Good Afternoon

- Stakeholder Introductions
  - Name and Affiliation
- Ground Rules
- Agenda
Vision Statements
Overarching vision of what Summit County would like to achieve. Your elevator pitch.
Completed Meeting #6

Goals
Measurable results that drive towards a certain outcome.
Completed Meeting #5

Strategies
Actions that need to be taken to achieve goals and vision.

Energy Efficiency and Renewable Energy Strategies
Completed Meeting #2

Transportation Strategies
Completed Meeting #3

Waste Strategies
Completed Meeting #4

Forestry Strategies
Completed Meeting #4

Strategy Targets
Actions that need to be taken to achieve goals and vision.
Completed Meeting #5
Example #1

**VISION STATEMENT #1**
We will lead the nation in water conservation and source the majority of our water locally.

**GOALS FOR VISION STATEMENT #1**
- Reduce Per capita potable use by 20%
- Reduce the purchase of imported water by 50%
  - Source 50% of water locally.

**STRATEGIES FOR VISION STATEMENT #1**
A- Identify funding mechanism(s) to implement the Enhanced Watershed Management Plans
B- Expand use of permeable pavement in large infrastructure projects

**STRATEGY TARGET FOR STRATEGY B**
B- Develop 3 new permeable pavement projects annually
Review Energy Meeting
Strategies Created

- Residential Energy - 5 strategies
- Commercial Energy - 4 strategies
- Codes & Policies - 5 strategies
- Renewable Energy - 7 strategies
Potential GHG Reductions

- Residential Propane, 0.5%
- Commercial and Industrial Propane, 0.2%
- Commercial and Industrial Natural Gas, 21%
- Residential Natural Gas, 18%
- Commercial and Industrial Natural Gas, 21%
- Commercial and Industrial Electricity, 33%
- Residential Electricity, 27%
- Commercial and Industrial Stationary Diesel, 0.5%
- Street Light Electricity, 0.1%
Potential GHG Reductions

- Residential Natural Gas, 18%
- Commercial and Industrial Natural Gas, 21%
- Residential Propane, 0.5%
- Commercial and Industrial Propane, 0.2%
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- Street Light Electricity, 0.1%
- Commercial and Industrial Electricity, 33%
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Potential GHG Reductions

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- Commercial and Industrial Stationary Propane, 0.2%
Summit County’s GHG Inventory Results 2017
Today we will focus on 33% of 2017 Emissions
Today's Focus is Transportation

- Mobile Gasoline, 77%
- Mobile Diesel, 23%
- Mobile Ethanol, 0.4%
- Mobile Electricity, 0.03%
- Waterborne Navigation, 0.1%
Summit County Energy Use by Vehicle Class, 2017
(Thousands of Gallons)

- Passenger Vehicles, Motorcycles and Light Trucks, 25,950
- Single Unit Trucks, 267
- Freight Trucks, 2,626
- Buses, 184
Energy Costs by Source (Million of Dollars)
Transportation Background
Corporate Average Fuel Economy Standard

New Goals in Fuel Economy

- 60 miles per gallon average fleetwide
- 54.5 by 2025
- 36.6 by 2017

Combined standards for U.S. cars and light trucks

Source: National Highway Traffic Safety Administration
EPA DOT Fuel Economy and Environment

**Fuel Economy**

<table>
<thead>
<tr>
<th>MPG</th>
<th>Combined city/hwy</th>
<th>City</th>
<th>Highway</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>22</td>
<td>32</td>
<td>3.8 gallons per 100 miles</td>
</tr>
</tbody>
</table>

Small SUVs range from 16 to 32 MPG. The best vehicle rates 99 MPGe.

