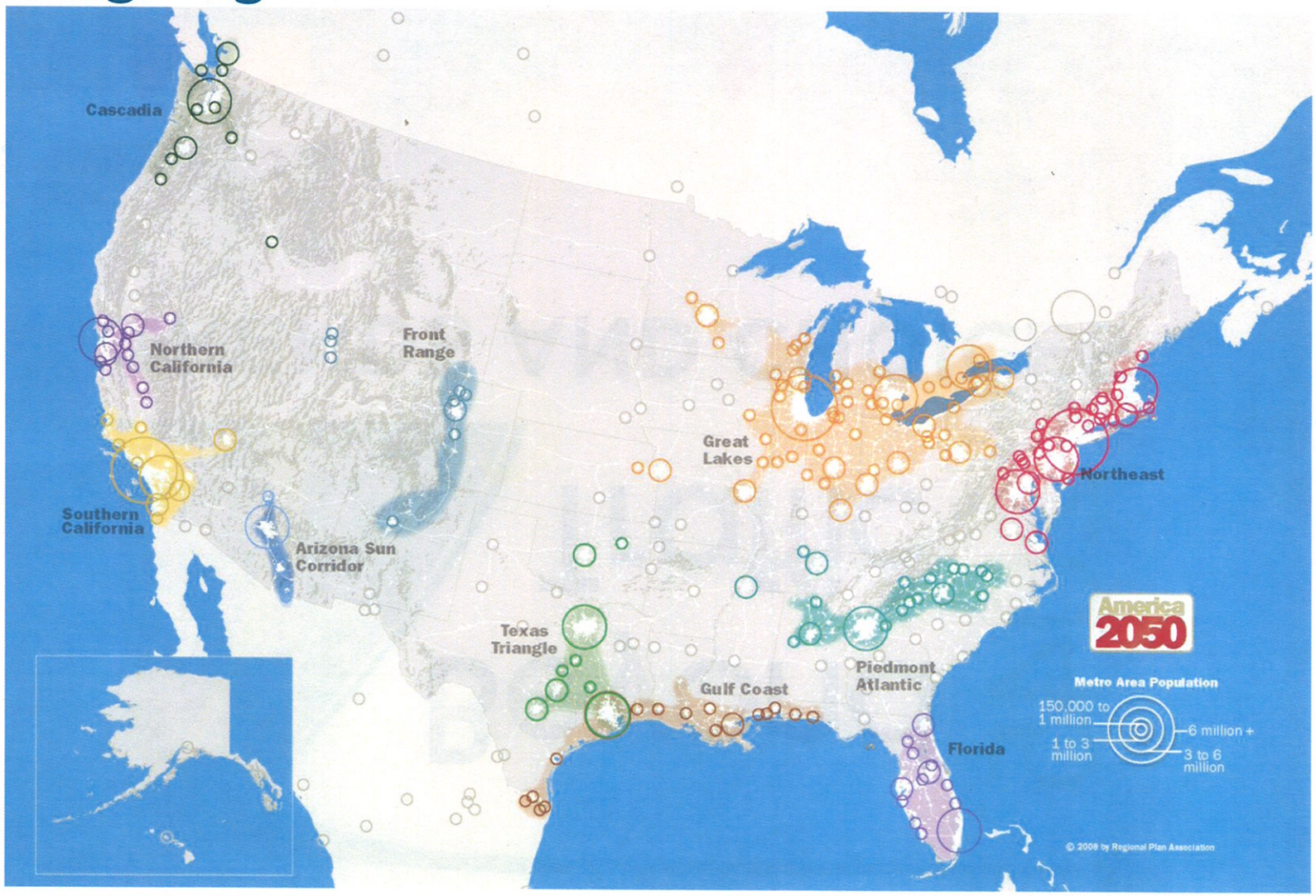
# Beyond Traffic 2045

## TRENDS AND CHOICES

# Megaregions …



# Trends: How We Move …

## Population Increase

2015: **320 million people**
2045: **390 million people**

In 30 years our population is expected to grow by about

**70 million**

… that's more than the current populations of

## Bumper-to-Bumper

On average, we spend

over **40** hours

stuck in traffic each year

The annual financial cost of congestion is

**$121 billion**

## Older Americans — Redefining Longevity

By 2045, the number of Americans over age 65 will increase by

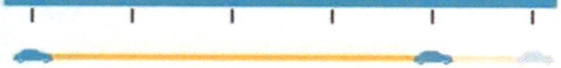
**77%**

About **one-third of people over 65** have a disability that limits mobility. Their access to critical services will be more important than ever.

