

Motor Carriers
Chapter 5

GSU #1

1



Road Map to Success

GSU #1

Global Environment

Transportation Management Practices

Transportation Economics

Specialty Areas

Modes

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Road Map to Success

GSU #1

Chapter Objectives:

- What are the advantages and disadvantages of each mode?
- What are the cost and business structures of the industry?
- What has happened since Deregulation and Gov't roll today?
- What is the level of competition, equipment usage, and is it intermodal?
- What is unique to this mode?

Motor

Railroads

Air

Water

Pipeline

Modes

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History of the Motor Carrier Industry

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- Industry has only existed since the turn of the 20th century
- Served as _____ companies for the railroads until 1930
- Began to compete with _____ in 1930's
 - By 1960 trucks handled more tons than rail
- Government involvement
 - Built/maintained infrastructure
 - Economic and safety

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History of the Motor Carrier Industry

- Key equipment developments improved capability, capacity, speed, & ride quality
 - Pneumatic tires & steel wheels
 - High power
 - Air ride suspension systems
- Other key events
 - Development of the interstate highway system
 - Economic growth of the industry
 - Emergence of new competition






Industry Characteristics

- Large number of small carriers
 - Over 1 million registered trucking companies
 - 80% Operate 28 or fewer trucks
 - Easy to enter industry & markets
 - Heavy bankruptcy and merger activity
 - Less than 45 of the top 100 firms in 1980 exist
- Average shipment size is small
 - LTL shipments average 969 pounds

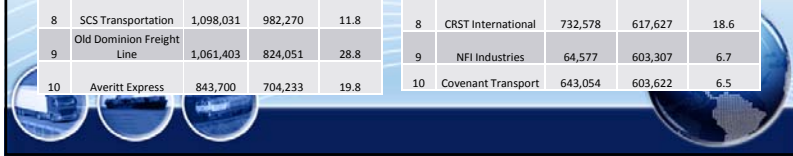
Industry Characteristics

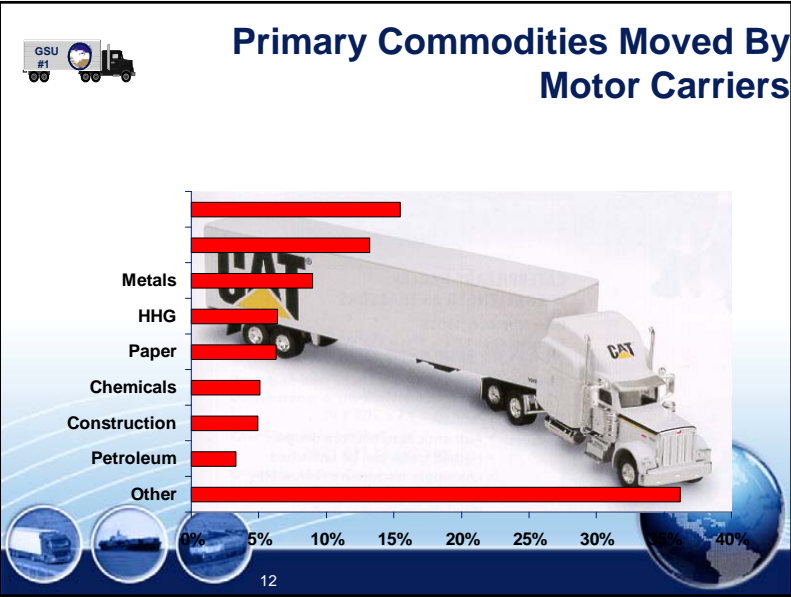
- Average length of haul is short
 - 646 miles for LTL shipments
 - 274 miles for TL shipments
- Value of freight is high
 - Focus is on finished goods
- Revenues are on the rise
 - TL up 13.1%
 - LTL national up 2.7%
 - Small package up 6.1%

