	1
14. CASS.....	7	56. MIDLAND.....	6
15. CHARLEVOIX.....	3	57. MISSAUKEE.....	3
16. CHEBOYGAN.....	4	58. MONROE.....	8
17. CHIPPEWA.....	2	59. MONTCALM.....	5
18. CLARE.....	3	60. MONTMORENCY.....	4
19. CLINTON.....	5	61. MUSKOGON.....	5
20. CRAWFORD.....	4	62. NEWAYGO.....	5
21. DELTA.....	2	63. OAKLAND.....	METRO
22. DICKINSON.....	1	64. OCEANA.....	5
23. EATON.....	8	65. OGEMAW.....	4
24. EMMET.....	4	66. ONTONAGON.....	1
25. GENESEE.....	6	67. OSCEOLA.....	3
26. GLADWIN.....	6	68. OSCODA.....	4
27. GOGEBIC.....	1	69. OTSEGO.....	4
28. GD. TRAVERSE.....	3	70. OTTAWA.....	5
29. GRATIOT.....	5	71. PRESQUE ISLE.....	4
30. HILLSDALE.....	8	72. ROSCOMMON.....	4
31. HOUGHTON.....	1	73. SAGINAW.....	6
32. HURON.....	6	74. SANILAC.....	6
33. INGHAM.....	8	75. SCHOOLCRAFT.....	2
34. IONIA.....	5	76. SHIawassee.....	6
35. IOSCO.....	4	77. ST. CLAIR.....	METRO
36. IRON.....	1	78. ST. JOSEPH.....	7
37. ISABELLA.....	5	79. TUSCOLA.....	6
38. JACKSON.....	8	80. VAN BUREN.....	7
39. KALAMAZOO.....	7	81. WASHTENAW.....	8
40. KALKASKA.....	3	82. WAYNE.....	METRO
41. KENT.....	5	83. WEXFORD.....	3
42. KEWEENAW.....	1		

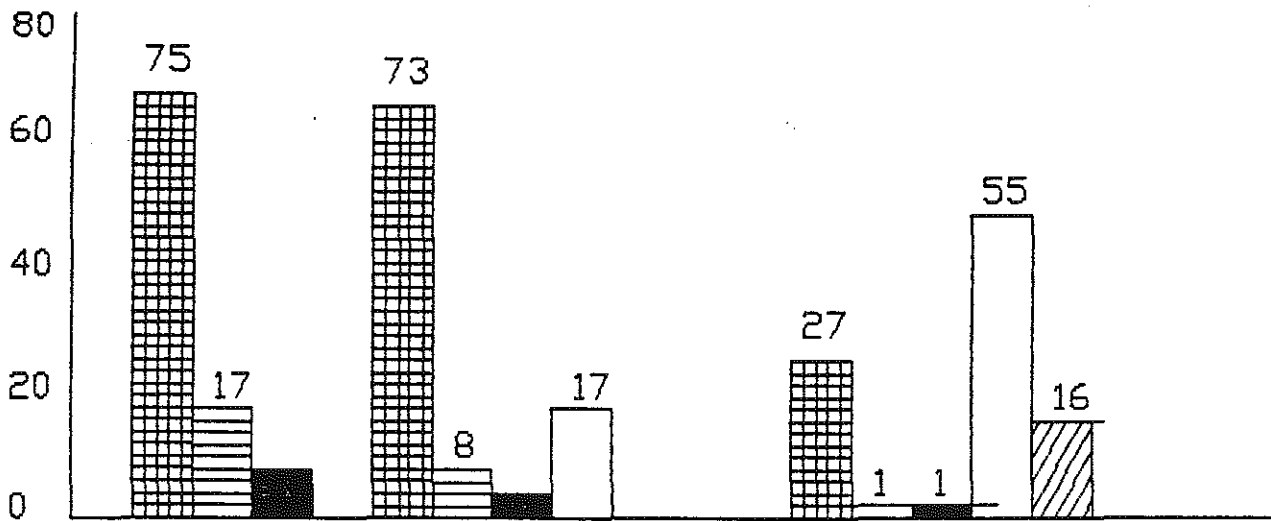
**PLATE 6: ROAD SURFACE TYPES 1917, 1918, AND 1924**

In 1917, the road surface types were 75 percent gravel, 17 percent gravel on stone or slag, and 8 percent macadam. In 1918, the hard surface types—concrete, asphalt, or brick—had increased to 17 percent and by 1923, 55 percent.

# ROAD SURFACE TYPES

## GRAVEL / STONE / HARD PAVEMENT

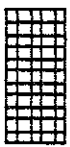
PERCENT



1917

1918

1923



GRAVEL

GRAVEL ON  
STONE OR SLAG

MACADAM

ASPHALT  
CONCRETE  
OR BRICK

ONE COURSE GRAVEL  
AND STAMP SAND

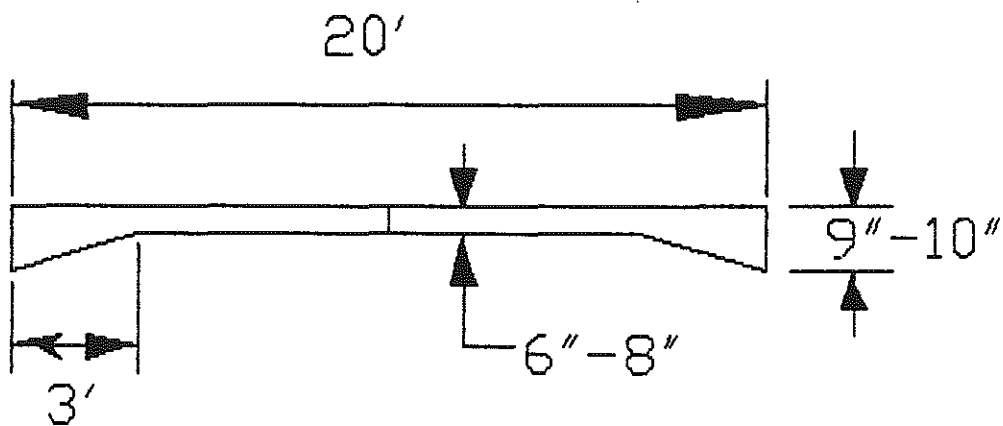
PLATE 6

**PLATE 7: 1924 TYPICAL CROSS SECTION OF U.S. HIGHWAY SYSTEM**

The typical cross section of the concrete pavement design developed in 1924 for the U.S. Highway System consisted of a 20-foot wide slab with a 6 to 8 inch thickness. The outside three-foot section at the pavement edge had an added 3 inches of thickness to prevent cracking.



