AGENDA  
CARBONDALE BOARD OF TRUSTEES  
WORK SESSION  
CARBONDALE TOWN HALL  
APRIL 18, 2017  
6:00 P.M.

<table>
<thead>
<tr>
<th>TIME*</th>
<th>ITEM</th>
<th>DESIRED OUTCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00</td>
<td>1. Long-Range Financial Planning</td>
<td>ATTACHMENT A Discussion</td>
</tr>
<tr>
<td>7:00</td>
<td>2. Mobility Discussion</td>
<td>ATTACHMENT B Discussion</td>
</tr>
<tr>
<td>8:00</td>
<td>3. Climate Action Plan</td>
<td>ATTACHMENT C Discussion</td>
</tr>
<tr>
<td>9:00</td>
<td>4. Adjourn</td>
<td></td>
</tr>
</tbody>
</table>

* Please Note Times Are Approximate
Cathy Derby

From: Dan Richardson  
Sent: Wednesday, April 12, 2017 10:20 AM  
To: Cathy Derby; Jay Harrington  
Subject: Work session summary

Cathy and Jay,  
Will you please include this email in the packet? Thank you.

Mobility  
Questions to answer:  
1. Do we want/need more/better mobility?  
2. If so, where, when, how and for whom?

Some ideas for consideration:  
WeCycle  
Senior Housing/Heritage Park/Traveler  
Uber-like options  
Circulator options (see previous studies)  
Parking  
Transit oriented design

Financial Planning  
Questions to answer:  
1. Are we confident that we can enhance, or even maintain existing services with our current revenue sources?  
2. Do we want to explore reducing services?  
3. Do we want to explore adding additional revenue sources?

Some ideas for consideration:  
Several topics have been discussed and we may want to consider establishing some priorities. They include:  
- Dedicated capital funding to compensate for R&B mill levy, FMLD, etc. or to build a broadband backbone  
- Increased Parks & Recreation funding to fund Master Plan projects  
- RFTA funding - a likely request in 2018  
- Multi-jurisdictional Housing Authority to purchase land and/or build housing  
- Dedicated funding for Climate Action Plan projects  
- Do we want a citizen task force to help us evaluate these considerations?

Climate Action Plan  
Questions to answer:  
1. We directed CLEER/CORE to develop a 1 or 2 page summary to help engage the public. What should that include?  
2. We plan to discuss the charter/guiding principles next week. How should that be integrated?  
3. What goals do we want to accomplish in 2017?  
4. Can’t ask for CLEER/CORE to attend another meeting, so what is final direction?

Some ideas for consideration:  
We have discussed some projects and ideas. They include:  
- Nettle Creek Hydro - permit in process  
- Greening our grid through Xcel (Silt Hydro) or HCE expansion  
- Waste diversion - general, plastic bags, plastic bottles  
- Zero Energy District  
- Cleaner mobility - electric buses?  
- Increase water conservation via ditch management
TOWN OF CARBONDALE
PUBLIC WORKS
511 Colorado Avenue
Carbondale, CO 81623

Board of Trustees Agenda Memorandum

Item No: 1

Meeting Date: April 18, 2017

TITLE: Long Range Financial Planning

SUBMITTING DEPARTMENT: Finance and Public Works

ATTACHMENTS: 2016-2021 Revenues
2011-2016 Capital Fund History
2017-2021 5-Year Capital Improvement Plan Summary
2017-2021 5-Year Transportation Capital Improvement Plan and Narrative
2017-2021 5-Year Parks and Open Space Capital Improvement Plan and Narrative

BACKGROUND
A Capital Improvement Plan (CIP) is a tool used to project future funding needs to inform decision-making related to financial planning. Typical CIPs list known or anticipated needs and costs for larger expenditures for a future timeframe (usually 5-10 years). In 2016, the attached information was shared with the Board to assist with the 2017 budget preparation. This information will be reviewed and expanded as part of the 2018 budget preparation.