Top Motor Carriers of LTL & TL



Less-Than-Truckload					Truckload				
Rank	Company	Revenue 2005	Revenue 2004	% Change	Rank	Company	Revenue 2005	Revenue (2004)	% Change
1	YRC Worldwide	8,741,600	6,767,500	29.2	1	Swift Transportation Co.	3,197,455	2,826,201	13.1
2	FedEx Freight	3,645,000	3,217,000	13.3	2	Schneider National	3,145,000	2,875,000	9.4
3	Con-way Freight	2,816,647	2,532,201	11.2	3	J.B. Hunt Transport Services	3,127,900	2,786,200	12.3
4	UPS Freight	1,900,000	1,647,461	15.3	4	Landstar System	2,517,828	2,019,936	24.6
5	ABF Freight System	1,709,000	1,585,400	7.8	5	Werner Enterprises	1,971,847	1,678,043	17.5
6	Estes Express Lines	1,388,348	1,003,651	38.3	6	U.S. Xpress Enterprises	1,164,232	1,105,656	5.3
7	Watkins Motor Lines	1,108,058	1,162,990	-4.7	7	Crete Carrier Corp.	925,870	820,636	12.8
8	SCS Transportation	1,098,031	982,270	11.8	8	CRST International	732,578	617,627	18.6
9	Old Dominion Freight Line	1,061,403	824,051	28.8	9	NFI Industries	64,577	603,307	6.7
10	Averitt Express	843,700	704,233	19.8	10	Covenant Transport	643,054	603,622	6.5





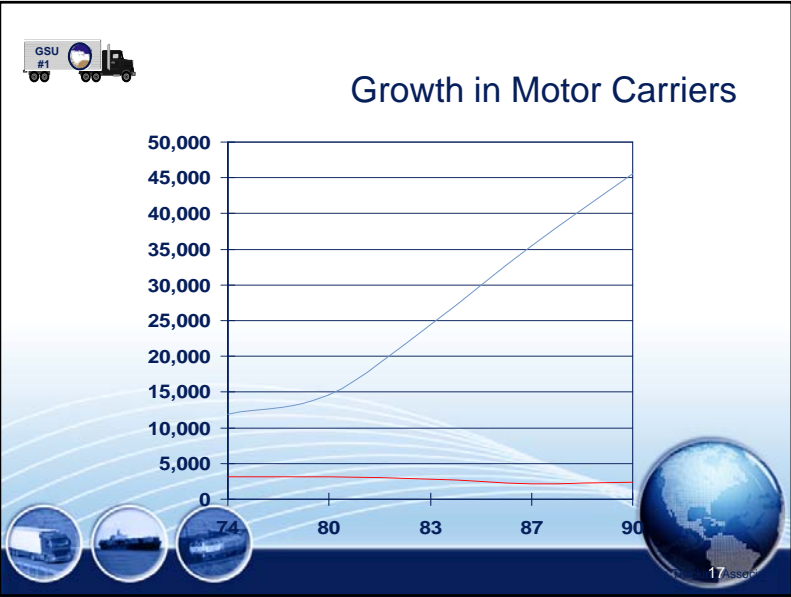
Types of Carriers

- Customers Served
 - Private
 - Move own freight
 - For-hire
 - Move freight for others
- Geographic scope of service
 - Local
 - Intercity


Types of Carriers

- Nature of Service
 - carriage
 - Serve general public on demand
 - carriage
 - Serve specific shippers based on agreements
 - Combination carriage
- Size of Company
 - Class I - more than \$ million
 - Class II - between \$ and \$ million
 - Class III - under \$ million

How Much?

- 1999 Volvo
- 754,095 miles
- 12 CD Changer
- Great exterior and interior condition
- Avg. 7.1 Mpg




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Types of Carriers

- Shipment Size
 - small package
 - Under lbs.
 - LTL (less than truckload)
 - Over 150 lbs. And up to 20,000 lbs.
 - TL (truckload)
 - Over lbs.

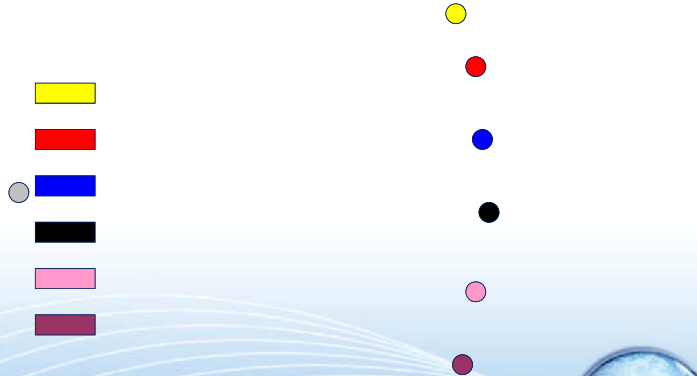


MANY TRUCKING COMPANIES ARE MULTI-PURPOSE CARRIERS

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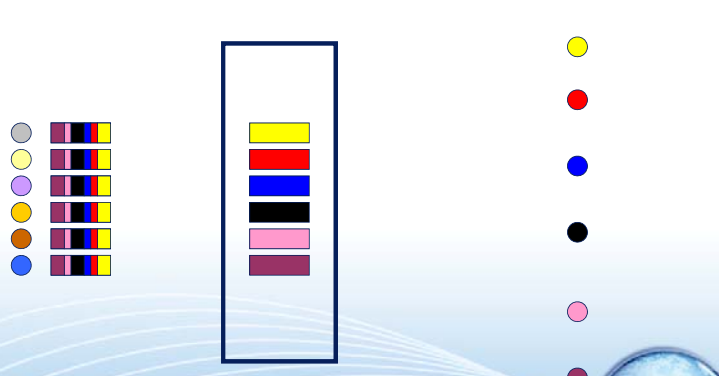
TL Model