TYPICAL CROSS SECTIONS OF STATE ROADS  
IN MICHIGAN

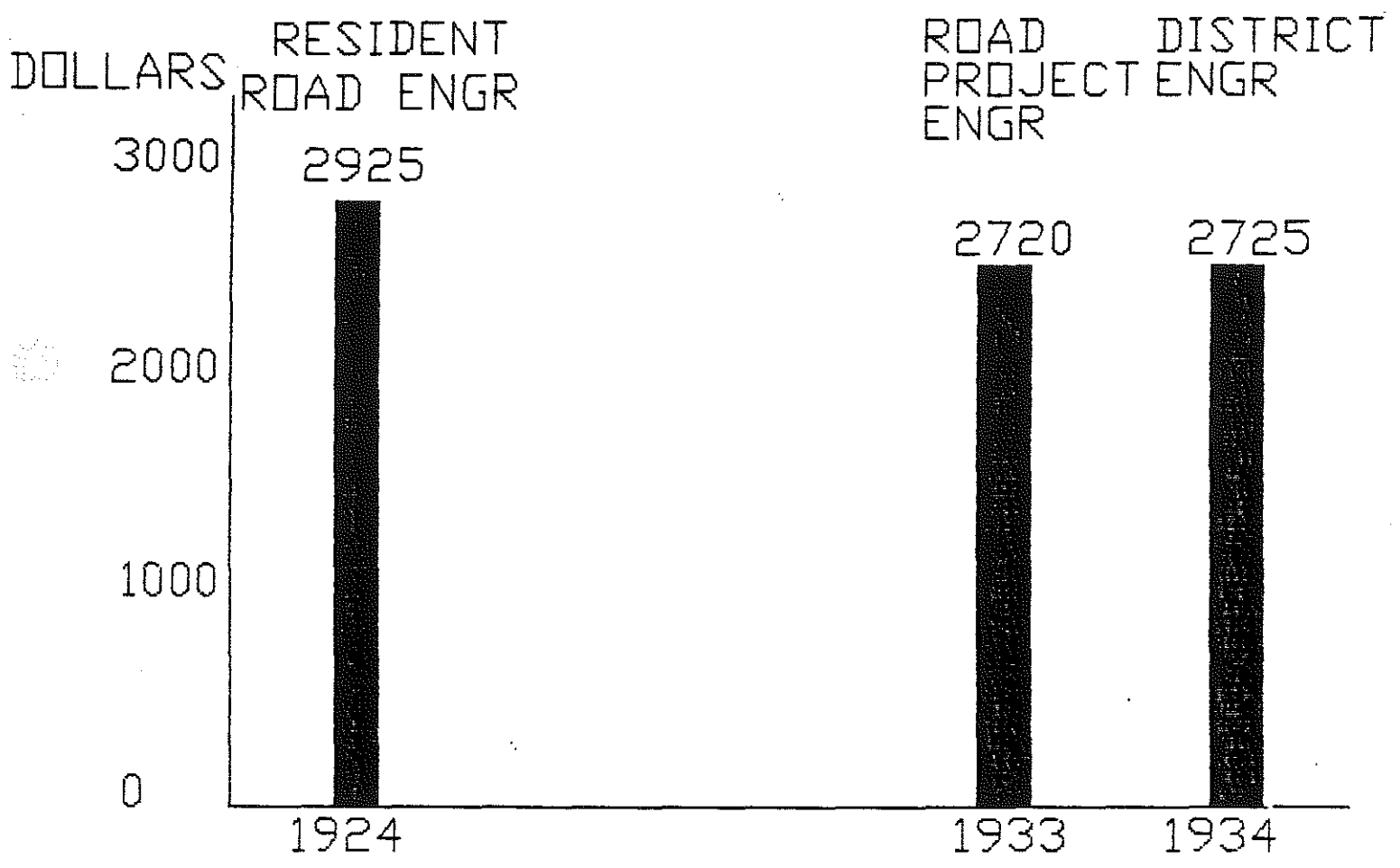


1924 US HIGHWAY SYSTEM

**PLATE 8: C.H. BROWN'S WAGES FOR 1924, 1933, AND 1934**

As a resident road engineer, C. H. Brown received an annual wage of \$2,925 in 1924. With the depression, he was demoted in 1933 to project engineer at \$2,720. He was then promoted to district engineer in 1934 at \$2,725.

C. H. BROWN'S WAGES WITH M.D.O.T.

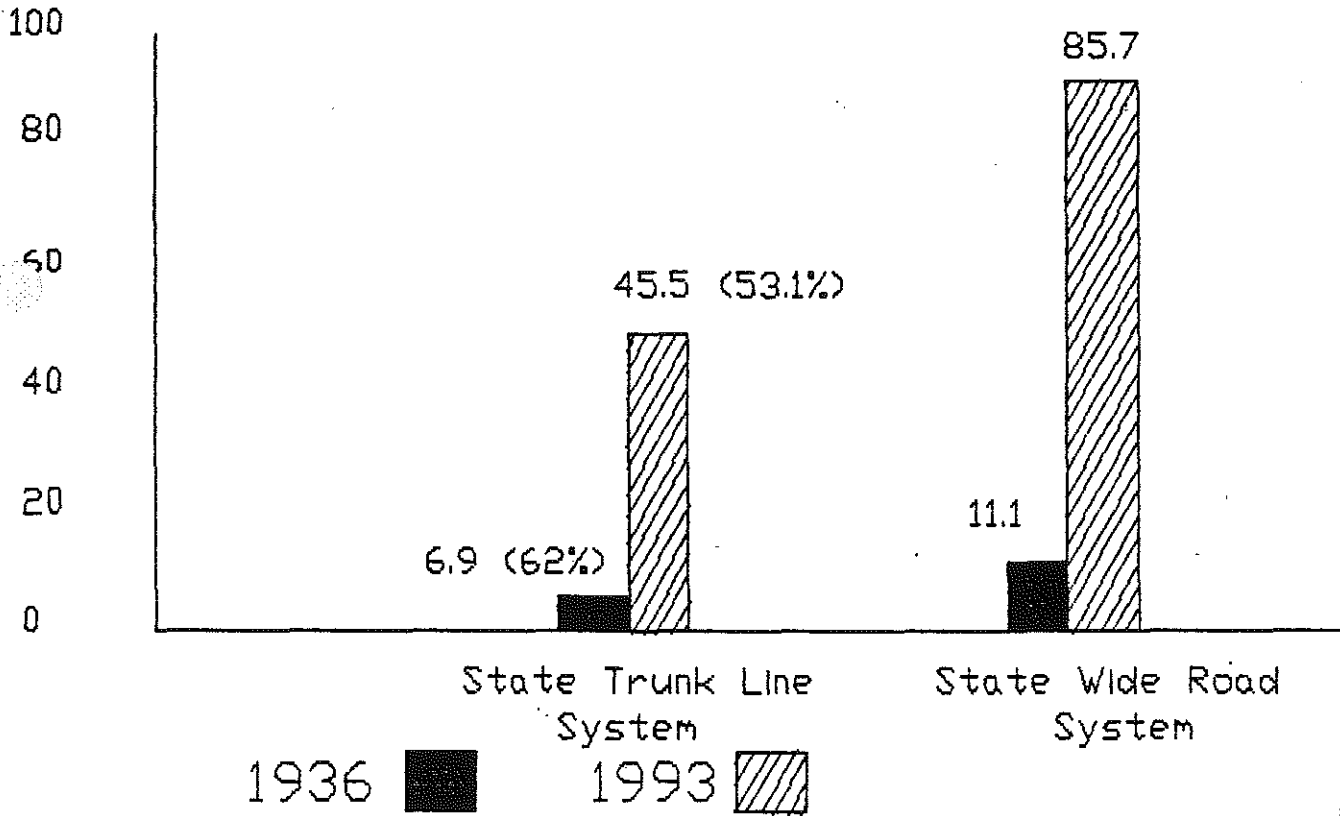


**PLATE 9: HIGHWAY TRAVEL IN MICHIGAN—1936 VERSUS 1993**

Trunk-line travel increased from 6.9 billion vehicle miles in 1936 to 45.5 billion vehicle miles in 1993, a 659 percent increase. Total travel increased from 11.1 billion vehicle miles in 1936 to 85.7 billion vehicle miles in 1993, a 772 percent increase. The percentage of traffic using the Trunk Line System decreased from 62 percent to 53 percent in the same period.