DISCUSSION
The value in a CIP is that it allows elected officials and staff to plan for larger future expenditures in advance to minimize the potential for large budget fluctuations from year-to-year. The first step in this process is to evaluate future revenue projections and compare them with anticipated future expenditures. By doing this, adjustments can be made to either side to align revenues and expenditures over a longer period of time than typically provided by annual budgeting.

The first attachment shows the main revenue sources for the Town. In 2016, sales and use taxes accounted for 61% of revenue while property and other taxes accounted for 7%. For reference assuming property values and sales are similar to recent years, a 1.5 mill property tax generates approximately $195,000 in revenue, and a ½ cent sales and use tax generates approximately $650,000.
Typically, outside of construction of municipal facilities and employee costs; transportation, parks/open spaces and vehicles comprise the majority of major expenditures for any municipality on an annual basis. Following is a summary of these items (as presented during the 2016 budget process):

<table>
<thead>
<tr>
<th>Category</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>$482,000</td>
<td>$589,000</td>
<td>$1,174,000</td>
<td>$1,147,000</td>
<td>$2,887,000</td>
</tr>
<tr>
<td>Parks/Open Space</td>
<td>$45,215</td>
<td>$157,000</td>
<td>$505,000</td>
<td>$3,615,000</td>
<td>$456,000</td>
</tr>
<tr>
<td>Vehicles/Equipment</td>
<td>$91,000</td>
<td>$75,000</td>
<td>$75,000</td>
<td>$75,000</td>
<td>$90,000</td>
</tr>
<tr>
<td>Energy</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Total</td>
<td>$668,215</td>
<td>$871,000</td>
<td>$1,804,000</td>
<td>$4,887,000</td>
<td>$3,483,000</td>
</tr>
</tbody>
</table>

The grand total for these items over this 5-year period is $11,713,215 or $2,342,643 per year.

While averaging the cost of a 5-year CIP can inform the short-term financial planning process, it is also important to look beyond the 5-year CIP cycle to identify potential large costs that may occur outside of this window on items that will require ongoing maintenance and replacement (i.e. roads, trails, parks, parks equipment, facilities, etc.) For example, currently, the town has approximately 24.7 miles of roads with an average width of approximately 28.9 feet. Costs to mill and overlay and/or replace these roads are shown in the table below:

<table>
<thead>
<tr>
<th>Operation</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot; Mill and Overlay</td>
<td>$7,051,000</td>
</tr>
<tr>
<td>2&quot; Mill and Overlay</td>
<td>$9,913,000</td>
</tr>
<tr>
<td>3&quot; Mill and Overlay</td>
<td>$13,300,000</td>
</tr>
<tr>
<td>Replace Base and Surface</td>
<td>$24,407,000</td>
</tr>
</tbody>
</table>

By determining a maintenance cycle, these costs can be annualized to plan for adequate funding when maintenance or replacement is needed. This becomes important when looking at the age of our existing infrastructure. As an example, almost half of all the roads were constructed in the 1990's when RVR was developed. Because of this, it is reasonable to assume that the roads in RVR will need maintenance and replacement at approximately the same time in the future. Planning for this can minimize the gaps between future revenues and expenditures.

**FISCAL ANALYSIS**
Ultimately, results of the long-range financial planning discussion will inform future annual budget processes.

**RECOMMENDED MOTION**
None. This item is provided for the Board’s information and discussion.

Prepared by: Renae Gustine and Kevin Schorzman

Town Manager
The Town of Carbondale
Revenues for 2016

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Sales &amp; Use Taxes</td>
<td>4,676,965</td>
<td>4,659,029</td>
<td>4,578,716</td>
<td>4,664,983</td>
<td>4,752,885</td>
<td>4,913,630</td>
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<tr>
<td>Property &amp; Other Taxes</td>
<td>552,345</td>
<td>558,491</td>
<td>569,226</td>
<td>580,486</td>
<td>591,973</td>
<td>603,692</td>
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<tr>
<td>Intergovernmental</td>
<td>720,343</td>
<td>675,931</td>
<td>558,730</td>
<td>565,655</td>
<td>572,720</td>
<td>572,720</td>
</tr>
<tr>
<td>Fees-Permits, Licenses, Rec Users</td>
<td>856,584</td>
<td>717,550</td>
<td>616,900</td>
<td>620,900</td>
<td>624,900</td>
<td>624,900</td>
</tr>
<tr>
<td>Other Revenues</td>
<td>843,907</td>
<td>718,420</td>
<td>660,940</td>
<td>660,960</td>
<td>625,980</td>
<td>575,980</td>
</tr>
</tbody>
</table>

