

**ANALYSIS OF 53' TRAILER USAGE  
IN THE UNITED STATES**

**Michigan Department of Transportation  
Bureau of Transportation Planning  
Freight Transportation Planning Section  
Motor Carrier Unit**

**June 23, 1988**

The motor carrier industry, in a continuing effort to maximize efficiency, has requested in many states, the use of 53' trailers. Justification for this request is the economics of the larger number of cubic feet per trailer to transport items of light density. As an example, there is over 31% more capacity in a 53' vs. 45' trailer. In researching this issue, it was found that the average price differential of a 53' trailer over a 48' trailer is about \$600. When leasing trailers the costs are essentially the same for short term lease. These items are of interest and also indicate a trend toward the obvious economics of petitioning the states for longer trailer sizes to improve profitability.

The added length of these trailers create problems when applied to highway geometry. Since each state analyzed useage of these trailers using their own highway and traffic configurations, there are numerous sets of rules regarding the use of these trailers.

University of Michigan Transportation Research Institute (UMTRI) has done a number of studies related to 53' trailers. These include:

1. Off-tracking - the problem of intrusion on adjoining lanes or curbs, caused by the larger turning radius required for longer wheel base vehicles.
2. Underride - Low profile automobiles driving under the rear overhang.
3. Roll-over - Light density commodities result in higher center of gravity, when combined with a longer wheel base, this results in unstable conditions.

In a study concerning 53' trailers and their impacts on Michigan conducted by UMTRI for the Michigan Department of Transportation (MDOT), it was recommended that the optimum situation would be a wheel base of 40.5' from the kingpin to the center of the tandem axle assembly, with a rear bumper 22" from the ground. These recommendations were included in the law passed in Michigan allowing usage of 53' trailers.

Of the 48 states contacted regarding the maximum size of trailers legally allowed in their state (also included as legal are those states who allowed 53' trailers for a \$100 annual fee or less) there were 11 different lengths allowed. There are 15 states adhering to the minimum 48' provided for in the STAA of 1982. These states are mostly Eastern and Southern states with the notable exception of a block of 3 Western states.

Twenty-nine states allow trailer sizes of 53', and of these, nine states allow longer trailer lengths. See map following page.

ALK

B.C.

ALB

SAS

MAN

ONT

QUE

NEW BRUNS

MAI

VER

N.H.

MAS

CON

RHO

N.J.

DEL

D.C.

N.Y.

W.V.

VIR

N.C.

S.C.

GEO

ALA

MIS

ARK

53.5

LOU

55

OKL

60

TEX

57

N.M.

57.5

KAN

MO

NEB

COL

UTA

ARI

NEV

60

CAL

KEN

TEN

61.8

IND

ILL

IOW

WIS

MICH

MIN

S.D.

N.D.