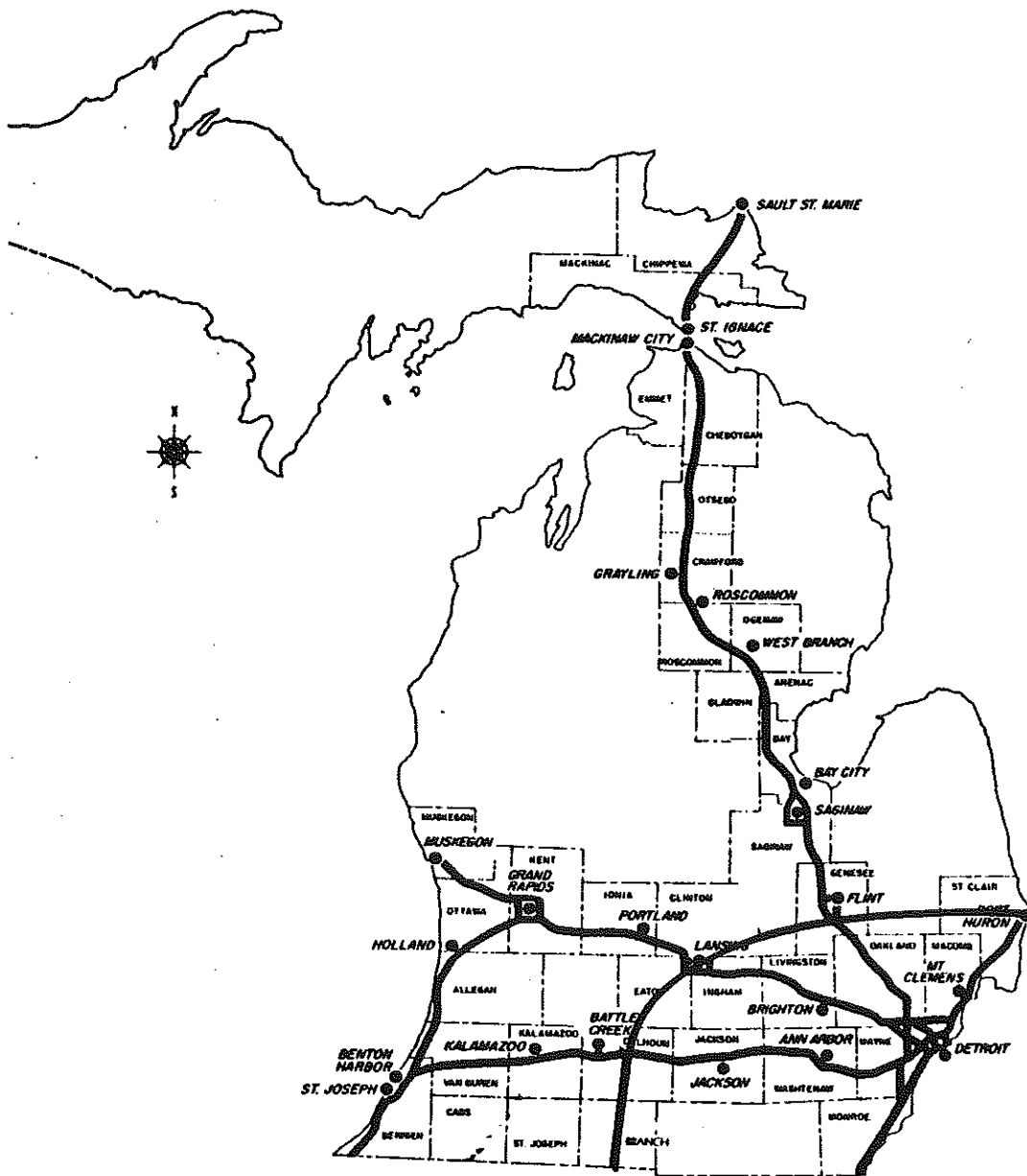
# Highway Travel in Michigan 1936 Vs 1993

Travel  
Billion  
Vehicle  
Miles



**PLATE 10: MICHIGAN FREEWAYS**

The three expressways, later called freeways, that were designed and constructed as part of the Interstate Highway System in the 1950s and 1960s by the department were I-94, I-96, I-75, and I-69, which passes through Flint..



# MICHIGAN FREEWAYS

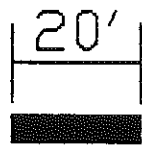
**PLATE 11: TYPICAL CROSS SECTIONS USED IN MICHIGAN**

The typical cross section developed in 1924 and used in the 1925-1935 construction program of the U.S. Highway System consisted of a 20-foot concrete pavement centered in a 100-foot Right of Way. Urban roadways in the Flint area such as I-69 (Chevrolet-Buick) and I-475 (U.A.W.) freeways designed in the 1960s and 1970s under the direction of John C. Mackie, Howard Hill, and Henrik E. Stafseth, consisted of two 36-foot concrete pavements divided by a narrow median in a 400-foot Right of Way. Freeway median barrier usage is prompted by the death of Clayton Voss in a cross-median automobile accident on I-94 in 1970. Clayton Voss was District Engineer of District Seven at the time.

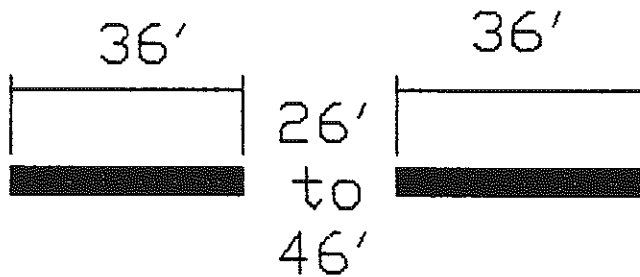
In May 1993, 3.8 miles of concrete median barrier wall are constructed on I-69 in Flint, at a rate of 2,500 feet per day and at a cost of \$68 per foot.

Rural freeways such as I-94, I-96, I-75, and I-69 consisted of two 24-foot concrete pavements divided by a 70-foot median in a 300-foot Right of Way.