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LTL Model





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Small Package Carriers

- Industry Characteristics
 - Collects 8.8% of intercity trucking revenue
 - Handles multiple shipments on each trailer
 - Dominated by UPS
 - \$36.6 billion revenues in 2004
 - RPS **WAS** primary competitor
 - \$1.3 billion revenues in 1998
 - Use hub and spoke system

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LTL Carriers

- Industry Characteristics
 - Collects 10% Of Intercity Trucking Revenue
 - Handles Multiple Shipments On Each Trailer
 - National Operations Dominated By 3 Carriers
 - Each Has Annual Revenues Over \$2 Billion
 - Uses Hub And Spoke System
 - Local Terminals, Breakbulk Terminals, relays
 - Yellow, ABF, FedEx Freight, SAIA, Con-Way




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LTL Carriers

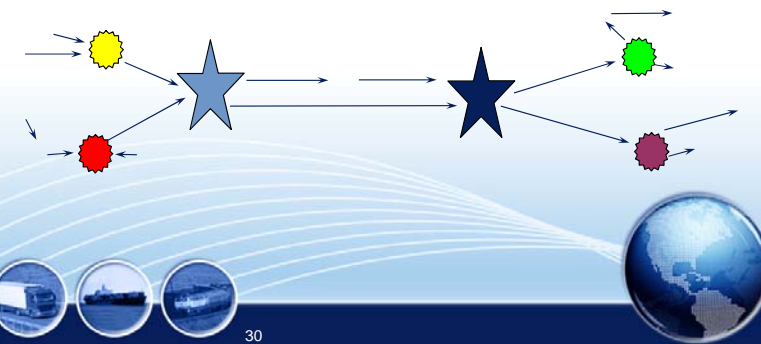

“They say one size doesn’t fit all, but one carrier can do it all...”
-Ira Rosenfeld (UPS spokesman)

- UPS joins the industry
- Bought Overnite for \$1.3 billion in 2005 to enter LTL sector
 - Now known as UPS Freight
 - Annual revenue from UPS Freight \$2.07 billion (2008)
 - Down 9.6% from previous quarter
 - Expanded service to include door to door service to and from Mexico
 - Has more than 200 service centers solely for UPS Freight in US and Canada as well as 40 plus in Mexico




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Movement Patterns LTL - Hub and Spoke