MON

WYO

60

IDA

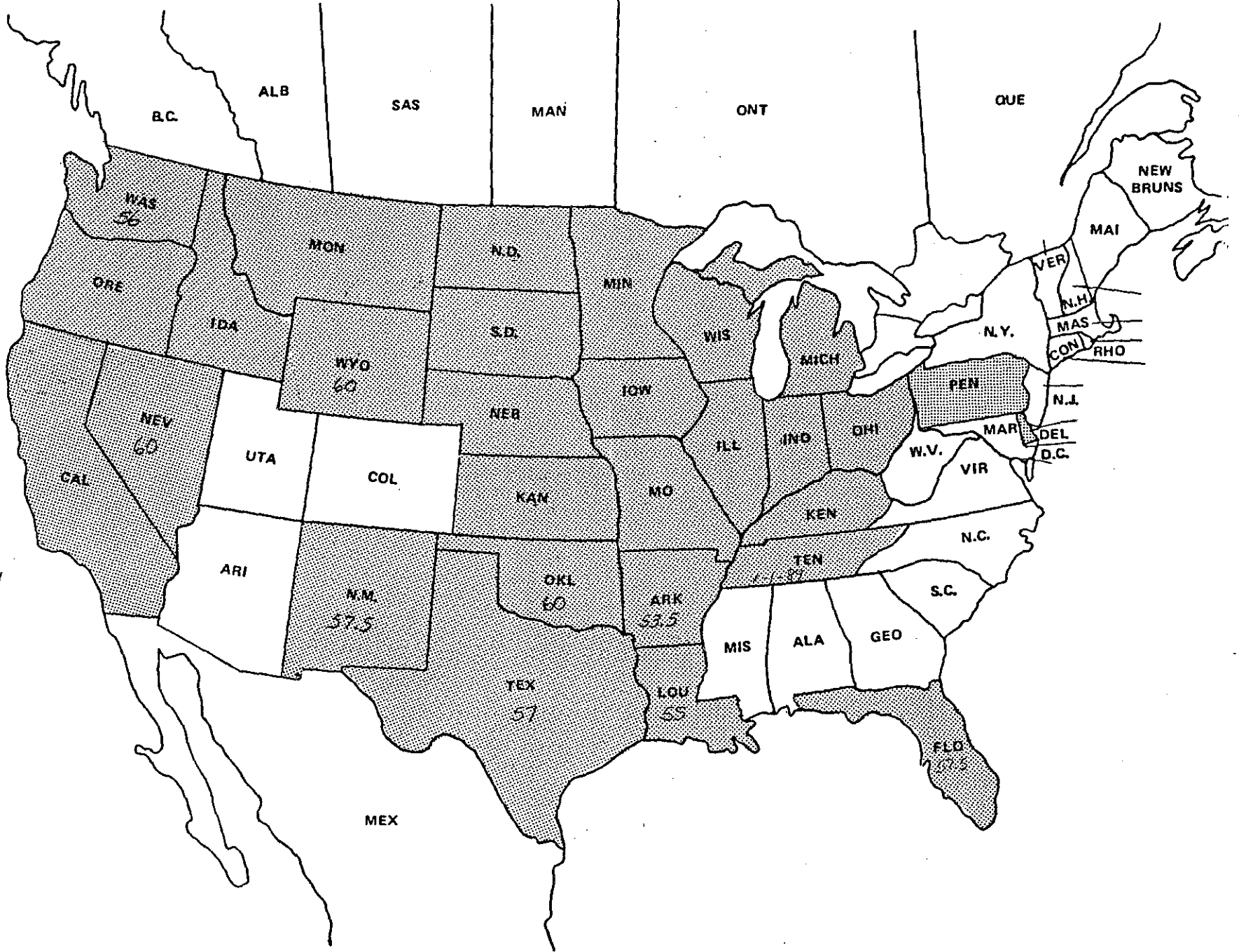
ORE

WAS

56

MEX

HAW



STATES ALLOWING 48' TRAILERS

Colorado, Connecticut, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, South Carolina, Utah, Vermont, Virginia, West Virginia.

STATES ALLOWING 48.5' TRAILERS

Rhode Island

STATES ALLOWING 50' TRAILERS

Alabama, Mississippi

STATES ALLOWING 51' TRAILERS

Arizona

STATES ALLOWING 53' TRAILERS

California, Delaware, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Montana, Nebraska, North Dakota, Ohio, Oregon, Pennsylvania, South Dakota, Tennessee, Wisconsin

STATES ALLOWING 53.5' TRAILERS

Arkansas

STATES ALLOWING 55' TRAILERS

Louisiana

STATES ALLOWING 56' TRAILERS

Washington

STATES ALLOWING 57' TRAILERS

Texas

STATES ALLOWING 57.5' TRAILERS

Florida, New Mexico

STATES ALLOWING 60' TRAILERS

Nevada, Oklahoma, Wyoming

## APPENDIX A

### KINGPIN SETTINGS

Of the 48 states contacted 9 have designated kingpin settings for 53' trailers. The other states have not specified a setting. A breakown of the various states' kingpin settings is shown below.

- o California - Multi-Axle trailers must have a kingpin setting of less than 40' to the center of the rear axle. Single axle trailers must have a kingpin setting of less than 38' to the center of the axle.
- o Idaho - An off track model is used to compute kingpin settings for various routes.
- o Illinois - Kingpin setting is 40' to the center of the rear axle.
- o Indiana - Kingpin setting is 40.5' from the kingpin to the rearmost axle. (Manufactured after 12-31-84, 42.5' if manufactured before January 1, 1985.)
- o Iowa - 40' from the kingpin to the rearmost axle.
- o Michigan - 40.5'(+OR- .5') from the kingpin to the center of the tandem assembly.
- o Minnesota - 41' from the kingpin to the center of the rear axle group.
- o Tennessee - (effective 1-1-89) 41' from the kingpin to the center of the tandem assembly.
- o Wisconsin - 41' from the kingpin to the center of the rear axle.

