H.B. 2223

87th Texas Legislature

Overview

H.B. 2223 calls for the Texas Department of Transportation to conduct a study examining the “impact on the roads and bridge of this state by motor vehicles classified as:

- Passenger vehicles
- Commercial motor vehicles, and
- Oversize or overweight vehicles.”

Overview

The bill also directs the Texas Department of Transportation to conduct the study in consultation with:

- Texas A&M Transportation Institute,
- University of Texas Center for Transportation Research, and
- Transportation Industry Representatives.

UTSA is also included in the research team.

The study is due to the legislature by December 1, 2022.

The number of vehicles that drive on the roads and bridges

The number of miles driven on the roads and bridges

The total revenue contribution from taxes and fees to the construction and maintenance of the roads and bridges

The financial impact due to costs associated with construction and maintenance as well as congestion

How much the total revenue contribution exceeds or falls short of the financial impact

Assess the overall economic benefits to the economy of Texas of commercial motor vehicles and oversize or overweight vehicles

Recommend one or more changes to existing tax or fee structures to ensure vehicle categories contribute revenue in an amount at least equal to their financial impact

Outcomes

- Congestion Analysis- David Schrank, Ph.D.
- Pavement Analysis- Jorge Prozzi, Ph.D.
- Bridge Analysis- Jose Weissmann, Ph.D., P.E. and Angela Weissmann, Ph.D.
- Revenue Analysis- Brianne Glover, J.D.
- Economic Analysis- Jacqueline Kuzio, Ph.D.