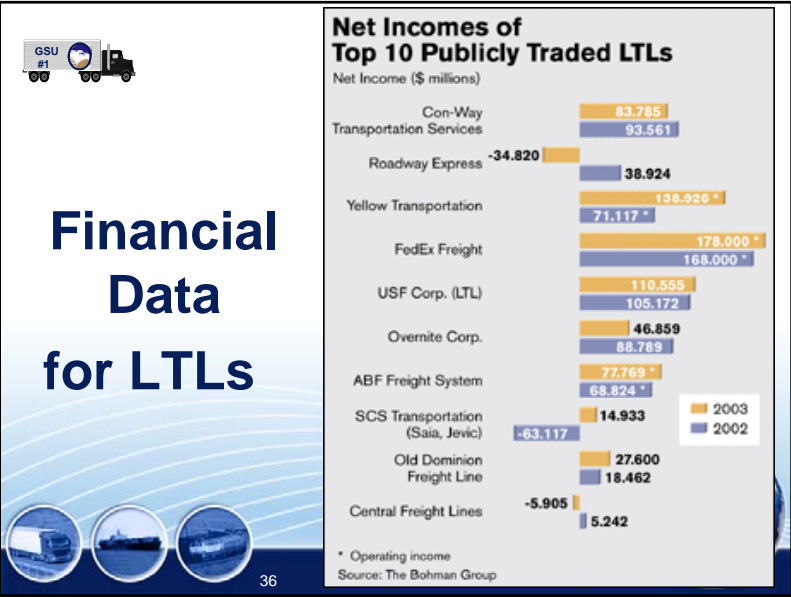
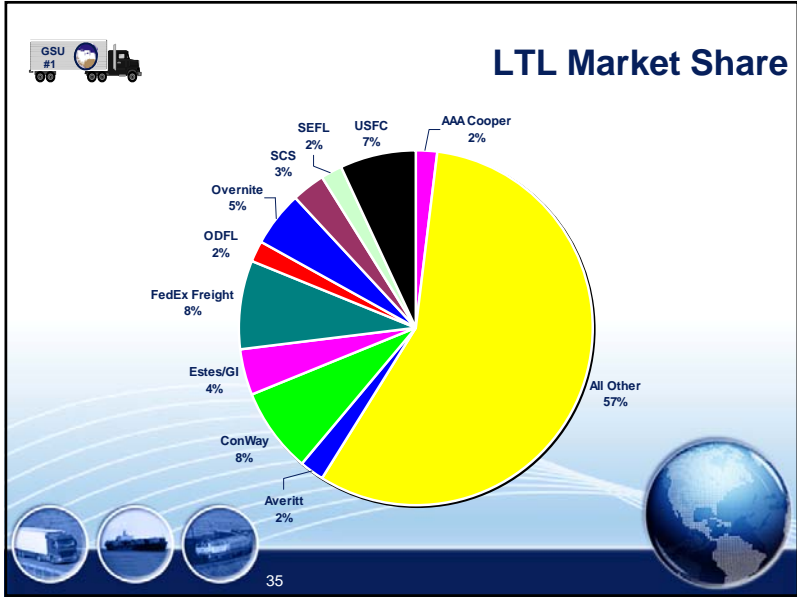




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LTL Carriers

- Scope of Operations
 - National
 - Yellow, Roadway, CF, ABF, Saia,
 - Stable fuel prices |+ growing volume + higher rates = profitability
 - Interregional
 - US Freightways, Con-Way
 - Enjoy competitive advantages over nationals
 - Regional
 - Averitt, AAA Cooper, Southeastern,
 - Best day-to-day operating performance

TL Carriers



- Industry Characteristics
 - Collects 28% of intercity trucking revenue
 - Handles single shipments on each trailer
 - Not dominated by few carriers
 - Top 3 carriers only generate 7% of revenue
 - Typically use point to point systems
 - Sometimes use domicile terminals or relays



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Movement Patterns TL - Point to Point

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TL Carriers

- Industry characteristics and trends
 - Most TL carriers are national
 - Schneider, J B Hunt, Ryder, Werner
 - Freight rates are stable
 - Growth opportunities
 - Private fleet conversions
 - Partnerships
 - Third-party services
 - Most freight is general commodities

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Motor Carrier Statistics

Motor Ton Miles – 2006 – Freight Revenue

Metric	Motor	Others
Motor Ton Miles	80%	20%
Freight Revenue	28%	72%

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Industry Capabilities

- Service
 - Excellent customer service
 - High flexibility
 - High accessibility
- Speed
 - Very fast for shipments under _____ miles
 - Loses velocity on longer shipments
 - Good _____ speed
 - Consistent performance

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Industry Capabilities

- Carrying capacity
 - Dependent upon length of truck
 - 53 ft. Trailer has 3,300 cubic feet of space
 - Dependent upon max weight limits of states
 - Tare weight + cargo weight < 80,000 lbs.
- Cargo safety
 - Low damage rates
 - Low claims ratios




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Industry Economic Characteristics and Issues

- Cost structure
 - High _____, low _____
 - 70/30 to 90/10 split for operating costs
- Key cost drivers
 - _____ costs
 - Wages/benefits, fuel, maintenance
 - _____ costs
 - Overhead, licenses, insurance, interest

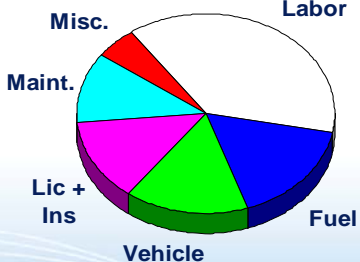


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Cost Structure


- High Variable Costs
- Cost to operate: 1 mile = \$1.36+
- Few or little economies of scale
- Government provides much of the infrastructure



Note: rising diesel prices has made fuel the #1 expense in 2008

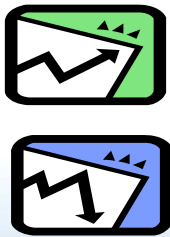



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Market Structure

- Very highly competitive
- Motor especially good at short distance, higher value products
 - Electronics, manufactured, fruits
- Motor working closely with other modes - Intermodal Chapter later
- Increased Power of major firms

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Types of Carriers

- Freight Handled
 - General commodities
 - Special commodities
 - Household goods
 - Raw materials
 - Equipment/machinery
 - Refrigerated goods
 - Liquids
 - Hazardous materials




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Strengths and Weaknesses

- Advantages
 -
 -
 - Variable Carrying Capacity of Cargo
 - Shipping Distance
 - Flexibility
- Disadvantages
 - Managerial Control
 -
 - ???