## APPENDIX B

### 53' TRAILERS IN THE UNITED STATES

Each state was contacted. Inquiries have been made as to the maximum legal length of trailers in each state, if there is an axle requirement or a specific kingpin requirement. For states allowing 53' or longer trailers copies of the enabling legislation was requested.

#### ALABAMA

205-261-6275 Paul Bowlin

50' trailers are legal right now. Prior to 1982 60' overall, this caused grandfathering of longer trailers. A couple of weeks ago FHWA did designate Alabama on STAA system for 53' trailers. Presently do not have a requirement for axles or kingpin setting.

#### ARIZONA

602-255-7346

Anything over 51' requires a permit. \$ 15 single trip, \$ 30 for 30 days.

#### ARKANSAS

501-569-2381 Ken

53'6" became legal January 29th, there are no axle or kingpin requirements. Legislation is being sent ( Mr. Dalwin? )

#### CALIFORNIA

916-445-3303 Robert Rathcliff

53' is allowed on STAA system of routes. Kingpin setting of less than 40' on multi-axle 38' on single axle.

4-5-88

916-445-5851 John Van Berkel

California Department of Transportation

Transportation Operations

Chief, Office of Truck Studies.

53' trailers are allowed on designated routes, there are no axle restrictions, the kingpin setting is 40' to the center of the rear axle. Off the national network the kingpin setting is 40'. 65' overall length is allowed which does permit 57' trailers in some combinations.

California has a computerized offtracking model ( similiar to UMTRI's)

COLORADO

303-757-9261 Tom Talmadge

Maximum legal length 48', they allow 2-28's and have an overall 70' maximum. Beth said she has heard "rumors" about 53' trailers.

303-757-9715 Juanita G. Martinez  
Special Transportation Liason Officer

CONNECTICUT

203-566-4010 Linda

Maximum legal length 48'.

4-7-88 AASHTO response

203-529-7741 x39 Richard Tourville

Maximum legal length 48'

DELAWARE

302-736-4374 Chuck Johnson

They do allow 53' trailers there are no axle or kingpin requirements. Legislation sent.

AASHTO Response Mr. Raymond S. Pusey DelDOT, Bureau of Traffic

302-736-4361

53' trailers are allowed on the National System and on the US System except where prohibited. On all other roadways, the overall length of the vehicle prevails.

FLORIDA

904-488-4961 Bill Barry - Permit Engineer

They allow 57'6" with a \$30 Permit. Prior to 1982 they allowed 65' overall. There are no axle requirements or kingpin setting stipulations.

GEORGIA

404-656-5277 Mr. Childers

They allow 48'. There was a proposal before their legislature to allow longer trailers but they fought to keep it out.

IDAHO

208-334-8420 Scott McFerson

They do allow 53' trailers for a \$50 yearly extra length permit. There are different kingpin settings for different routes.

AASHTO Response Mary Sayers, Size & Weight Officer 208-334-8418  
Same as above but included an offtrack computation form.

Idaho does not have a kingpin distance requirement on 53' trailers since the routes they may operate on are determined by the off-track of the combination. Idaho does have a kingpin distance requirement of 39' from kingpin to last non-steerable axle on trailers 48' or less operating off of the National Truck Network.

ILLINOIS

217-782-7984 Chuck Smith

They do allow 53' trailers, no axle requirements, kingpin setting 40' to the center of the rear axle. Legislation requested.

INDIANA

317-232-5652 Ron Sobecki

Any trailer over 48'6" shall have 40'6" between the kingpin and the rear axle.

IOWA

515-281-3396 Col. Marsh

53' trailers are allowed on the interstate and on 24' designated highways. There are no axle requirements and the kingpin to rearmost axle distance is 40' (Col. Marsh claims he has never seen a ticket issued on a kingpin violation.)

515-281-3047

515-239-1372 Shirley Andre legislation sent

515-239-1642 Elaine Torgeson maps sent.

KANSAS

913-296-7400 Clerk in permit area

Allows 53' trailers on a truck tractor, no maximum overall length no axle limitation, no kingpin setting requirement.

913-296-3831 Patty - legal receptionist will send legislation.

KENTUCKY

502-564-3276 Captain Cassidy

Allows 53' on interstate 48' on other highways, no axle or kingpin requirements.

502-564-4540 Louise Drury will send legislation.

LOUISIANA

504-334-0160 Captain Linton

65' overall length prior to 1982 STAA, 55' trailers are legal, no axle requirements or kingpin settings.

MAINE

207-289-3686 Sgt. Carter

48' maximum, no plans for anything longer.