## Millennials — Shaped by Technology

There are **73 million Millennials** aged 18 to 34. They are the first to have access to the internet during their formative years and will be an important engine of our future economy.

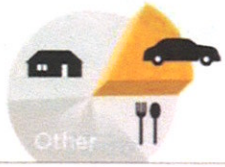
Millennials are driving less. By the end of the 2000s, they drove over **20% fewer** miles than at the start of the decade.

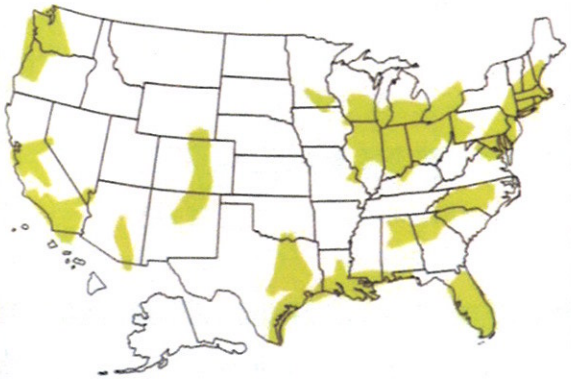


## Income Inequality

**10%** of the population takes home **one-third** of our national income.

Transportation is the **second-largest** expense for U.S. households.





## Megaregions and Shifts in Population Centers

**11** megaregions are linked by transportation, economics, and other factors.

They represent over **75%** of our population and employment.

In 2014, **365,000** people moved to the South—up **25%** from 2013—and moves to the West doubled.

# Trends: How We Move Things ...

## Transportation and the Economy

By 2045, the U.S. economy is forecast to grow by **115%** to **$36.7 trillion**—and the transportation sector will represent about

**$1.6 trillion**

of total Gross Domestic Product.

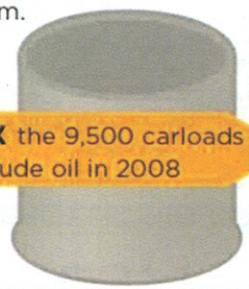
## Global Demand for U.S. Products

Global trade is one of the brightest spots in our economy.

U.S. exports reached **$2.3 trillion** in 2013, setting a new record for the 4th straight year

$1 billion in exports = **5,000** U.S. jobs

## The U.S. energy boom is placing unprecedented demand on our transportation system.



**42x** the 9,500 carloads of crude oil in 2008

Crude oil production is up **50%** since 2008

Rail carried **400,000** carloads of crude oil in 2013

**By 2040**, U.S. **freight volume** will grow to **29 billion tons**—an increase of **45%.**

Major gains in freight movement are predicted by 2040

**By 2040,** the **value** of freight will grow to **$39 trillion**—an increase of **125%.**

**54 million tons** of freight move across our nation every day

## Freight Movement is Multimodal

Every mode of transportation moves freight, but trucking is the primary mode of freight travel.

| | 2012 | (in tons) | 2040 |
|---|---|---|---|
| Truck | **13.2** billion | +43% | **18.8** billion |
| Rail | **2.0** billion | +37% | **2.8** billion |
| Waterborne | **975** million | +10% | **1.1** billion |
| Air | **15** million | +250% | **53** million |

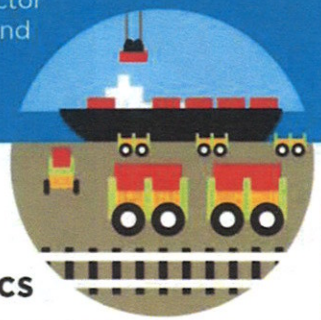
## System Performance and the Cost of Congestion

By 2040, nearly **30,000** miles of our busiest highways will be clogged on a daily basis.

Truck congestion wastes **$27 billion** in time and fuel annually.

# Trends: How We Move Things Better ...

More and more, the transportation sector is relying on data to drive decisions, and on technology to reimagine how we move people and goods.



## Connected Vehicles

Vehicles that communicate are the latest innovation in a long line of **successful safety advances**.

The motor vehicle fatality rate has dropped by

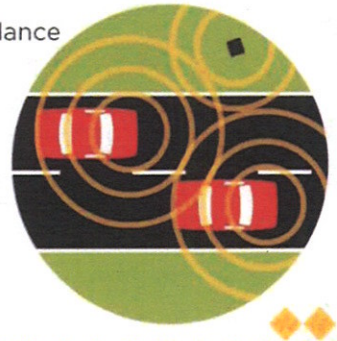
**80%**

over the past 50 years.

Connected vehicles and new crash avoidance technology could potentially address

**81%**

of crashes involving unimpaired drivers.



## Robotics

Advances in robotics are changing transportation operations and will impact **the future transportation workforce**.