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Industry Economic Characteristics and Issues


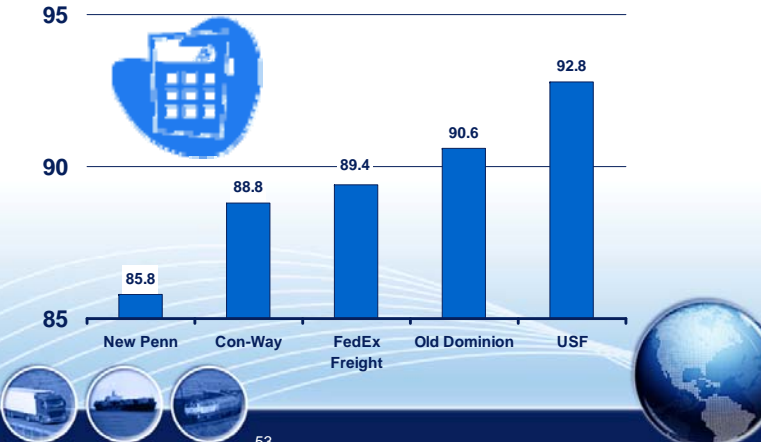
- Key performance measurements
 - Operating ratio
 - $\text{Operating expense/operating revenue} \times 100$
 - 1996 Consolidated Freightways 103.9
 - 1996 New Penn Motor Express 83.4
 - On-time performance
 - Transit time
 - Claims ratios
 - Freight bill accuracy




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Operating Ratios of Public Regional LTL Carriers

Carrier	Operating Ratio
New Penn	85.8
Con-Way	88.8
FedEx Freight	89.4
Old Dominion	90.6
USF	92.8






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Truckload Measures

- Example of key factors:
 - Loaded miles / total miles
 - On-time delivery % to the min.
 - On-time per customer expectation
 - # of drivers leaving / total # drivers
 - Reportable accidents per million miles
 - Miles per day per truck
 - Rate per total mile
 - Average length of haul
 - MPG
 - Out-of-route miles

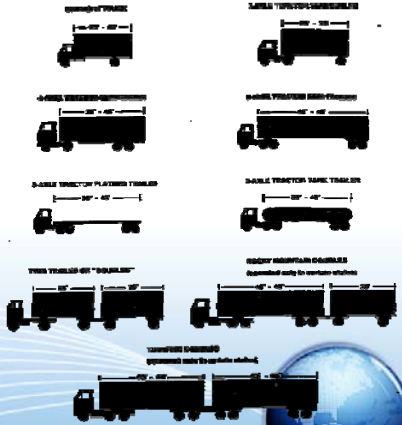






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Industry Capabilities

- **Equipment Types**
 - Legal restrictions
 - Different lengths
 - determine capacity
- **Efficiencies**
 - Driver(s) to Length
- **Specialty Types**
 - Refer, low-boy, container, etc.

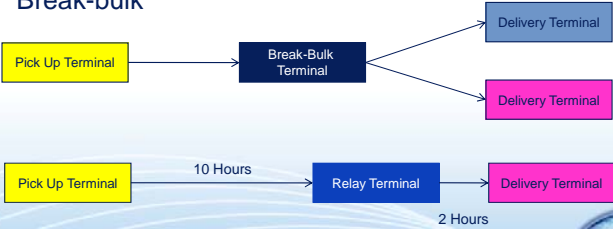






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Terminal Types

- Pick-up and Delivery
- Break-bulk







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Infrastructure

- **Types**
 - Interstate: I-16, I-95
 - Primary: US 31
 - Secondary: GA 301
 - Urban:
 - Appalachian
- **Funding - goal of user paying**
 - Fuel Tax
 - .15 federal, 0-.21 others
 - Registration Fees: licenses for users
 - Equipment sales tax: tires, trucks

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The National Highway System (NHS)