MARYLAND

301-768-7388 Truck Enforcement

301-859-7160 Ron Lipps Transportation Safety Planning

48' maximum on trailer length.

MASSACHUSETTS

617-727-4721

45' is the normal legal maximum, 48' is allowed on the Interstate System only.



MINNESOTA

612-296-0843 Kevin (permit technician)

53' trailers are allowed if 65' overall is not exceeded. 41' kingpin to center of rear axle group.

MISSISSIPPI

601-359-1248 Bob Brown

The maximum trailer length has been 50' for two years. There are no kingpin requirements.

NEBRASKA

402-479-4536 Marian Sexton

402-479-4645 analyst

Nebraska allows 53' trailers, there are no axle or kingpin requirements (20,000# single axle, 34,000# tandem axle). It is legal to haul triple bottom trailers if they are empty. Trailer combinations can have an overall length of 65' plus the length of the tractor.

NEVADA

702-885-5410 Jan (permit bureau)

Allow 70' overall which would accommodate 60' trailers. There are no kingpin requirements.

NEW HAMPSHIRE

603-271-2691 Donna Harnum

Maximum legal length is 48'. There is currently legislation to increase the maximum of single unit trucks from 35' to 40'.

NORTH CAROLINA

W.C. Hagwood, Head of Permits

North Carolina does not have a maximum length limit for trailers as long as the combination tractor and trailer length does not exceed 60 feet for North Carolina routes, however for Interstate and designated US routes the maximum trailer length is 48 feet. There is no overall combination length limit as long as the trailer length does not exceed the 48 feet limit. There is no kingpin distance requirement.

NORTH DAKOTA

701-224-2455 Dennis L. Erickson, Sergeant, NDHP Motor Carrier Div.

The length of a trailer or semi-trailer may not exceed 53' except that trailers and semi trailers titled and registered in North Dakota prior to 7-1-87, may not exceed a length of 60'. Routes are not restricted, there is no specification on number of axles, and there is no kingpin distance requirement.

MONTANA

406-444-6130 Sonny Frickle

Any trailer up to 53' long is legal in Montana, over 53' up to 55' need a permit, over 55-57 limited to Interstate.

NEW MEXICO

505-827-4645 Johnny

57'6" on Federally Designated Highways. Can have 5 or 6 axles.

NEW YORK

518-457-7436 Jim Barnack

NYSDOT

Traffic and Safety Division

State Campus

Bldg. 5, Rm 312

Albany, New York 12232

53' trailers are not allowed anywhere in New York State.

OHIO

614-275-2800 Lee Minton

53' trailers are allowed on all highways, there are no axle restrictions or kingpin requirements.

OKLAHOMA

405-424-5801 Theresa

There is no maximum length in Oklahoma. There is no kingpin requirement.

RHODE ISLAND

401-277-6514 Rayna Insana

Elaine Phillips - Assistant Director, Division of Motor Vehicles, DOT

Maximum trailer length 48'6".

SOUTH CAROLINA

803-737-1132 Captain A.F. Corbin, S.C. Highway Patrol, P.O. Drawer 191, Columbia S.C. 29202

Allows 48' on the interstate 40' on South Carolina highways. Sent them copies of our legislation and UMTRI Report.

TENNESSEE

615-741-3821

The new legislation will be effective Jan 1, 1989. Maximum legal length 50' from kingpin to the end of the load. 53' trailers would easily be legal. 41' kingpin to center of tandem axle requirement.

VIRGINIA

804-367-0523

48' maximum legal length for trailers, 55' maximum overall.

WASHINGTON

206-753-6005 Dennis B. Ingham, State Maintenance Engineer

Washington allows 53' trailers to be operated by permit. The legal limit is 48'. Permits are available for lengths up to 56'. All highways are designated highways at the present time, and these trailers may be used on the entire system. There is no kingpin requirement.

Permit Fees - Continuous operation of a combination of vehicles having one trailing unit that exceeds 48' and is not more than 56' in length, for a period of one year --- \$100.

WEST VIRGINIA

304-348-0384

48' maximum legal length for trailers.

WISCONSIN

608-266-3212 Division of State Patrol

53' trailers are allowed. There are no axle requirements. Kingpin requirement - Maximum of 41 feet from center of kingpin to center of Rear Axle or midpoint between axles if tandem axles.

CANADA

ONTARIO

416-235-2771 Linda Tonelli

Maximum length of trailers 45'.