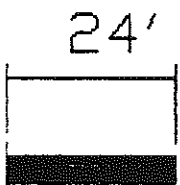




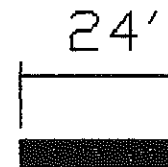
100' ROW  
US Route



400' ROW  
Urban  
Freeways



70'



300' ROW  
Rural  
Fwgs

TYPICAL PAVEMENT CROSS SECTIONS  
AND RIGHT OF WAYS

**PLATE 12: TRUNK LINE CONSTRUCTION PROGRAMS 1925-1989**

Funding in 1919 included weight taxes and a \$50,000,000 bond issue, which was used between 1919 and 1924. The distribution by year is as follows:

1919	1,581,000
1920	5,419,000
1921	10,050,000
1922	11,000,000
1923	7,000,000
1924	14,950,000

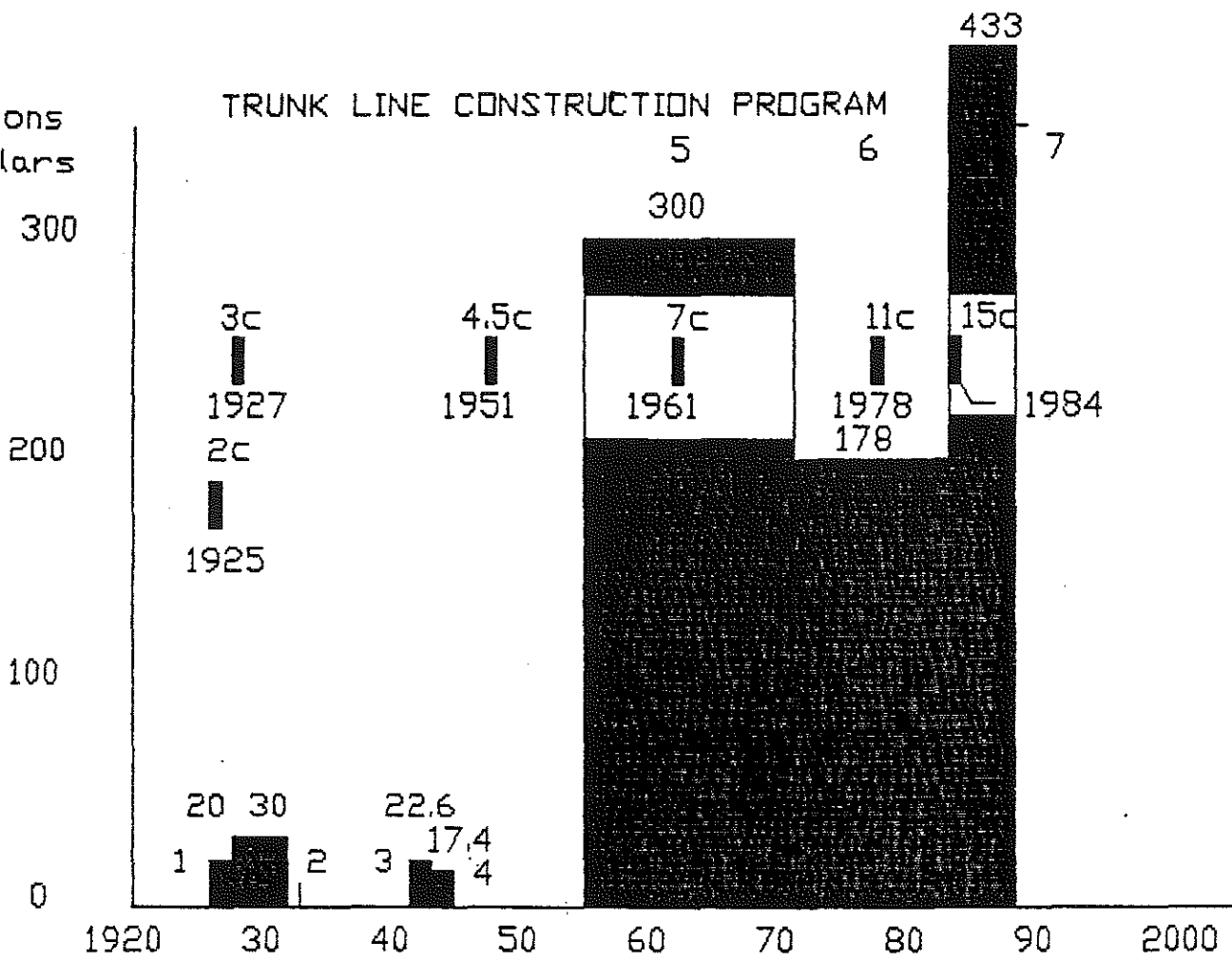
A two-cent-per-gallon gasoline tax was authorized by the legislature in 1925. This tax was increased to three cents per gallon in 1927. The construction program was about \$20,000,000 annually in 1925 and 1926. This amount increased to \$30,000,000 annually during the 1927 through 1931 period.

The gasoline tax was again increased to 4.5 cents per gallon in 1951. Perhaps the largest highway construction program ever undertaken by State forces was begun in 1956. This construction of the Interstate Highway System continued on for some 36 years at a cost of \$4.7 billion. John C. Mackie proposed a 15-year construction program, which would extend into the early 1970s. His last 1957-1958 biennial report forecast a \$190,000,000 construction budget for 1959. The Department's staff for September 1958 was 4,455 employees. The gasoline tax was increased to seven cents per gallon in 1961. An estimated annual construction budget for this period was \$300,000,000. By the early 1970s, the \$700,000,000 from bonding had been expended, and the annual construction budget declined to an average \$178,000,000.

The gas tax was increased to 11 cents per gallon in 1978 and 15 cents in 1984. In 1983, James Pitz sold \$135,000,000 in bonds, and the program increased to an annual average of \$433,000,000 for the 1984-1989 period. The programs last reported year, 1989, was \$460,000,000.