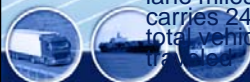

- The United States National Highway System is made up of 160,000 miles of roadway in length
- The National Highway system comprises of a number of sub-systems of which are:
 - The Interstate System
 - Strategic Highway Network (STRAHNET)
 - National Highway System Freight Connectors or Intermodal Connectors





The Interstate System


- Currently the United States Interstate System extends over 46,000 miles in length
 - Broken down into lanes the Interstate system accounts for 209,655 lane miles
 - The Interstate System accounts for only 2.5% of the nations total highway lane miles
 - Of the 2.5% highway of total lane miles it carries 24% of the total vehicle miles


Road Comparison


Country	Total Roads (km)	Paved Roads (km)	Expressways (km)	Unpaved Roads (km)
United States	6,465,799	4,209,835	75,040	2,255,964
China	1,930,544	1,575,571	41,005	354,973
Canada	1,042,300	415,600	17,000	626,700
Mexico	356,945	178,473	6,279	178,472
United Kingdom	398,366	398,366	3,520	very few








Major Problems with U.S. Hwy Infrastructure

- Deteriorating Roads
- Aging Bridges
- Capacity Constraints
- Congestion and Bottlenecks





Minneapolis, MN 2007





Deteriorating Roads

- In 2007, 25% of major roadways in the nation's major metropolitan areas had pavements that were rated in poor condition
- Overall, 12% of America's major roadways are in poor condition
- Poor Road Conditions cost U.S. motorists \$54 billion a year in repairs and operating costs
- Poor Pavement Conditions Effects:
 - Congestion
 - Wear-and-tear on vehicles
 - The comfort of travelers
 - Fuel consumption



Aging Bridges

- 40 years is the average age of all bridges
- 1 out of every 4 bridges are in need of significant repair
- 27.5% of bridges are structurally deficient or functionally obsolete
- 13% of nation's bridges no longer meet current highway standards, largely because of:
 - Narrow lanes
 - Inadequate clearances
- 2008, 12% of the nation's bridges had significant deterioration to:
 - Deck
 - Supports


Capacity Constraints


- U.S. population increased 23% from 1990 to 2008
 - Forecasted to grow another 19% by 2030
- Truck vehicle miles traveled is forecasted to increase 75% by 2030
 - Increase of truckloads by 80% by 2035
 - Nearly 23 billion tons
- Vehicle travel increased by 41% from 1990 to 2007
 - 1990- 2.1 trillion vehicle miles traveled
 - 2007- approx. 3 trillion vehicle miles traveled
 - 2008- 2.9 trillion vehicle miles traveled

Congestion and Bottlenecks

- 50% of nation's urban Interstates, highways or freeways are considered congested
- Average rush-hour commuter spends an additional 38 hours annually stuck in traffic
 - Up 14 hours from 1982
 - 28 U.S. urban areas experience 40+ hours of delay a year due to congestion
- Americans spend 3.5 billion hours a year stuck in traffic all together
 - Costs \$63.2 billion a year to the economy

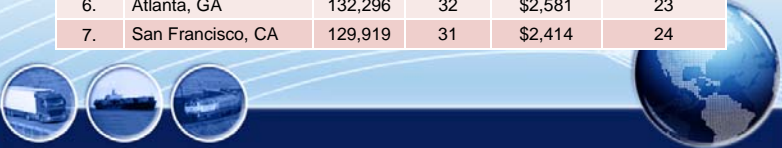





Roadway Congestions Effects on American Motorist



- The worst of which are based on Federal Highway Administration's Highway Performance Monitoring System:

Rank Hours	Urban Area	Total Hours (*1000)	Hours per person	Delay fuel cost (*million)	Fuel wasted (Gal. per person)
1.	Los Angeles, CA	490,552	39	\$9,325	31
2.	New York, NY	384,046	22	\$7,383	14
3.	Chicago, IL	202,835	25	\$3,968	17
4.	Dallas, TX	152,129	34	\$2,747	24
5.	Miami, FL	150,146	28	\$2,730	20
6.	Atlanta, GA	132,296	32	\$2,581	23
7.	San Francisco, CA	129,919	31	\$2,414	24



Congestion Impacts on Freight Industry

- Freight highway bottlenecks are causing 243 million hours of freight delays annually
 - Annual delay cost of \$7.8 billion per year
 - Costs 2.9 billion gallons of fuel annually
- The nation transported approx. 15 billion tons of freight in 2005
 - 80% was transported by truck on the roads
 - The freight tonnage moved is expected to double between 2005 and 2035


JIT Effects on Congestion


- JIT supply chains adds to traffic congestion:
 - Calls for smaller, more frequent replenishment cycles causing more motor carriers on the roads
- JIT deliveries under service level agreements can occur large penalties for failure to deliver on time due to congestion
 - Costing tens of thousands of dollars to companies

Infrastructure Spending: How much is needed?