The revenues shown are for the General Fund without transfers, the Recreation Sales and Use Tax Fund and the Sales Tax Fund that is used to collect the 3% sales tax, motor vehicle taxes, and building use tax. The Town’s other funds are special revenue funds so the revenues must be used for the specific purpose designated.
# Capital Construction Fund History

Historical revenues and expenditures for the Capital Fund. Revenues are usually from transfers from the General Fund. The grants received were on the Highway 133 project.

## CAPITAL CONSTRUCTION FUND

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>REVENUE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>74-33-29 GRANT</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>800,000</td>
<td>500,000</td>
<td>-</td>
</tr>
<tr>
<td>74-33-58 STATE OF COLORADO GRANT</td>
<td>-</td>
<td>4,841</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>74-36-10 INTEREST INCOME</td>
<td>1,020</td>
<td>127</td>
<td>22</td>
<td>86</td>
<td>90</td>
<td>84</td>
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<tr>
<td>74-36-20 TRANSFER IN</td>
<td>326,861</td>
<td>526,595</td>
<td>750,000</td>
<td>1,200,000</td>
<td>900,000</td>
<td>1,075,000</td>
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<tr>
<td>74-36-42 REFUND OF EXPENDITURES</td>
<td>-</td>
<td>-</td>
<td>103,396</td>
<td>750</td>
<td>-</td>
<td>-</td>
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<tr>
<td>74-39-30 STATE OF COLORADO GRANT</td>
<td>190,681</td>
<td>-</td>
<td>40,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>74-39-34 BOND PROCEEDS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL REVENUE/TRANSFERS</strong></td>
<td>518,562</td>
<td>526,722</td>
<td>794,863</td>
<td>2,103,482</td>
<td>1,400,840</td>
<td>1,075,084</td>
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</table>

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<thead>
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<tbody>
<tr>
<td><strong>PRIOR YEAR CARRY OVER</strong></td>
<td>222,415</td>
<td>496,827</td>
<td>602,201</td>
<td>(146,158)</td>
<td>(236,604)</td>
<td>(125,428)</td>
</tr>
<tr>
<td><strong>TOTAL AVAILABLE REVENUE</strong></td>
<td>740,977</td>
<td>1,023,549</td>
<td>1,397,064</td>
<td>1,957,324</td>
<td>1,164,236</td>
<td>949,656</td>
</tr>
<tr>
<td><strong>LESS EXPENDITURES/TRANSFERS</strong></td>
<td>244,150</td>
<td>521,842</td>
<td>1,543,222</td>
<td>2,193,928</td>
<td>1,289,663</td>
<td>493,200</td>
</tr>
<tr>
<td><strong>BALANCE DECEMBER 31</strong></td>
<td>496,827</td>
<td>501,708</td>
<td>(146,158)</td>
<td>(236,604)</td>
<td>(125,428)</td>
<td>11,987</td>
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## 4-4337-240 MISCELLANEOUS EXPENSE

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>4-4337-240 MISCELLANEOUS EXPENSE</td>
<td>167,979</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>4-4337-250 TRANSFER OUT</td>
<td>2,900</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4-4337-357 ENGINEERING</td>
<td>1,176</td>
<td>4,770</td>
<td>3,947</td>
<td>7,150</td>
<td>3,471</td>
<td>-</td>
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<tr>
<td><strong>TOTAL O &amp; M</strong></td>
<td>172,054</td>
<td>4,770</td>
<td>3,947</td>
<td>7,150</td>
<td>3,471</td>
<td>-</td>
</tr>
</tbody>
</table>