Robots will perform vital transportation functions, such as critical infrastructure inspection.

## NextGen

GPS and new technologies are leading to a **safer, more efficient** U.S. airspace.

By 2020, **one-second updates** will pinpoint the **aircraft location and speed** of 30,000 commercial flights daily.

## Real-time Travelers

Mobile access to everything from **traffic data** to **transit schedules** informs our travel choices.

**90%** of American adults own a mobile phone.

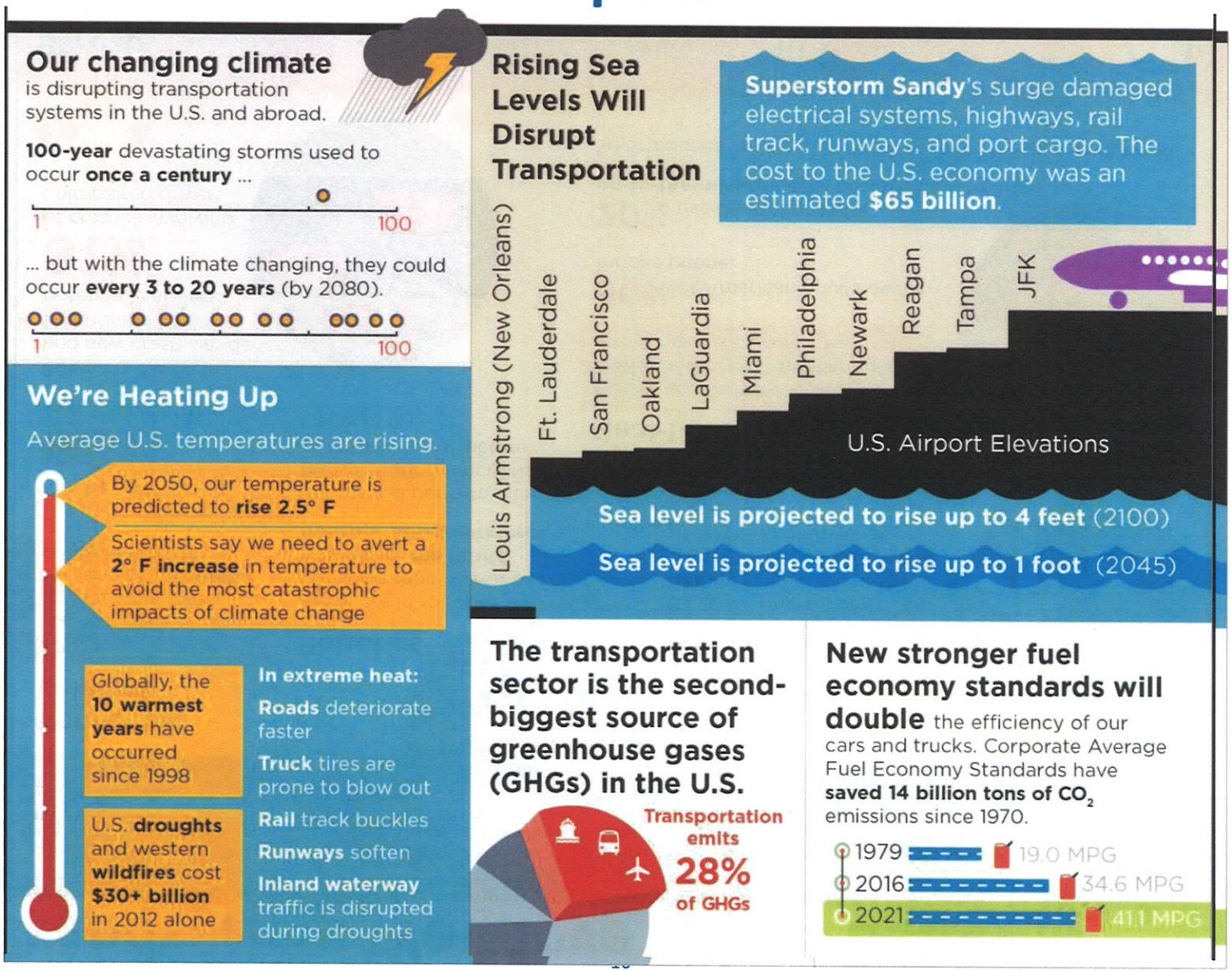
**20%** use their phones for **up-to-the-minute** traffic or transit information.

Smartphones are regularly used for **turn-by-turn navigation**.

**Big data** is all around us. Global data generated is projected to grow by **40%** annually.

Data enables innovative transportation options, such as **car-sharing**, **ride-sharing**, and **pop-up bus services**, and more **rapid delivery of goods**.