**You save $3,500 in fuel costs over 5 years compared to the average new vehicle.**

**Annual fuel cost $2,300**

**Fuel Economy & Greenhouse Gas Rating (tailpipe only)**

- 7

**Smog Rating (tailpipe only)**

- 6

This vehicle emits 347 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions; learn more at fueleconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 20 MPG and costs $15,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $4.00 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fueleconomy.gov

Calculate personalized estimates and compare vehicles.
Transition away from combustion engine

EV Vehicle Purchases
National EV Purchase Trends for New Cars

[Graph showing a bar and line chart with years from 1999 to 2015 on the x-axis and a percentage scale from 0% to 7% on the y-axis. The chart indicates the trend of hybrid electric, plug-in hybrid-electric, electric vehicles, and the percentage of EV vehicles over the years.]
Electric Vehicle U.S. Sales, 2010 - Sept 2016

- Chevy Volt, 20.3%
- Nissan LEAF, 19.1%
- Tesla Model S, 16.3%
- Toyota Prius PHV, 8.2%
- Ford Fusion Energi, 7.6%
- Ford C-Max Energi, 6.0%
- Fiat 500e, 3.3%
- BMW i3, 4.4%
- Fiat 500e, 3.3%
- Tesla Model X, 2.5%
- Ford Focus Electric, 1.3%
- Ford Fusion Energi, 1.3%
- Ford Focus Electric, 1.3%

Source of data: insideEVs.com/monthly-sales-scorecard
Recent EV Transportation Trends

- Colorado currently ranks 8th in the nation for highest market share and seventh for number of EVs per capita
- Summit County currently has 9 public charging stations
- Since February 2014, the number of registered electric vehicles in Summit County have more than doubled (20 to 49 vehicles)
- Under high-growth scenario for equates to approximately cumulative net benefits as high as Colorado there will be almost 1 million EVs on the road by 2030
- Colorado signed an MOU to create Intermountain West Electric Corridor with EV fast charging corridors along I-70, I-25, and I-76.
- VW Settlement specific to Colorado- $68.7 million for EVs and EV Charging Stations
- VW Settlement Nationwide- VW will invest $2 billion over 10 years in zero emission vehicle infrastructure and education programs
Summit County Charging

<table>
<thead>
<tr>
<th>Charging Level</th>
<th>Vehicle Range Added per Charging Time and Power</th>
<th>Supply Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Level 1</td>
<td>4 mi/hour @ 1.4kW</td>
<td>120VAC/20A (12-16A continuous)</td>
</tr>
<tr>
<td></td>
<td>6 mi/hour @ 1.9kW</td>
<td></td>
</tr>
<tr>
<td>AC Level 2</td>
<td>10 mi/hour @ 3.4kW</td>
<td>208/240VAC/20-100A (16-80A continuous)</td>
</tr>
<tr>
<td></td>
<td>20 mi/hour @ 6.6kW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60 mi/hour @ 19.2 kW</td>
<td></td>
</tr>
<tr>
<td>DC Fast Charging</td>
<td>24 mi/20minutes @ 24kW</td>
<td>208/480VAC 3-phase (input current proportional to output power; ~20-400A AC)</td>
</tr>
<tr>
<td></td>
<td>50 mi/20minutes @ 50kW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>90 mi/20minutes @ 90kW</td>
<td></td>
</tr>
</tbody>
</table>
Summit County Electric Vehicle Projections by 2030

- 0.63% of all vehicles are electric (281)
- 5% of all vehicles are electric (2,228)
- 15.5% of all vehicles are electric (6,908)
Figure ES-3. Emissions Comparison of New Vehicles in 2016
Xcel Energy Future

2017
- Coal, 44%
- Natural Gas, 28%
- Wind, 23%
- Solar, 3%
- Hydro, 2%

2026
- Coal, 23%
- Natural Gas, 22%
- Wind, 40%
- Solar, 14%
- Hydro, 1%
Public Transportation Overview

• Summit County offers free public transit options for visitors and residents alike. Examples:
  • Summit Stage
  • Breckenridge Free Ride
  • Copper Mountain shuttles
  • Keystone Resort shuttles
  • Breckenridge Ski Resort shuttles