TRUNK LINE CONSTRUCTION PROGRAM

millions dollars



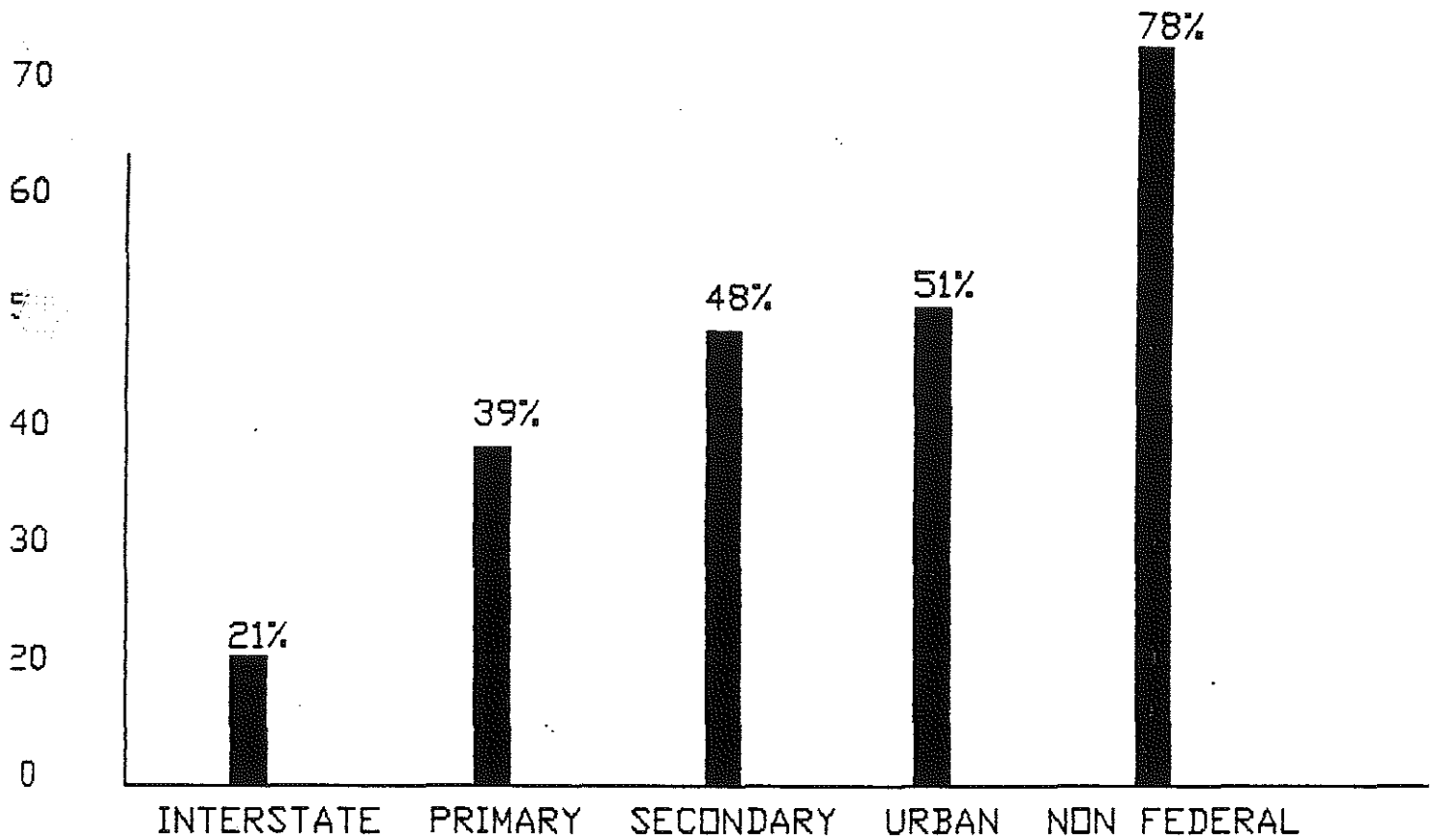
SDL 1/19/95

PLATE 12

**PLATE 13: 1992 SUFFICIENCY RATING FOR THE TRUNK LINE SYSTEM**

The 1992 sufficiency study of the State Trunk Line System showed that 21 percent of the Interstate, 39 percent of the primary, 48 percent of the secondary, 51 percent of the urban, and 78 percent of the non-federal highways were rated as being in poor, or very poor, condition.

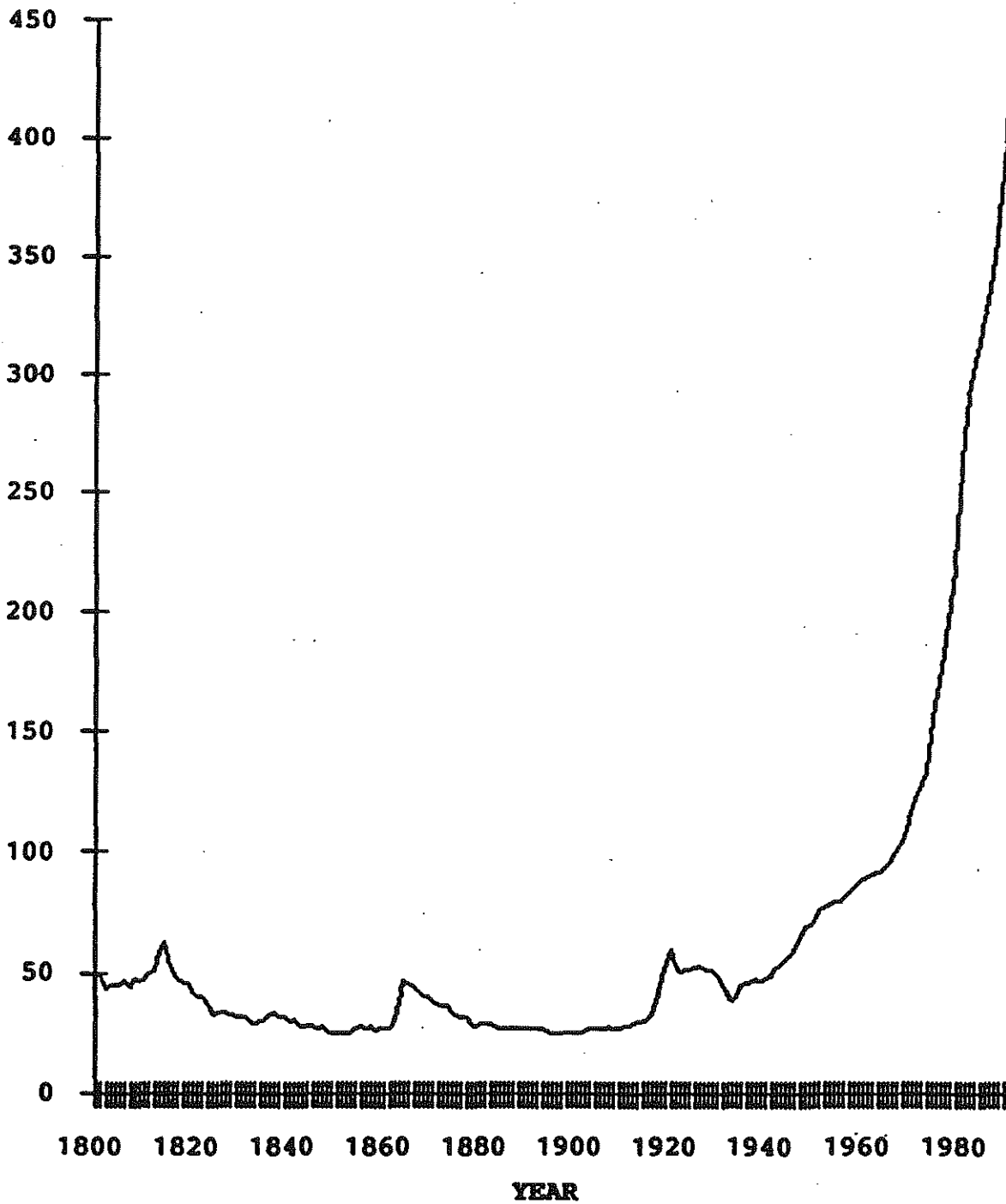
1992 SUFFICIENCY RATINGS OF POOR OR VERY POOR  
FOR STATE TRUNK LINE SYSTEM



**PLATE 14: CONSUMER PRICE INDEX GROWTH SINCE 1800**

This chart of the growth of the Consumer Price Index appeared in the 1991 edition of *Cost Estimating* by Rodney D. Stewart, a Wiley-Interscience publication. We see rapid growth since 1967.