- The ASCE estimates that it would take an investment of \$2.2 trillion over the next five years to update the nation's infrastructure
 - \$29 billion for road and bridge infrastructure and modernization
- By the most generous calculations, the funds allocated in the final version of President Obama's stimulus package would provide less than 5 percent of what is required






President Obama's Stimulus Package for Highway Infrastructure

- In total the stimulus package is for \$787 billion, as of March 3, 2009
 - \$26.6 billion of this is allocated to the highway infrastructure
 - President Obama claims that highway spending would create or save 150,000 jobs by the end of next year
- Work on “ready-to-go” projects:
 - The \$26.6 billion would go towards 5,280 highway and bridge projects that need \$64 billion. These projects are highlighted because they can be underway within 180 days of approval



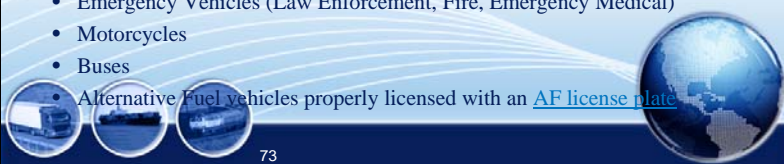


Benefits of Infrastructure Spending

- Funding for transportation projects would result in an immediate economic boost in related industries
 - For every \$1 billion in infrastructure spending
 - 28,000 jobs are created
- Allows for accessibility to new markets
 - New roads means availability for new businesses

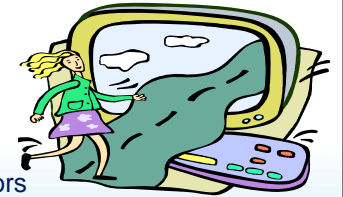

High Occupancy Vehicle (HOV) Lanes


- The Department of Public Safety is responsible for enforcing HOV lane restrictions under Georgia Code, Section 40-16-2. Other law enforcement agencies also enforce the HOV restrictions.
- HOV Lanes first opened in Atlanta on December 14, 1994, 18 lane miles on I-20 from Downtown to I-285.
- In 1996, 60 additional lane miles opened on I-75 and I-85. Another 23.6 lane miles opened on I-85 in Gwinnett County on October 31, 2001.
- The following vehicles may use HOV Lanes:
 - Vehicles with two or more (living and not pre-infant) persons.
 - Emergency Vehicles (Law Enforcement, Fire, Emergency Medical)
 - Motorcycles
 - Buses
 - Alternative Fuel vehicles properly licensed with an [AF license plate](#)

Current / Future Issues

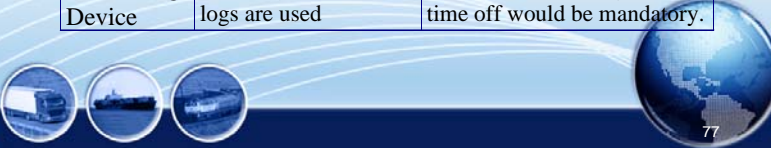
- Cost impact of safety regulation
 - Drug testing, CDL,
- Intercity congestion
 - Significant drain on productivity
- Driver
 - Job hopping, shift to other sectors
- Union Issues
 - Noncompetitive wages
 - Strikes and work stoppages
 - Negative influence on non-union divisions