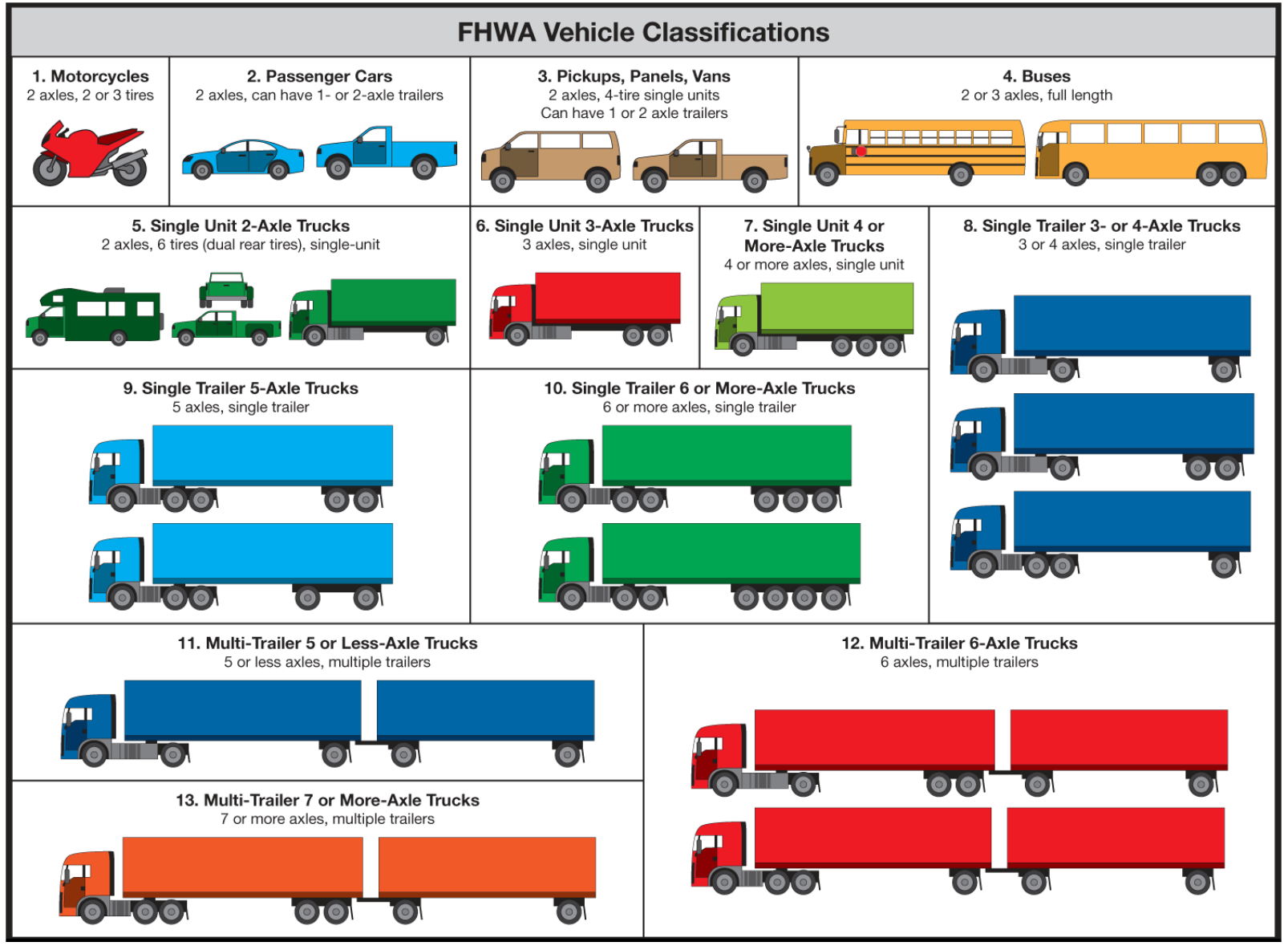
Feedback from Previous Meeting

- Why include a congestion analysis?
- Analysis includes on-system only
- Anecdotal info helped inform OS/OW VMT estimates
- Additional considerations for economic impact (verification of inputs, fuel price fluctuations, labor cost components).

Vehicle Miles Traveled

Study Category	Annual VMT
Motorcycle and Passenger Vehicle Subtotal	182,873,050,041
Commercial Motor Vehicle Subtotal	26,879,779,620
Overweight Vehicle Subtotal	347,127,833
Total All Vehicles	210,099,957,494

FHWA Vehicle Classes



Overweight Permits

General Permits	Hubometer Quarterly Permits	Annual Envelope Permits	Total
86% of permits	9% of permits	2% of permits	96% of permits
26% of VMT	11% of OW VMT	54% of OW VMT	91% of OW VMT