**INFLATION: ITS HISTORY, CAUSES, AND EFFECTS**



**Consumer price index growth since 1800.**

Cost Estimating by Rodney D. Stewart  
A Wiley-Interscience Publication

**PLATE 15: CONSUMER PRICE INDEX/GASOLINE TAX FOR MICHIGAN**

The growth in the Consumer Price Index in the 28 years following 1967 was 342 percent, or 12 percent per year. The rise in the State gasoline tax during this period was 114 percent, or four percent per year. The lag between the Consumer Price Index and the State gasoline tax was 6.3 years in 1978 and 7.6 years in 1984. If the tax is raised in 1995 to 20 cents per gallon, the lag will be 14.6 years. With a tax of 27 cents per gallon in 1995, the lag will be 4.6 years.



CONSUMER PRICE INDEX/GASOLINE TAX  
MICHIGAN USA

CONSUMER  
PRICE  
INDEX

500  
400  
300  
200  
100  
0

consumer price index Detroit, Ann Arbor 1967=100

1967 1977 1987 1997

7 c/gallon

1978

11 c/gallon

1984

15 c/gallon

1995

442 31 c/gallon

27 Rd Comm

25c In  
2000 AD

20 Hwy Comm

Lag between CPI & Tax (years)

1978	6.3	Hwy Comm
1984	7.6	Hwy Comm
1995	14.6	Hwy Comm
1995	4.6	Rd Comm

SDL 1/20/94

PLATE 15

**PLATE 16: STEWARDS OF THE STATE 1949-1969**

While John C. Mackie was State Highway Commissioner in 1963, the newly elected governor George W. Romney called for a Constitutional Convention, which eliminated the post of State Highway Commissioner and created a State Highway Commission. This form of government has existed for the past 30 years.

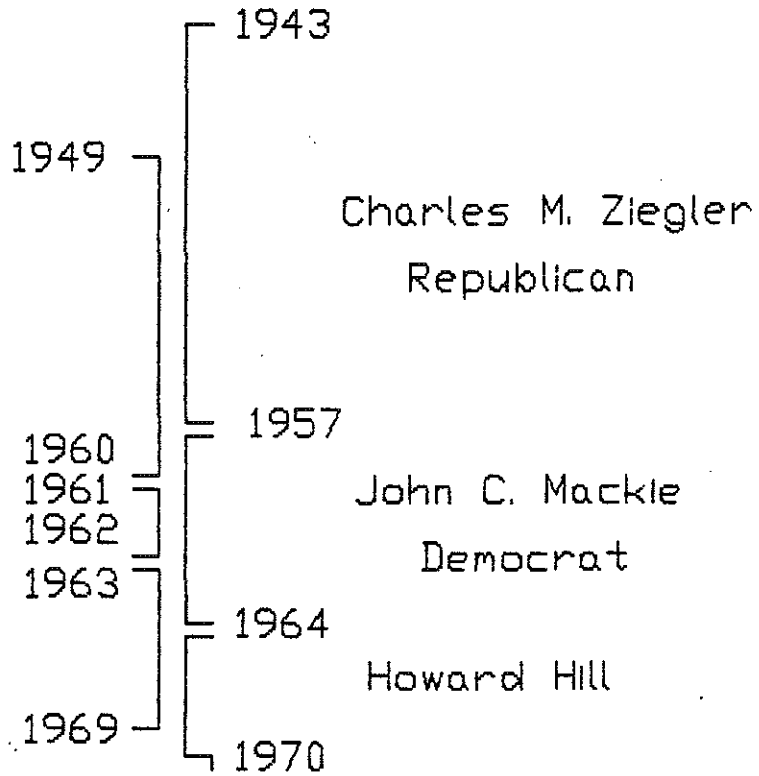
STEWARDS OF THE STATE

HIGHWAY COMMISSIONERS

G. Mennen Williams  
Democrat

John B. Swainson  
Democrat

George W. Romney  
Republican



**PLATE 17: M.D.O.T. REPORTING 1905-1994**

This chart shows the State of Michigan's record for its biennial and annual reporting of achievement to the people of the state for the 1905-1994 period. It does, to a certain degree, reflect upon the State's accountability. Between 1905 and 1964, when the State Highway Commissioner form of government was existent, 90 percent of its time was accounted for through biennial reporting. John Mackie filed the last biennial report in 1958. There was a 20-year gap in reporting between 1959 and 1979. This, of course, was a relatively inactive period in the Department's life when only \$4 billion of Interstate Highway construction work was completed. There are nine annual progress reports for the 1980-1989 period when the Department became the Michigan Department of Transportation. Reporting for the 30-year period between 1964 and 1994 when the State Highway Commission form of government was in power was, therefore, about 30 percent. Does this form of government reflect accountability?

If annual reports were prepared for only 30 percent of the 30-year period between 1964 and 1994, what can we say about the Department's accountability? What are they accomplishing in the way of goals or achievements? What is the public's perception of a State agency that doesn't report its activities? How do Department employees perceive its activities? Are they motivated to do their best? It is said that achievement is the single strongest motivation of the individual. If we don't record our achievements, how do we affect the motivation of our employees? Is outsourcing of design services the best choice for the Department? We have no way of knowing the answer to any of these questions without the production of an annual report. All private companies with 3,000 employees produce an annual report for their stockholders. Should the Department of Transportation forego the advantages that such a report would produce for them?

# M.D.O.T. REPORTING 1905-94

PERCENT

100  
75  
50  
25  
0

90%

30%

1905-1964

1964-1994

STATE HIGHWAY  
COMMISSIONER  
59 YEARS  
BIENNIAL REPORTING

DEPARTMENT OF  
TRANSPORTATION  
COMMISSION  
30 YEARS  
ANNUAL REPORTING

S. LINGEMAN PE 1/20/95

PLATE 17

## FRIENDS REMEMBERED

Bob Addy (1)  
Khaireldin Ahmad  
Shams Aigoro  
Arlene Allen  
Sue Allen  
Marsha Anderson  
Louis Andriacchi  
Chuck Arnold  
Al Ashari  
Art Ashley  
Tarik Ataman  
Bill Atchinson  
Sam Awwa  
David C. Bacon (17)  
Richard Bacon  
Lori Baetz  
Keith Baguley  
John Baker  
Glenwood Baker  
Wanley Bardell  
Ivan Bartha  
Leonard Bashaw  
George Basmadjian (1)  
Jay Bastian  
Harold Bauerle  
R. Baumgartner  
Ken Baur (8)  
Gary Beasley  
Regine Beaubouf  
Steve Beck  
Rob Beckon  
Robert Beckon  
Larry Beckon  
Charles W. Beilfuss  
Bernie Beilner  
Art Bekmanis  
Natalie Bekmanis  
Dwight Bell  
Tim Benson  
Tony Benson  
A. Berarducci (3)  
Terry Berquist  
Gary Bilow  
Therese Binkley  
Mike Blackledge