## 4-4337-720 BUILDING/SITE CONSTRUCTION

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>4-4337-720 BUILDING/SITE CONSTRUCTION</td>
<td>10,301</td>
<td>86,920</td>
<td>47,451</td>
<td>137,568</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4-4337-720 HIGHWAY 133 ACCESS CONTROL PLAN</td>
<td>79,970</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4-4337-720 ENERGY</td>
<td>-</td>
<td>73,847</td>
<td>23,997</td>
<td>79,619</td>
<td>100,000</td>
<td>-</td>
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<tr>
<td>4-4337-720 STREET RESURFACING</td>
<td>45,640</td>
<td>296,701</td>
<td>242,278</td>
<td>195,735</td>
<td>382,049</td>
<td>220,000</td>
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<tr>
<td>4-4337-720 HIGHWAY 133 CONSTRUCTION</td>
<td>-</td>
<td>-</td>
<td>924,810</td>
<td>1,577,791</td>
<td>767,425</td>
<td>-</td>
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<tr>
<td>4-4337-720 SIDEWALK CONSTRUCTION</td>
<td>16,154</td>
<td>53,481</td>
<td>176</td>
<td>36,385</td>
<td>10,000</td>
<td>80,000</td>
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<tr>
<td>4-4337-720 1% FOR THE ARTS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,859</td>
<td>-</td>
<td>-</td>
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<tr>
<td>4-4337-720 LANDFILL RECLAMATION</td>
<td>-</td>
<td>-</td>
<td>250,714</td>
<td>214,493</td>
<td>47,100</td>
<td>73,200</td>
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<tr>
<td>4-4337-944 VEHICLES</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL CAPITAL OUTLAY</strong></td>
<td>72,096</td>
<td>517,072</td>
<td>1,539,275</td>
<td>2,186,778</td>
<td>1,286,192</td>
<td>493,200</td>
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</table>

## TOTAL FUND EXPENDITURES

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL FUND EXPENDITURES</strong></td>
<td>244,150</td>
<td>521,842</td>
<td>1,543,222</td>
<td>2,193,928</td>
<td>1,289,663</td>
<td>493,200</td>
</tr>
</tbody>
</table>
# Town of Carbondale
## 5-Year Capital Improvement Plan
### FY 2017 thru 2021

<table>
<thead>
<tr>
<th><strong>Transportation Projects</strong></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety Projects</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Transportation System Operations Study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dolores Way &amp; SH 133 Intersection Study</td>
<td>$15,000</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>3rd Street Improvements</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>8th Street Sidewalk - Rio Grande to Cowen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$700,000</td>
</tr>
<tr>
<td>4th Street Sidewalk - Town Hall to Rio Grnd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$30,000</td>
</tr>
<tr>
<td>Colorado Ave. 4th Street to 3rd to Main St.</td>
<td></td>
<td></td>
<td>$300,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Village Road Sidewalk</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SH 133 Street Lights</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>$0</td>
<td>$107,000</td>
<td>$450,000</td>
<td></td>
<td>$700,000</td>
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<table>
<thead>
<tr>
<th><strong>Maintenance Projects</strong></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH 133 Annual Maintenance</td>
<td>$32,000</td>
<td>$32,000</td>
<td>$32,000</td>
<td>$32,000</td>
<td>$32,000</td>
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<tr>
<td>Village Road Rebuild</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$515,000</td>
</tr>
<tr>
<td>Meadowood Drive Mill &amp; Fill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$255,000</td>
</tr>
<tr>
<td>RVR Maintenance - Annual</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Town Trails - Annual</td>
<td>$25,000</td>
<td>$25,000</td>
<td>$25,000</td>
<td>$25,000</td>
<td>$25,000</td>
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<tr>
<td>Concrete Street Repairs - Annual</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
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<tr>
<td>Drainage Improvements - Annual</td>
<td>$25,000</td>
<td>$25,000</td>
<td>$25,000</td>
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<td>$25,000</td>
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<tr>
<td>Street Maintenance - Annual</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$250,000</td>
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</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>$432,000</td>
<td>$432,000</td>
<td>$432,000</td>
<td>$947,000</td>
<td>$687,000</td>
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<table>
<thead>
<tr>
<th><strong>Expansion Projects</strong></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hendrick Drive sidewalk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$50,000</td>
</tr>
<tr>
<td>Industry Way</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$1,500,000</td>
</tr>
<tr>
<td>2nd Street</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$292,000</td>
</tr>
<tr>
<td>Snowmass Drive Pedestrian Trail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$200,000</td>
</tr>
<tr>
<td>County Road 108 Trail</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>$50,000</td>
<td>$50,000</td>
<td>$292,000</td>
<td>$200,000</td>
<td>$1,500,000</td>
</tr>
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**Total Transportation Capital Outlay**