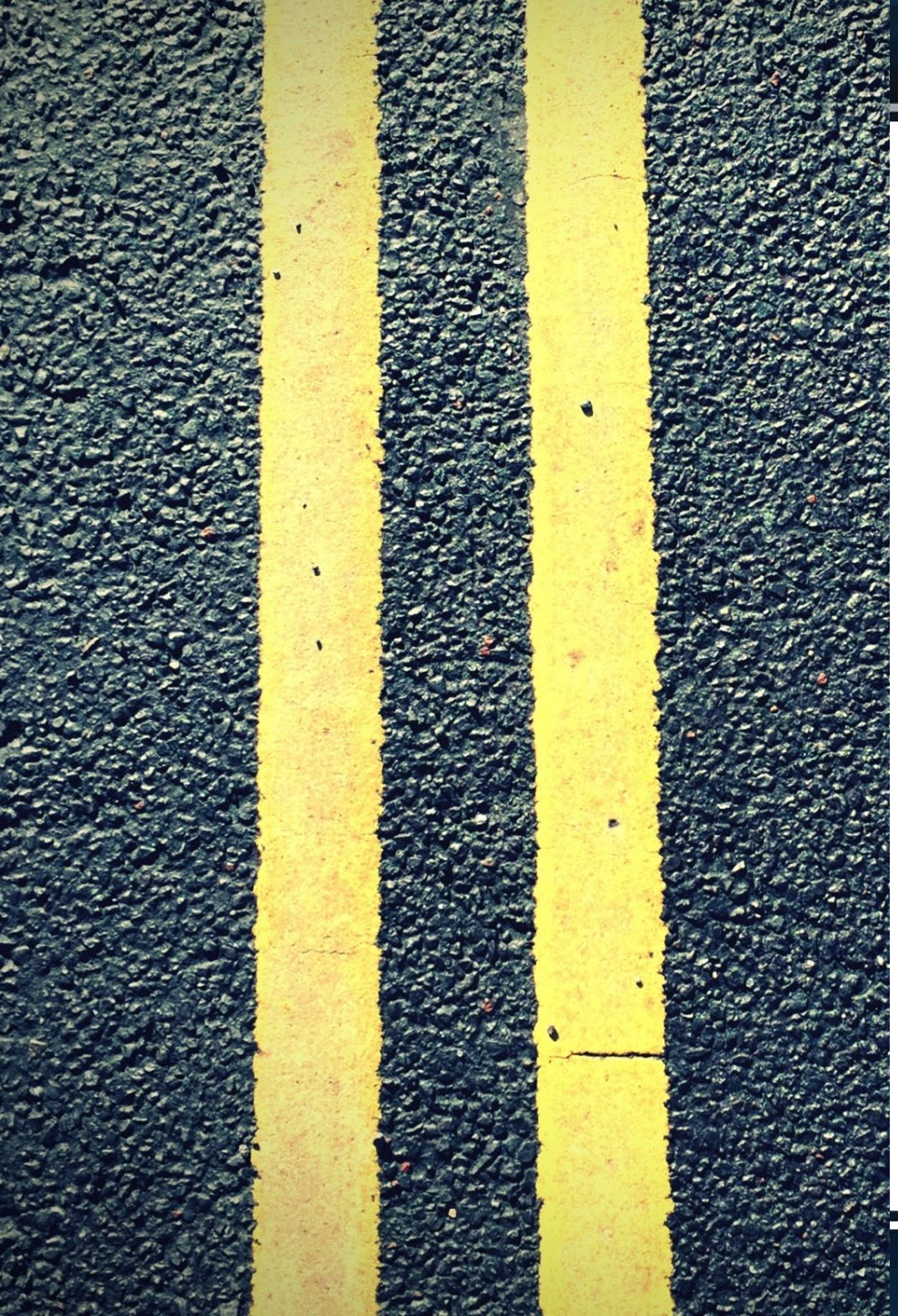
Congestion Analysis

- Congestion costs are based on 2 core components:
  - Value of Time/ Delay Cost
  - Fuel Costs

Congestion Cost and Cost Responsibility

Category	Annual Congestion Cost		
	All Vehicles	Passenger Vehicles	Trucks
$/Million VMT	$73,268	$70,437	$96,292
$/ VMT	$0.07	$0.07	$0.10

Congestion Cost Responsibility			
Passenger Vehicles	Commercial Vehicles	Overweight Vehicles	Total
$12,881.0	$2,588.3	$33.4	$15,502.7



Pavement Analysis

- Axles loads and vehicle configurations
- Pavement design library of 25 sample project designs
- Weight-in-Motion (WIM) data
- A standard 18-kip single axle used as a frame of reference

Pavement Analysis

The 27 most common vehicle configurations account for more than 90 percent of all OS/OW permits