Stan Blackledge  
Ron E. Blake  
Wendell Blikken  
Rich Blood  
Gary Blundy  
Joe Boladian  
Bobbi Bolyard  
Bob Bond  
Weldon Borton  
Ed Boucher  
Sue Bourdon  
Steve Bower  
James Boyd  
Robin Brace  
Ross Bremer (1)  
A. Robert Briere  
Ken Briggs  
Wayne Britten  
Bill Browell  
C. H. Brown  
Cheryl Brown  
Joe Brown (1)  
Rita Brown  
Ruby Brown  
Larry Buehler  
James Burge  
C. Burnette  
Larry Burrill  
Keith Bushnell  
Terry Butts  
Rudy Cadena  
Vhybirt Cameron  
Nancy Campbell  
Bruce Campbell  
Bob Carpenter  
Oliver Carrier  
C. H. Cash  
Jack Casler  
Sam Castronovo  
Pen Chao  
Jeff Chapman  
Walt Charles  
Larry Chick  
Dick Christenson  
Larry Christenson

Phil Christy  
K. C. Clark  
Tom Clark  
Keith Claus  
Don Cleveland  
Jean Clinton (2)  
Max N. Clyde  
Jerry Cohen  
Tom A. Coldman  
Charlie Connelly  
B.A. Conradson  
Stan D. Cool  
Harold Cooper  
Noel Copiaco  
Howard Cox  
Warren Cox  
Herb Crane  
Gary Croskey  
Jack Cruise  
John D. Cruise  
Robert V. Cullen (11)  
Dick Culver  
Barney A. Cyberski  
Robert D'Alcorn  
Gerry Dalling  
Tapan K. Datta  
L. A. Davidson  
Mickey Davis  
Ray D. Davis  
Pete DeCamp  
Alex Decess  
Robert V. DeCorte  
Jim DeGrand  
Edward Deibler  
Frank DeRose, Jr.  
Pat Detzler  
Dave DeVaugn  
Pete Devlin  
Harold Devore  
Al Dewey  
John Dobelek (3)  
Dick Doell  
Brian Dollman-Jersey  
L.J. Doyle  
Jud Doyle

Steve Driver  
Paul Dunning  
Don Eddy  
Jim Edick  
Jim Eggert  
Orvil Emery  
Virginia Emery  
Victor Enciso  
Mary Enochs  
Nejad Enustun  
Bill R. Erben  
George Erickson  
Glen R. Etelamaki  
Doug Ewald  
Jason Falardeau  
Tim Feazel  
Gordon Fellows  
Larry Felsing  
Gerard Feuerstein  
Mark Fisher  
Mike Flajole  
Richard Folkers (14)  
Ted W. Forbes (9)  
Dan Fortusniak  
Don Foster  
Terry Frake  
Marty Fransted  
Tony Freed (1)  
Don Freeman  
Alan B. Friend  
Roger Fudge  
Bob Fuhr  
Terry Gaffney  
Ric G. Galindo  
Steve Galindo  
Jim Galloway  
Victor Ganser  
Jose Garcia  
Ron Garrison  
Lewis Gensley (5)  
Edward F. Gervais  
Art C. Gibson (1)  
Amy Gill  
Charlie Giller  
John Gooding  
Richard M. Gould  
John Gray (1)  
Jim Green  
Roy L. Greenman  
Bruce Greenshields (10)

Jeff Grossklaus  
Phil Grotenhuis  
Sam Guarrazzi  
Ron Hafner  
Brad Hagerty  
John Haley  
Darrel Hall  
Paul T. Hamilton (7)  
Carol Hardman  
Ross Harger (3)  
Mike Harju  
Dawn Harrington  
Russ Harrison  
William C. Hartwick  
Doug Harvey  
Fred Harwood  
John G. Hautala  
Walter M. Haydon  
Allen T. Hayes  
Herb Hefke  
Herb J. Henry  
Ruth Henry  
P. Hershkowitz  
H. M. Heywood  
Chuck Hicks  
Robert R. Hicks (1)  
Dave Hill  
Larry Hill  
Tom Hill  
Bill J. Hitchens  
Joe Hobrila  
Dwight A. Hornbeck  
Rick Houk  
John Hoyt  
Matt Hrebeck (4)  
Mike Huber (2)  
Ron Huebshman  
Steve Ilieff  
Joe Ingle  
Dane Ismail (6)  
Alan Isola  
Marshall Jacks (1)  
Carolyn Jadojs  
Bob Jenkins  
Joseph C. Jenkins  
Charlie Jennett  
Raja Jildeh  
Lyle Job  
Bruce Johnson (6)  
Jim Johnson

Ed Johnsonbaugh  
Mike Jones  
Mike L. Jones  
Morris Jones  
Kurt L. Junde  
Brett Kach  
Nancy H. Kagan (9)  
Inder Kakar  
John Kalmbach  
Otto Kalmbach  
Pete Kamarainen  
Bob Kelly  
John Kelsch  
Kevin Kennedy  
Gene Kerchaert  
Norm Kieliszewski  
Lee A. Kinney  
Karl L. Kleitsch  
John Knecht  
James Knight  
Barb Kohls  
Ken Kosloski  
Harry Krashen (6)  
Mike P. Krause  
Calvin Kring  
Dave Kroll  
Ken Kruger  
Tom Krycinski  
Opel Kuhl  
Louis M. Kukielka  
Sudhakar Kulkarni  
Dick Kuzma  
Al Lampela  
George Langen  
Rob A. Larson  
Gary Lawson  
Sam Lawson  
John Lazar  
Becky Leahy  
Bill T. Lebel  
Shyu Tu Lee  
Max Leffler (2)  
Harold Lemon  
Bill Lepczyk  
Tom Levario  
Samuel J. Levine  
Carlos Libiran  
Paul Libutaque  
Rob Lippert  
George Lipscomb (4)

David M. Litvin  
Richard Long (1)  
Rod Lamore (4)  
Ellen Lurie  
Jerry Luther  
Lynn Lynwood  
Olin Mace  
John C. Mackie  
Robert E. Maki  
Thomas L. Maleck  
A. F. Malo (3)  
Kip Malott  
Ali Mandavi  
JoAnne Markey  
Joe Marlow  
Bob Marsh  
Joe Marson  
James Martin (1)  
Jerry Martin  
Geroge Masters  
Fred Mathis  
Jesse Maxie  
Gary Mazurek  
Jonas Mbonu  
G. J. McCarthy  
Lisa McClanahan  
Rodney McClish  
Pete McDougall  
Paul McKinley  
Carl McMonagle  
Tim McNea  
Judi McNes  
Adrian Memro  
Mary Memro  
D.A. Merchant  
Joe Meszaros  
John Meyers  
John Michaels  
Paul Michelin  
Waldimar Mikucki  
Pete Millard  
Bill Milliken  
Arnold Misteli  
Steve Moore  
David A. Morena (6)  
E. E. Morey  
Ed Morse  
Bob Muller  
Jim Murton  
Jim Myquist