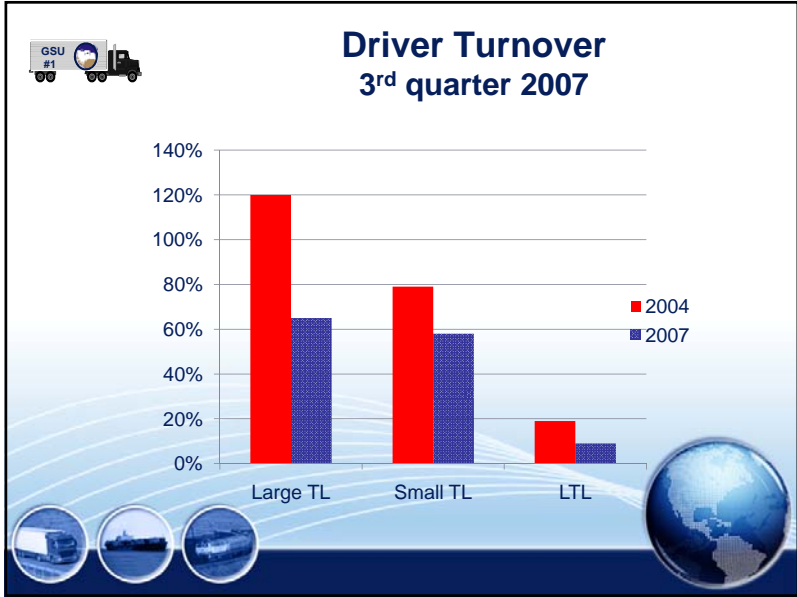



Driver Hours Issue

	Current	Proposed
Work Period	Truckers may drive up to 70 hours over eight days	Truckers may drive up to 120 hours over a 14-day period, not to exceed 72 hours in seven days.
Mandatory "weekend"	No rules	Truckers must take 32-56 consecutive hours off every seven days, including two nights (midnight-6 a.m.) off.
Onboard Monitoring Device	Such devices are voluntary; written logs are used	An installed device to measure time driving and time off would be mandatory.





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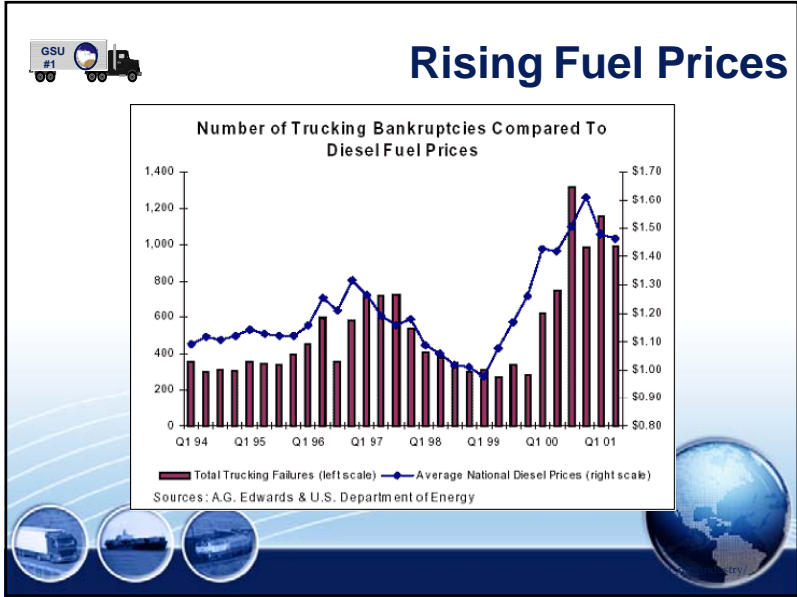



Current / Future Issues

- Competition from other modes increasing
 - Improvements in rail, intermodal, air
- Increasing user
 - Diesel taxes, licenses
- Use and cost of technology
 - EDI, on-board computers, satellite tracking
- Overcapacity - Destructive Competition
 - Rate stagnation
 - Low return on investment

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Trucking Failures

News Capsule

Trucking failures plummet in Q4 of 2008

The steady decline in diesel fuel price has allowed critically ill truckers to "run on fumes," says a January report from Avondale Partners, an independent investment banking firm. The continual drop in fuel prices—and resulting margin and cash flow boost—has helped sustain truckers who may have otherwise exited the industry.

Trucking company failures (*)

Q4 2007	595
Q3 2008	785
Q4 2008	375

* An average fleet size of 28 trucks is assumed
Source: Avondale Partners, LLC

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Current Issues For Motor Carriers

CSA★2010
Compliance • Safety • Accountability

- Trucking industry facing loss of capacity in 2011 due to increased safety regulations and disqualifications of unsafe drivers
- Affects an estimated 3 million long-haul truck drivers and 800,000 carriers
- Comprehensive Safety Analysis (CSA) predicted to eliminate as much as 5% of trucking capacity
- 3,380 truck related fatalities occurred in 2009, the third straight year in decline
- CSA will gather information on why accidents are occurring, find ways to intervene before a crash occurs, and new ways to determine safety related to current performance
- New system will address carriers and drivers , not only carriers
- Unsafe drivers will be prosecuted
- Records will be available to employers and eventually shippers

Road Map to Success

Chapter Objectives:

- What are the advantages and disadvantages of each mode?
- What are the cost and business structures of the industry?
- What has happened since Deregulation and Gov't roll today?
- What is the level of competition, equipment usage, and is it intermodal?
- What is unique to this mode?

Motor
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Modes