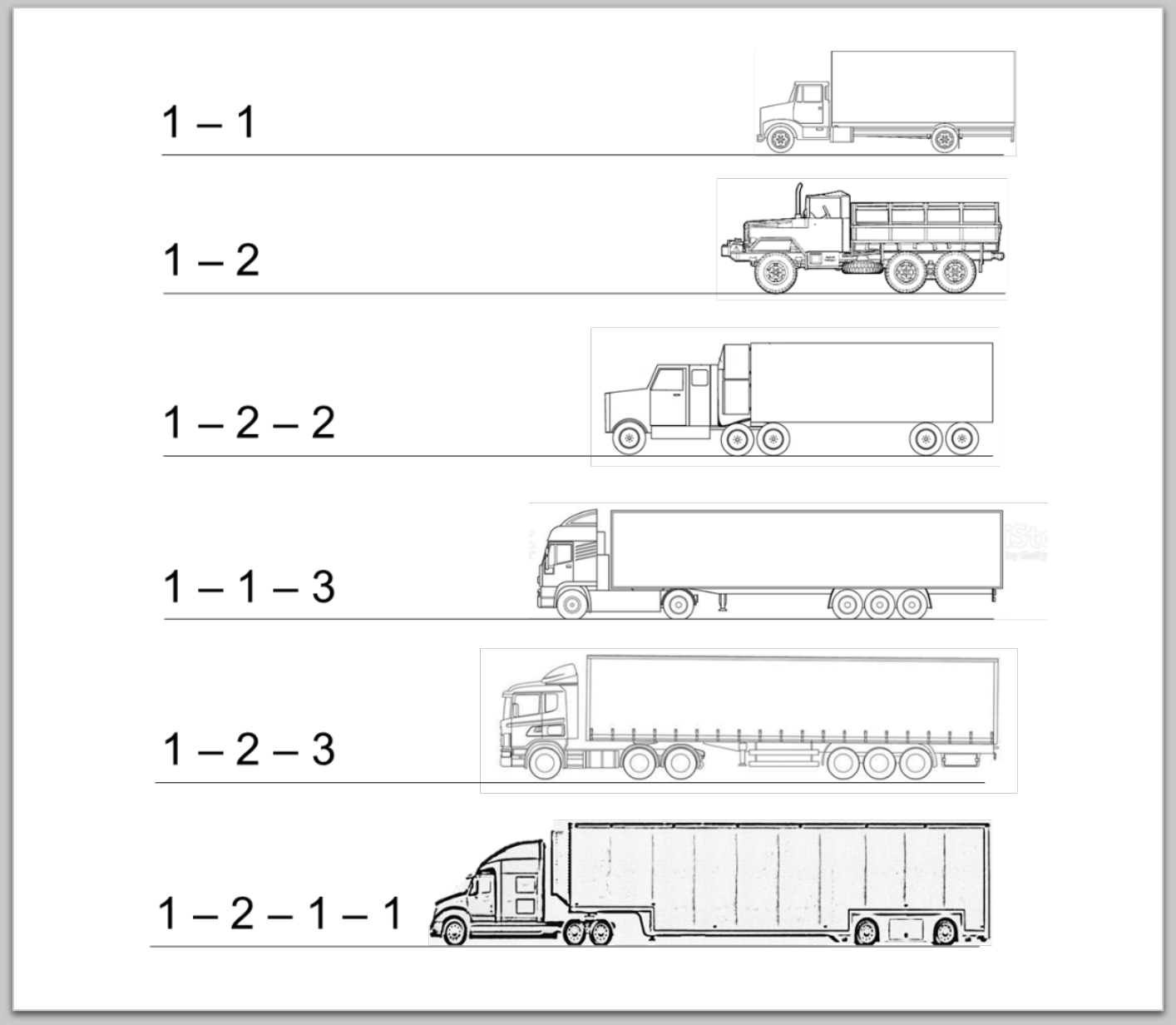
Axle Groups Examined:

Singles (1 axle in the axle group)

Tandems (2 axles in the axle group)

Tridems (3 axles in the axle group)

Quads (4 axles in the axle group)



Bridge Analysis

- Weight-in-Motion Data used to determine the FHWA vehicle class and number of axles.
- Representative truck configurations were selected

FHWA Vehicle Class	Count	Percent
1	64	0
2	6,867	0.01
3	4,024	0.01
4	411,333	0.88
5	14,045,948	29.96
6	1,775,292	3.79
7	57,164	0.12
8	1,789,222	3.82
9	26,649,492	56.85
10	381,941	0.81
11	905,116	1.93
12	640,484	1.37
13	210,967	0.45

Bridge Analysis- Overweight Vehicles

	2019	Permits	Percent of Data Used
GVW Category[1]	Number	Percent	in Bridge Analysis
80,001-120,000	167,929	19.3%	41.0%
120,001-160,000	156,505	18.0%	38.2%
160,001-200,000	64,420	7.4%	15.6%
200,001-254,300	20,423	2.3%	5.0%
Over 254,300	5,966	0.7%	
Oversize	454,424	52.3%	
Total used in bridge analysis	**409,277**	**47.1%**	

Both permit base report and axle report data used.