Julius Negri  
Robert Nelson  
Tom Nelson  
Frank Nevarez  
James P. Neve, Jr.  
Dave Newell  
Norbert Ney  
Ed Nienyjski  
Paul A. Nordgren  
Pat M. Nowak  
Leo J. Nowicki  
Lyle Nustad (11)  
Chuck Occhiuto  
Jim O'Connor  
Randy Olin  
Brian O'Loane  
Bill H. Opland  
Don Opland  
Don E. Orne  
Pat O'Rourke  
Rob W. Osgood  
Rich Ostroski  
Martin O'Toole  
John Ouderkirk  
Carolyn Overton  
Laurel W. Painter  
Don Papcun  
JoAnne Parrish  
Ish Patel  
Greg Perkowski  
Jim Peterson  
Judy Peterson  
Tony Phillipich  
Jim Pitz  
George Platsis  
Dick Poland  
Louis Powell  
Al Prager  
Rick Pratt  
Jerry Prior  
Sandy Prior  
W. F. Proudfoot  
Gonzolo Puente  
Ron Ramsey  
Jan Rathbun  
Tom M. Rathbun  
H. J. Rathfoot  
Ernest F. Ray  
Carroll Reed  
Jeff Reid (15)

Lloyd B. Reid  
Vern Richey  
Jack Rick  
Fred Rieger  
James Rienstra  
Robert Rigotti  
Jim Ritchie  
Gerald Ritchie  
Ron Roberts  
Frank Rock  
Pablo Rojas  
Frank A. Ronan  
Walter Roth  
Kitty Rothwell  
Irving J. Rubin  
Larry A. Rubin  
Ken Rudick  
Kyle Rudlaff  
Jerry Runyon  
Craig Russell  
Robert Russell  
Pat Ryan  
John M. Salman  
Ron Salmon  
Adrian Sanchez  
Mark Sanchez  
John Sanford  
Jeff Saxby  
Doug Schaffer  
Bill Schins  
Wayne Schnoover  
Edwin G. Schoppe  
Pat Schreiner  
Mike Schreiner  
E.O. Schultheis  
Frank Schwarzenberg  
Jill Scriver  
Sharif Shakrani  
Tom Shawver  
A. C. Sherman  
Kirt Sheth (4)  
Mike J. Sibal  
Ron Sickles  
Francis Simoneau (4)  
Balam Singh  
Frank C. Skebensky  
Carol Smith  
George Smith  
Noel Smith  
Roger J. Smith



Bob Smrek  
Dan Sokolincki  
Bob Sommers  
D.J. Sonnenberg  
Frank M. Spica  
Wieslaw Spiewla  
David W. Starr  
Win Stebbins  
Walter L. Steinfatt  
Leo Stelly (2)  
Paul Stoltz  
Desi Strakovits  
Larry Suboski  
Edward D. Suino  
Harold Svacha  
Larry L. Swanson  
Edward W. Swanson  
Mark Sweeney  
Jerry Swift  
Mike Tarazi  
Craig Taylor  
Gary D. Taylor  
Lou Taylor  
William C. Taylor (16)  
Les Tedhams  
Brian Thelen  
Will Thompson  
Ken Thorp  
Andrew Tilma  
Lyle Tinkham  
Ross Tooker  
Julie Townsend  
Jerry Tunney  
Bill Turner  
Paul Uberhurst  
Rudolph M. Umbs (8)  
Ken Underwood  
Lee Underwood  
Tom Urbanik II  
Steve Urda  
Maury VanAuken  
Ton VandenBerg  
Dale Vandenberg  
David F. VanHine (2)  
Mark VanPortfleet  
Paul VanRaalte  
Gerry VanValkenburg  
Murray D. VanWagoner  
David G. Vaughn  
Mark VerPlanch

Clayton H. Voss  
Stephen J. Vrocan  
Jack Warder  
W. B. Washington  
Marcia Watson  
E. Weidenhoefer  
Herm Welke  
Bev Wellington  
Phil Wetosky  
Bunny Whaley  
Dock Whaley (4)  
Gary White (6)  
Barb Wickerham  
Don Wickham  
D. R. Wiertella  
John E. Wisniewski  
G. Mennen Williams  
Larry Wiggins  
Paige Williams  
John A. Wills  
Ed Winkler  
Paul Wisney  
John P. Woodford  
Dave Worgul  
Sandy Wright  
Walker Wright  
Yung Wu  
John Wysack  
Dorothy Younger  
Ben Zamora  
Tom Zander  
Ron Zaskowski  
Mike Zavadil  
Bob Zelski  
Charles M. Zeigler  
Bob Zielinski  
Viadimir Zokvic  
Amy Zokvic

City of Detroit (1)  
Wayne County Road Commission (2)  
M.S.H.D. and City of Detroit (3)  
Michigan State Police (4)  
Detroit Edison (5)  
Federal Highway Administration (6)  
Tri-County Plan (7)  
Eaton County (8)  
Michigan State University (9)  
University of Michigan (10)  
Automobile Club of Michigan (11)  
Macomb County Road Commission (12)  
City of Jackson (13)  
Oakland County Road Commission (14)  
Caltrans (15)  
Ohio Department of Transportation (16)  
Carrier and Gable (17)

Stanley D. Lingeman  
724 N. Verlinden Avenue  
Lansing, Michigan 48915  
(517) 372-1719

Employer 1971-1993: Michigan Department of Transportation, Lansing, Michigan

## MAJOR PROJECTS

1992-1993: Transportation Engineer, Design Division

The review of road design plans for M-59, a \$50 million project in Macomb County

1982-1991: Transportation Engineer, Design Division

The preparation of plans, proposal, and cost estimates for a pavement overlay on US-10 in Bay County, five (5) sound-wall projects on I-94, and five (5) railroad projects throughout the state

1980-1981: Transportation Engineer, Traffic and Safety Division

The review of high-accident locations for intersection safety projects

1977-1979: Supervising Engineer Data Services, Traffic and Safety Division

The development of computer applications

1975-1976: Supervising Engineer Reflective Devices, Traffic and Safety Division

The development of state-wide freeway signing policy and the production of freeway signing contracts

1971-1974: Supervising Engineer Accident Analysis, Safety and Traffic Division

The development of the M.A.L.I. Index, Automated Collision Diagram, and S.C.R.E.E.N. projects for the analysis of traffic accident experience on the state trunk-line system.

1969-1970: Assistant District Traffic Engineer: M.D.O.T., 301 East Louis Glick Highway, Jackson, Michigan 49201

Final signing of Glick-Washington loop in Jackson

1958-1966: Assistant District Traffic Engineer: M.D.O.T., 18101 W. Nine Mile Road, Southfield, Michigan 48075

Construction signing on I-94, M-39, and US-24 in Wayne County. Removal of street parking on US-12 in Dearborn, M-153 in Garden City, and M-53 in Warren to provide for left-turn lanes

## EDUCATION

University of Detroit - B. S. Civil Engineering  
Michigan State University - M.S. Transportation Engineering

## LICENSE

1964-1993: Registered Professional Engineer in Michigan

## AFFILIATIONS

1961-1993: Fellow Member, Institute of Transportation Engineers