Air Quality and Transportation Planning

July 2018 TAC
23 USC 134: “It is in that national interest to encourage and promote the safe and efficient management, operation, and development of surface transportation systems...”

A Metropolitan Planning Organization is required for urban areas with a population of 50,000 or more.

MPOs must develop a long-range transportation plan in cooperation with the FHWA with a 20-year forecast period.

23 USC 134: “In metropolitan areas that are in nonattainment... under the Clean Air Act, the metropolitan planning organization shall coordinate the development of a transportation plan with the...”
A Brief History

1950's: Air Pollution Control Act
First federal legislation for air quality
Provided funding for research

1965: Motor Vehicle Air Pollution Control Act
Controls on certain auto emissions

1960's: Clean Air Act
Health-Based Air Quality Standards created
State Implementation Plans required to achieve Standards

1990's: Clean Air Act Amendments
Increased authority and responsibility of Federal Gov
Provisions for meeting Air Quality Standards expanded

1970's: Clean Air Act
Health-Based Air Quality Standards created
State Implementation Plans required to achieve Standards

Credit: Los Angeles Times Photographic Archive, Department of Special Collections. Charles E. Young Research Library, UCLA
Mobile Sources currently account for ~50% of pollutant emissions in Utah.
# Pollutants Related to Transportation

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Type of Average</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carbon Monoxide - CO</strong></td>
<td>8 - Hour</td>
<td>9 ppm (10 mg/m³)</td>
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<tr>
<td>Reduces supply of oxygen in the bloodstream</td>
<td></td>
<td></td>
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<tr>
<td><strong>Ozone - O₃</strong></td>
<td>8 - Hour</td>
<td>0.070 ppm</td>
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<tr>
<td>Damages lining of the lung</td>
<td></td>
<td></td>
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<tr>
<td><strong>Particulate Matter - PM₂₅</strong></td>
<td>24 hour</td>
<td>35 µg/m³</td>
</tr>
<tr>
<td>Compromise respiratory &amp; cardiac health</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Particulate Matter - PM₁₀</strong></td>
<td>24 hour</td>
<td>150 µg/m³</td>
</tr>
<tr>
<td>Compromise respiratory &amp; cardiac health</td>
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</tbody>
</table>
Non-Attainment Areas

Consequences: The State must make a plan to reach Attainment (not exceed the Health Standards). This plan is called the State Implementation Plan, or SIP.
The Emissions Budget is a “not-to-exceed” value determined by the state for motor vehicles.
For a transportation plan to be approved, it must prove it will not exceed the given budget. Models help determine whether or not we expect to exceed the budget. A complete conformity determination report is in the appendix of the plan.
Transportation Demand Model + Motor Vehicle Emissions Model = Emissions Predictions

- Road Network
- Transit Network
- Employment
- Mode Choice
- Trip Distribution
- Population
- Surveys

- Vehicle Type
- Speeds
- Fuel
- Road Type
- Inspection Programs
- Vehicle Miles Travelled
- Weather

- Criteria Pollutants
- Tons/ winter day
“Under 23 CFR and FAST Act, metropolitan planning regulations, federally funded projects cannot be approved, funded, advanced through the planning process, or implemented unless those projects are in a Fiscally Constrained and Conforming Transportation Plan and Transportation Improvement Plan.”

Exceptions:

Safety Projects  Studies
Mass Transit   Air Quality Projects
Bike and Ped
To Review...

1. Clean Air Act sets health standards
2. State makes plan for achieving those standards
3. MPO received emissions budget from State
4. TIP/RTP must conform to the State’s plan

Air Quality affects:

- How we allocate funds (CMAQ, Alternative Transportation, etc.)
- Which projects are included in TIP/RTP
- Coordination between MAG, WFRC, EPA, FHWA, Utah Department of Air Quality, UDOT, and UTA.