Consumption Cost- Commercial Vehicles

Commercial Motor Vehicles	VMT	Pavement $/Mile	Bridge $/Mile	Pavement & Bridge $/Mile	Total Pavement & Bridge Consumption Cost (Millions)
Class 4: Buses	540,182,916	$0.06	$0.01	$0.07	$35.6
Class 5: Two Axle Single Unit	6,123,287,151	$0.00	$0.00	$0.00	$16.8
Class 6: Three Axle Single Unit	1,709,401,986	$0.04	$0.02	$0.06	$96.9
Class 7: Four Plus Axle Single Unit	64,921,416	$0.08	$0.06	$0.14	$9.3
Class 8: 3-4 Axle Single Trailer	925,114,107	$0.02	$0.01	$0.03	$26.8
Class 9: Five Axle Single Trailer	16,656,265,711	$0.08	$0.03	$0.11	$1,872.7
Class 10: Six Plus Axle Single Trailer	242,801,087	$0.09	$0.04	$0.13	$30.6
Class 11: Five Axle Multi-trailer	460,448,122	$0.08	$0.03	$0.11	$50.8
Class 12: Six Axle Multi-trailer	129,282,607	$0.05	$0.03	$0.08	$10.1
Class 13: Seven Plus Axle Multi-trailer	28,074,515	$0.10	$0.04	$0.14	$3.8
Commercial Motor Vehicle Total	**26,879,779,620**	**$0.06**	**$0.02**	**$0.08**	**$2,153.3**

Consumption Cost- OS/OW Permits

Analyzed Permits	VMT	Pavement $/Mile	Bridge $/Mile	Pavement & Bridge $/Mile	Pavement & Bridge Consumption Cost (Millions)
General Permits Total	88,541,000	$0.65	$0.24	$0.89	$79.1
Hubometer Permits Total	37,799,000	$0.71	$0.16	$0.87	$32.9
Envelope Permits Total	188,422,000	$0.61	$0.13	$0.74	$139.0
Total	**314,762,000**	**$0.63**	**$0.16**	**$0.80**	**$251.0**

Consumption Cost- Overweight Vehicles

Overweight Motor Vehicles	VMT	Consumption Costs (Millions)		
		Pavement	Bridge	Pavement & Bridge
Class 7: Four Plus Axle Single Unit	255,618	$0.2	$0.0	$0.2
Class 8: 3-4 Axle Single Trailer	2,649,132	$1.7	$0.4	$2.1
Class 9: Five Axle Single Trailer	206,681,447	$130.9	$34.0	$164.8
Class 10: Six Plus Axle Single Trailer	88,151,659	$55.8	$14.5	$70.3
Class 11: Five Axle Multi-trailer	184,113	$0.1	$0.0	$0.2
Class 12: Six Axle Multi-trailer	9,164,054	$5.8	$1.5	$7.3
Class 13: Seven Plus Axle Multi-trailer	7,675,977	$4.9	$1.3	$6.1
Overweight Motor Vehicles	314,762,000	$199.3	$51.7	$251.0
Additional Overweight Vehicles	32,365,833	$20.5	$5.3	$25.8
Total	**347,127,833**	**$219.8**	**$57.0**	**$276.8**

Revenue Analysis

($ Millions)

Revenue Source	Passenger Vehicles	Commercial Vehicles	Overweight Vehicles	Total
State Motor Fuels Tax				**$2,734.7**
Gasoline	$2,010.0	$41.0		$2,051.0
Diesel	$20.5	$654.1	$9.1	$683.7
Federal Funds				**$3,791.7**
Gasoline	$2,415.3	$49.3		$2,464.6
Diesel	$39.8	$1,270.0	$17.3	$1,327.1
Vehicle Registration Fees	$1,191.4	$366.7	$0.9	**$1,559.0**
OS/OW Permit Fees		$3.4	$126.9	**$130.3**
Proposition 1 Oil & Gas Tax	$1,237.4	$181.9	$2.3	**$1,421.6**
Proposition 7 Sales, Use, & Rental Taxes	$2,384.9	$350.5	$4.5	**$2,740.0**
Other Taxes & Fees	$561.0	$82.5	$1.1	**$644.6**
Total	**$9,860.3**	**$2,999.4**	**$162.1**	**$13,021.9**

Revenue Used in Analysis

	Passenger Vehicles	Commercial Vehicles	Overweight Vehicles	Total
Total SHF Revenue	$9,860.4	$2,999.9	$161.6	$13,021.9
Revenue Expenses (Other than Construction & Maintenance)	-$3,215.4	-$978.3	-$52.7	-$4,246.4
Remaining Revenue for Construction & Maintenance	**$6,645.0**	**$2,021.6**	**$108.9**	**$8,775.5**

Cost Comparison

Commercial Vehicle Cost/Revenue	Amount ($millions)
Pavement Consumption Cost	$1,572.3
Bridge Consumption Cost	$581.0
Total Consumption Cost	**$2,153.3**
Commercial Motor Vehicle Revenue Allocation	**$2,021.6**
Revenue Gap	**-$131.6**