• DIA to Summit County Options are not free:
  • Colorado Mountain Express (CME)
    • $66.00 per person one way – Door to Door from DIA
    • $49.00 per person one way – Frisco Transportation Airport to DIA
• Main freight and recreational corridor in State
• Heavy vehicles consisting of trucks, buses, and recreational vehicles represent about 10% of average annual traffic along the Corridor
• The interstate is the principle artery to Colorado’s high-elevation recreation areas which in 2016 generated over 12 percent of the state’s $19.1 billion in direct travel spending in 2015.
• CDOT estimates that westbound I-70 travel times will triple by 2035 and eastbound drivers should expect their commutes to quadruple.
• An increasingly inefficient I-70 will cost the state about $839 million annually in 2005 dollars
• Currently no major projects in mountain corridor but potentially some under the Record of Decision (ROD) for CDOT. However no way to pay for it...
**Figure 2: Average Annual Daily Traffic, 2000-2013**

**Table 5: Summit County Commuter Patterns (2005 and 2011)**

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th></th>
<th>2005</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Share</td>
<td>Count</td>
<td>Share</td>
</tr>
<tr>
<td>All Counties</td>
<td>17,419</td>
<td>100.00%</td>
<td>16,700</td>
<td>100.00%</td>
</tr>
<tr>
<td>Summit County</td>
<td>7,117</td>
<td>40.90%</td>
<td>5,177</td>
<td>31.00%</td>
</tr>
<tr>
<td>Eagle County</td>
<td>1,065</td>
<td>6.10%</td>
<td>1,884</td>
<td>11.30%</td>
</tr>
<tr>
<td>Jefferson County</td>
<td>941</td>
<td>5.40%</td>
<td>1,239</td>
<td>7.40%</td>
</tr>
<tr>
<td>Boulder County</td>
<td>924</td>
<td>5.30%</td>
<td>1,060</td>
<td>6.30%</td>
</tr>
<tr>
<td>Grand County</td>
<td>634</td>
<td>3.60%</td>
<td>973</td>
<td>5.80%</td>
</tr>
<tr>
<td>Park County</td>
<td>579</td>
<td>3.30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denver County</td>
<td>561</td>
<td>3.20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lake County</td>
<td>434</td>
<td>2.50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Douglas County</td>
<td>398</td>
<td>2.30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arapahoe County</td>
<td>378</td>
<td>2.20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Other Locations</td>
<td>4,388</td>
<td>25.20%</td>
<td>3,101</td>
<td>18.60%</td>
</tr>
</tbody>
</table>

Source: U.S. Census LEHD
Other Transportation Trends/Notes

• Summit County Open Space conducted recent outreach effort to gauge interest in electric bikes on Summit County trails
• Summit County does not have any Park n’ Ride Stations
• Cycling paths are currently not plowed during winter months
Strategies for Summit County

Exercise #1
Strategies are categorized by program or project type:

- Public Transportation
- Public Transportation Support
- Biking and Walking
- Electric Vehicle
- Reduce Single Occupied Vehicles
- Other
Lenses through which to view strategies: GHG Reduction Potential and Cost

What is the estimated impact the implementation of this strategy will have on emissions (based on BAU projections)? What will it cost?

- Low Impact (>0.5% GHG Reduction Potential)
- Medium Impact (<0.5-2% GHG Reduction Potential)
- High Impact (>2% GHG Reduction Potential)
- Low Cost (<$100,000 annually to implement)
- Medium Cost ($100,000-1 Million annually to implement)
- High Cost (> $1,000,000 annually to implement)
Exercise: Brainstorm Missing Strategies

• As a large group, we will review the handout which includes all strategies

• Break into groups of 4
  • Ensure that at least 2 people within each group work on transportation issues

• In your groups of 4, for 25 minutes you will:
  • Discuss each strategy;
  • Brainstorm additional strategies and write them on large post-its and give to facilitators; and
  • Discuss if some strategies should be eliminated or combined; write this on a post it and give to facilitators

• Take a 5-minute break as we write new strategies up for voting
Lenses through which to view strategies: Timeframe

What is the reasonable timeframe during which we can implement this strategy and see the impact on emissions?

- Short Term—Next 1 to 3 Years
- Mid-Term—by 2030
- Long Term—by 2050
- Do not do strategy

Please place ONE dot of any color on each strategy paper to indicate you believe the strategy should be pursued in a certain time frame.