# Trends: How We Adapt ...



# Trends: How We Align Decisions and Dollars...

## Transportation Investment

Improving the condition and performance of the transportation system will cost

**$120 billion** for highways and bridges between 2015 and 2020. Current annual spending at all levels of government —federal, state and local—is just **$83.1 billion.**

**$43 billion** for public transportation. Meanwhile, annual capital spending is just **$17.1 billion.**

## To compete in the global economy, the U.S. needs a world-class transportation system. Some of our most critical transportation infrastructure is crumbling.

**65%** of U.S. roads are in **less than good condition**

**25%** of U.S. bridges **need significant repair** or can't handle today's traffic

**50%** of locks and chambers are **more than 50 years old**

**Overall U.S. Infrastructure Grade**

**D+**

**Our World Standing**

Quality of roads **2008 = 8th**

Quality of roads **2014 = 16th**

## Transportation Spending is in Decline

Our highway and mass transit accounts are trending toward the red. The Federal gas tax is no longer enough to address our transportation needs.

**The Federal gas tax has not increased for over 20 years ...**

18.4 ¢/gal — 1993

18.4 ¢/gal — 2015

... and the value of the dollar has declined.

**Transportation Trust Fund projected annual shortfall**

**-$4 billion** — Transit

**-$12 billion** — Highway

## Oregon Pilots Road User Charges

Oregon is one of many States seeking new revenues to make up for transportation budget shortfalls.

30 ¢/gal

During a recent pilot program in Oregon, participants paid **1.56 cents per mile driven** rather than a state tax of **30 cents per gallon of gasoline.**

1.56¢ → MILE 1

Over the next decade higher fuel economy standards will result in more than **$50 billion** in lost gas tax revenues.

# Feedback: Equity and the Opportunity Gap

## A Global Problem ...
## ... an American Problem

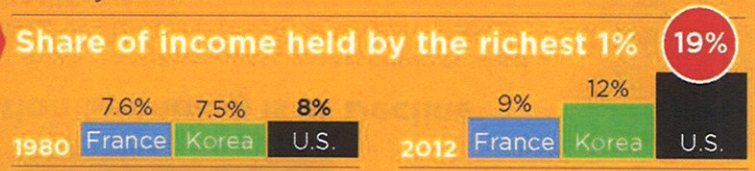
**80 individuals** have as much wealth as **the poorest half of the world**—3.5 billion people.

**80 = 3,500,000,000**

Over a recent 3-year period, **the wealthiest 1% in the U.S. enjoyed 95% of income gains.**

Income inequality in the U.S. has **more than doubled** since 1980, well outpacing other wealthy nations.

**Share of income held by the richest 1%**




## Big Bonuses, Low Wages

**$28.5 billion**

Wall Street bonuses (2014)

**$14 billion**

Earnings of **ALL** full-time workers making the federal minimum wage (2014)

## Why Does Transportation Matter?

Transportation gets low-income people ...

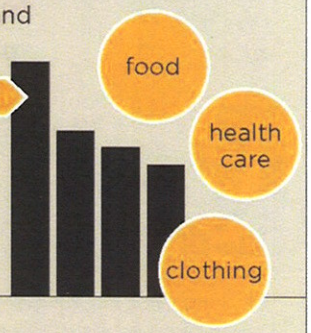
- To their first jobs, second jobs, third jobs ...
- To and from daycare and school ...
- To grocery stores ...
- To health-care providers ...

To all the places that **ALL** Americans go ...

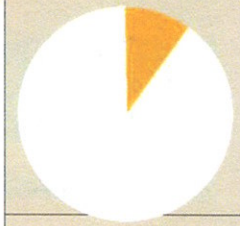
BUT AT A MUCH HIGHER COST

## The Cost of Transportation

Americans spend more on transportation than they do on:



**Low-income** Americans spend nearly **a quarter** of their annual income on transportation ...



... while **high-income** Americans spend only about **one-tenth** on transportation.