Overweight Vehicle Cost/Revenue	Amount ($millions)
Pavement Consumption Cost	$219.8
Bridge Consumption Cost	$57.0
Total Consumption Cost	**$276.8**
Overweight Motor Vehicle Revenue Allocation	**$108.9**
Revenue Gap	**-$167.9**

Remaining Revenue

Revenue Remaining after Consumption Costs are Applied		
Passenger Vehicles	Commercial Vehicles	Overweight Vehicles
$6,645.0	-$131.6	-$167.9

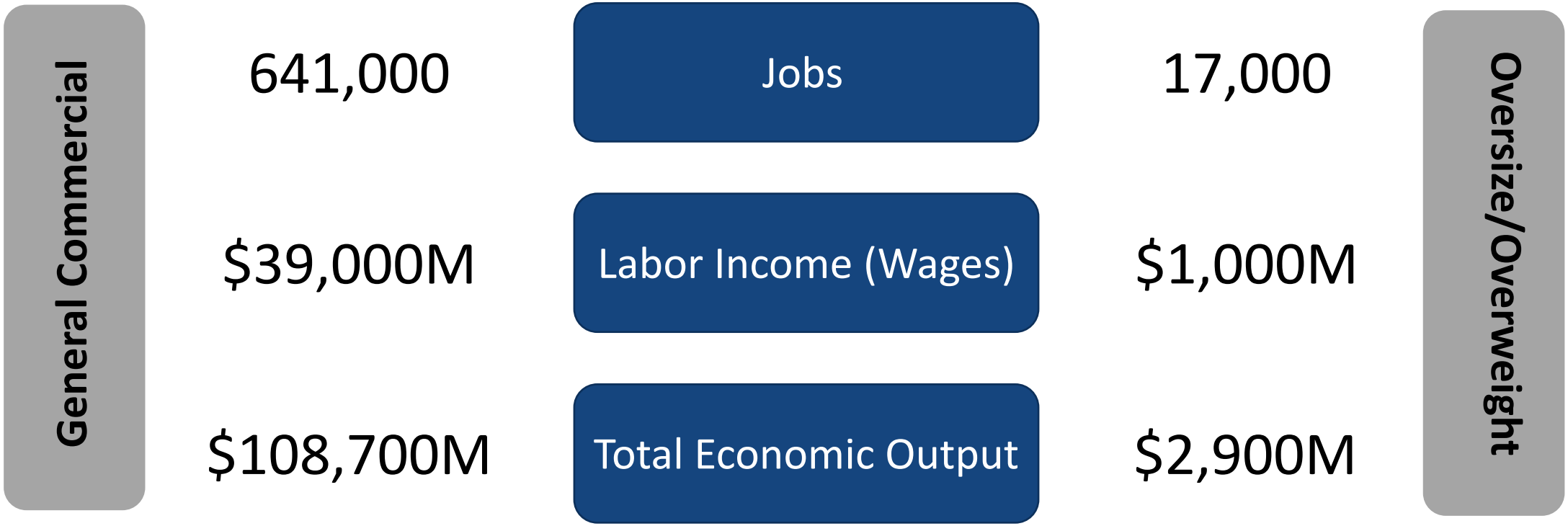
Congestion Cost Responsibility			
Passenger Vehicles	Commercial Vehicles	Overweight Vehicles	Total
$12,881.0	$2,588.3	$33.4	$15,502.7

Economic Analysis

Determine the economic impact of commercial and oversize/overweight vehicles to the State of Texas.

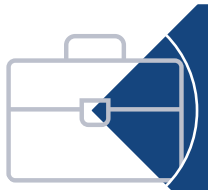
Two Components
• The contribution of the truck transportation industry to the economy. • How truck transportation supports major industries in the state.

