Transportation

Jeremy Holmes
Director, RIDE Solutions
September 26, 2019
Quiz: What is the #1 sign you’re watching a movie about the end of the world?
TRANSPORTATION AND SUSTAINABILITY

Transportation accounts for 28% of all greenhouse gas emissions in the U.S.

2016 U.S. GHG Emissions by Sector

- Transportation: 28%
- Electricity: 28%
- Industry: 22%
- Agriculture: 9%
- Commercial: 6%
- Residential: 5%
TRANSPORTATION AND SUSTAINABILITY

Transportation accounts for 18% of all greenhouse gas emissions in Roanoke.
TRANSPORTATION AND SUSTAINABILITY

Highway travel (including highway freight and commuter transportation) accounts for 83%.

2016 U.S. Transportation Sector GHG Emissions by Source

- Light-Duty Vehicles – 60%
- Medium- and Heavy-Duty Trucks – 23%
- Aircraft – 9%
- Other – 4%
- Rail – 2%
- Ships and Boats – 2%
TRANSPORTATION AND SUSTAINABILITY

Air Quality

A view of Shenandoah National Park on a good air quality day vs. bad air quality day.

The current national standard for acceptable levels of ground-level ozone are 75ppb. Roanoke is at 69ppb.

Source: Shenair
Efficiency (same trip, less energy)

- Fuel efficiency
- Hybrid/electric engine
- Maintenance

vs.

Conservation (fewer trips)

- High-occupant mode
- Replace vehicle trip
- Land-use/density
WHY DO TRIPS MATTER?

Congestion

Traffic congestion wastes 100s of billions of hours a year of Americans’ time and billions of dollars in lost productivity.

Building more roads to accommodate and move ever-increasing number of cars—often to just to meet peak rush hour time periods—eats up land and other valuable natural resources.
WHY DO TRIPS MATTER?

Expense

New 2-lane undivided road: $2-3 million per mile in rural areas, $3-5 million in urban areas.

4 lane highway: $4-6 million rural, $8-10 million urban

Mill and resurface a 4-lane road: about $1.25 million per mile.
WHY DO TRIPS MATTER?

Expense

Ex.: Valley View Interchange: $63.9 million for 1.3 miles. This project did include the Lick Run Greenway bridge.

Currently, only 48% of the cost to build and maintain road infrastructure is paid for out of user fees (gas taxes, etc.).

In 2012, every household in the U.S. paid $600 for roads – whether they drove or not.
WHY DO TRIPS MATTER?

Parking

- Between 800 million and 2 billion spaces – UC Berkeley
- Land devoted to roads and parking could pave West Virginia
- Land devoted to parking could pave New Jersey
- 500 million more spaces than cars
- If spaces = solar panels, approximately 1.2 million MW could be generated for 198.6 million homes
WHY DO TRIPS MATTER?

Mobility

Development patterns that assume or encourage solo automobile travel often result in services, schools, recreation, etc., only being accessible by car – meaning those who can’t or choose not to drive can be trapped.
WHY DO TRIPS MATTER?

Mobility

Grandin, a very walkable community, was still very active during the snowstorm of 2014.

This idea is sometimes called “Resiliency.”
WHY DO TRIPS MATTER?

Water Runoff

“The volume of oil that is carried into Puget Sound by stormwater runoff [every two years] is equal to the ... the Exxon Valdez spill."

- Jay Manning, Director of Washington State's Department of Ecology
WHY DO TRIPS MATTER?

This...

...is better than this:
WHY DO TRIPS MATTER?

At 10 miles commuting per day:

2.61 lbs CO2/person

3.91 lbs CO2/person

The hybrid produces nearly 50% more CO2
WHY DO TRIPS MATTER?

Better:

0.78 lbs CO2/person
WHY DO TRIPS MATTER?

Best:

0 lbs CO2/person
TAKING ACTION

Replace trips

Nearly half of all trips in metropolitan areas are three miles or less and 28 percent are one mile or less.

- Complete Streets Coalition

Replacing one 1-mile automobile trip with a bicycle, bus, or walking trip per week per year will save 40lbs of carbon a year.

If every household in Roanoke replaced that one trip, the City would save 1.7 million lbs or 838 tons of carbon.
**TAKEING ACTION**

**Change your commute**

Median work commute in Roanoke City is about 10 miles one way.

*Estimated from 2009 American Community Survey data*

Carpooling two days a week, replacing two 20-mile roundtrip commute trips, will save 1,600 lbs of carbon a year.

If every **household** in Roanoke replaced two commute trips, the City would save **67.2 million lbs or 34k tons of carbon**.

The work commute is one of the easiest trips to replace because it is the most predictable, and has the most savings because it is one of the longest regular trips a household takes.
TAKING ACTION

After you leave today:

Check your tire pressure and make sure it is inflated to the correct PSI. The appropriate PSI is found on the wall of your tire.

Remove one commute or shopping trip by biking, walking, or trip chaining. Get as close to removing 20 miles as possible.

Check for your closest bus stop at the Valley Metro website at www.valleymetro.com or plan a bike trip with Google Maps.

Join Bikeshare by visiting zagster.com/ridesolutions or downloading the Zagster app on your phone.
Questions?

Contact Info:

jholmes@rvarc.org