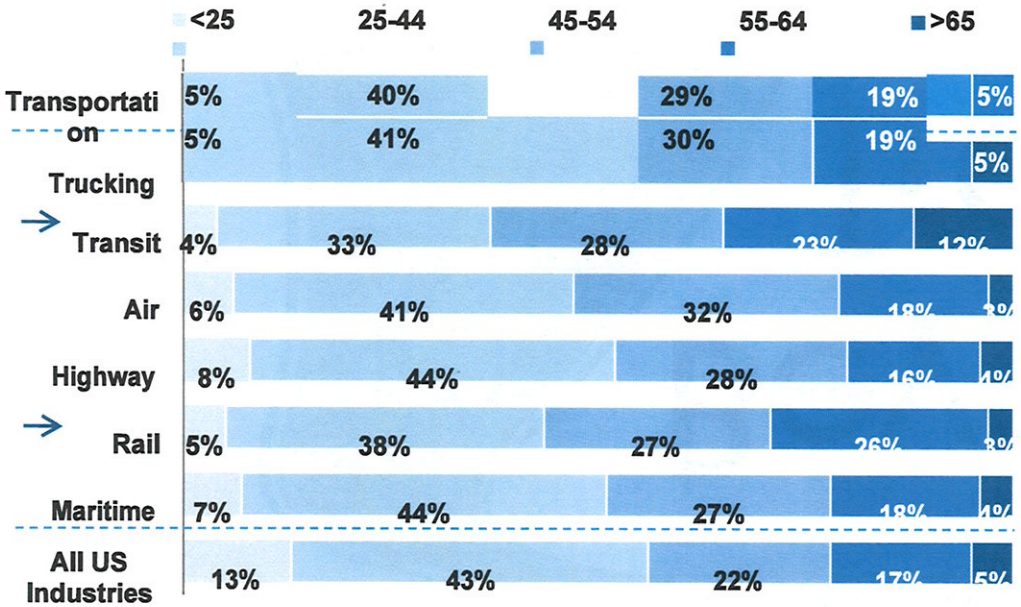
It's not just dollars and cents. Both **where we live** and **where our jobs are** have a huge impact on how we move.

**People in poverty with shorter commutes have a better chance of getting out of poverty ...**

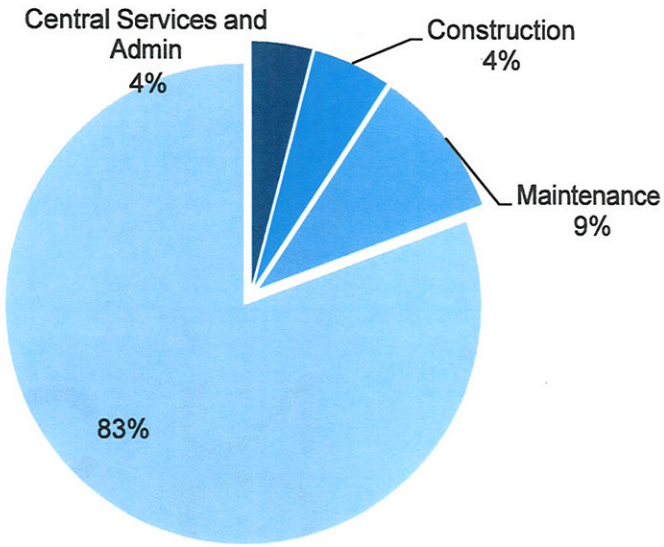
**... than those with long commutes.**

# Feedback: Workforce Development

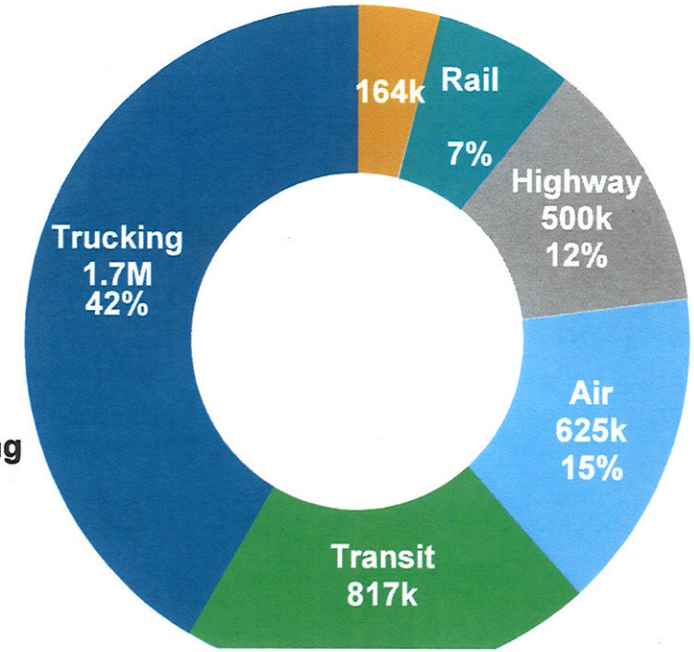
## 2014 Worker Distribution by Age: Transportation Subsectors vs. All Industries




## Top 20 Jobs in Transportation Subsectors Based on 2012–2022 Projected Job Openings Share by Career Area




## 2014 Share of Current Industry Employment



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