Economic Impact of Truck Transportation



Supporting Major Industries

General Commercial

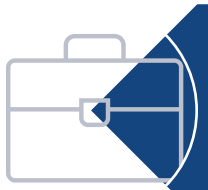


2,776,000 Jobs

$139,500 million in Labor Income (Wages)

$535,000 million in Direct Economic Impact

Oversize/Overweight

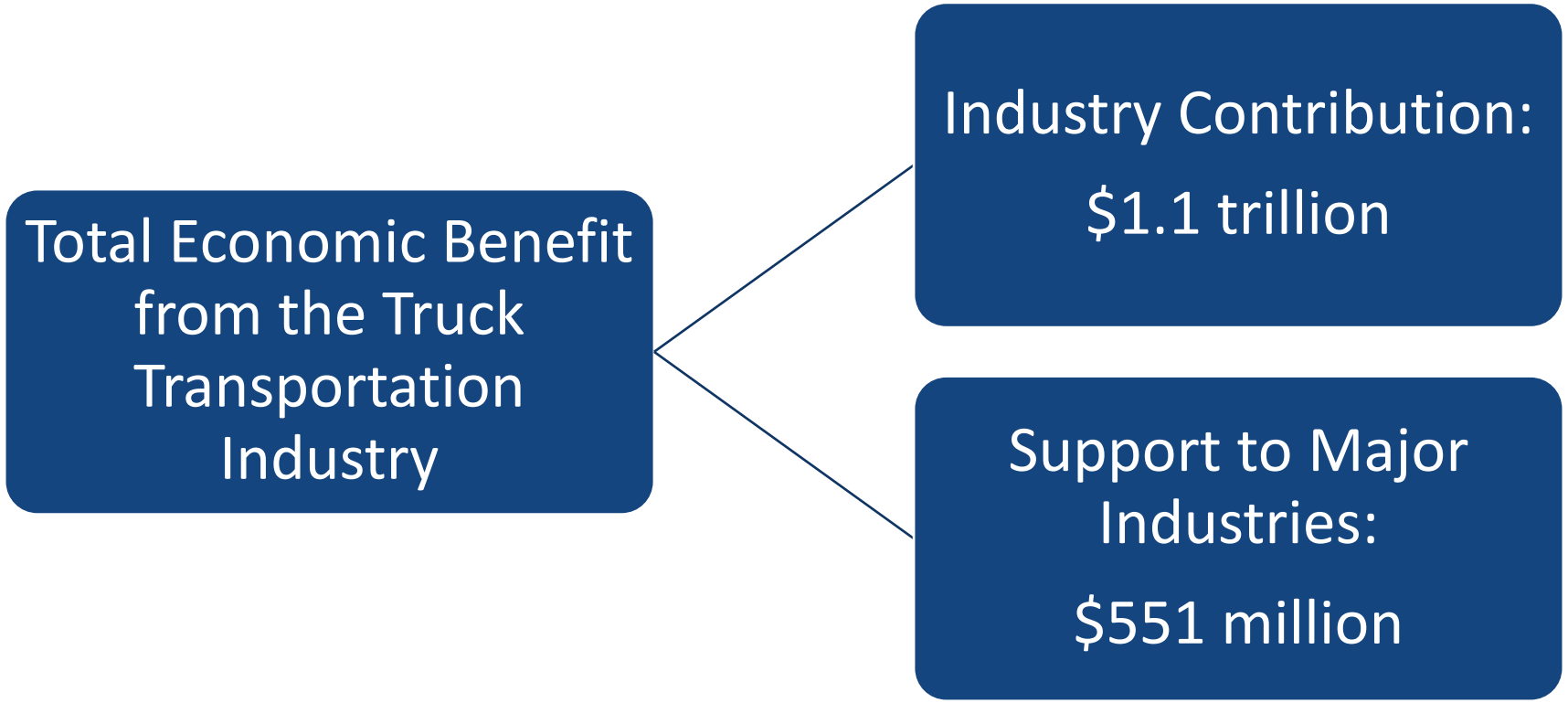


75,000 Jobs

$4,100 million in Labor Income (Wages)

$15,800 million in Direct Economic Impact

Economic Analysis



Small Group Discussion

Cost Recovery Scenarios

- Changes to oversize/overweight permit fees
  - By type or blanket increase
- Changes to vehicle registration fees by weight
  - By type or blanket increase
- Proposed new fee assessments such as:
  - Weight-distance tax
  - Vehicle mile fee (all vehicles)

Cost Scenario Discussion

Questions?

Next Steps

- Cost Scenario numbers will be available by October 21st

- Providing Comments