<table>
<thead>
<tr>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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The purpose of this Five Year Capital Improvement Plan is to document Town needed transportation projects that will enhance safety, maintain the existing infrastructure and expand infrastructure to improve the Town's transportation system. The summary is intended to support the 2013 Carbondale Comprehensive Plan in relation to Transportation Systems.

The adopted Comprehensive Plan puts a priority on improving multi-modal connectivity throughout Town, supporting development of infrastructure and maintenance of existing infrastructure to support a sustainable local economy. The following list is broken down into three different categories to follow these goals. The categories are:

1. Safety
2. Maintenance
3. Expansion

Many of the projects listed below are at a planning level so the costs shown are not an engineer's estimates. In addition, the projects are not listed in any sort of priority level.

SAFETY PROJECTS

1. Transportation System Management & Operation (TSM&O) Study
   Carbondale, like most small towns, evolved over time with little or no master transportation planning. A Transportation System Management & Operations (TSM&O) Study is an engineering study that analyzes the Town's transportation system as one complete system rather than looking at isolated areas of the Town by themselves. The study will evaluate the current multimodal infrastructure, analyze existing pavement markings and signing and evaluate on street parking to make sure they conform to the requirements of the Manual of Uniform Traffic Control Devices (MUTCD) and optimize pedestrian safety. The study will emphasize school zone safety. **Estimated Cost: $15,000**

2. Dolores Way & HWY 133 Intersection Study
   The Town of Carbondale, CDOT and Garfield County needs to analyze existing and future traffic operations at the intersection of Dolores Way and SH 133. The addition of the dedicated center turn lane on SH 133 has helped, but queueing on Dolores Way during the peak hours has grown to significant lengths creating heavy delays for vehicles entering the highway. Alternative traffic control options such as a roundabout or mini-roundabout should be explored to improve future operations. **Estimated Cost: $10,000**
3. 3rd Street Rebuild
The new Garfield County Library and the popularity of the 3rd Street Center have placed additional vehicular and pedestrian demands on 3rd Street. An engineering evaluation of 3rd Street from Main Street to Sopris Avenue including two public outreach meetings of the streetscape design team was held this spring. We decided not to extend the project all of the way to Capital Avenue because RE-1 School District is in the process of planning for improvements to their property along 3rd Street. SGM completed the design drawings and assisted staff with the bid process. Johnson Construction was the low bid for the work and a contract is being issued this fall with a spring 2017 start date. Contractor’s Bid: $493,012.45 This is a Streetscape Funded Project.

4. 8th Street Sidewalk
An adequate sidewalk needs to be constructed on 8th Street from the Rio Grande Trail to Cowen Drive. This project will require utility poles and other utility pedestal relocations and may require right-of-way acquisition if a detached sidewalk is preferred along the east or west side of 8th Street. The proposed sidewalk will be approximately 3,120LF from Rio Grande Trail to 115 feet north of Latigo Loop. The cost is difficult to determine because there most likely will be ROW and easement issues. Estimated Cost: $700,000

5. Fourth Street Sidewalk
There is currently no sidewalk on the east side of Town Hall to access the parking lot as well as the Rio Grande trail without walking on Fourth Street or in the parking lot. 130LF of sidewalk with curb and gutter is proposed. Estimated Cost: $25,000 - $30,000.

6. Colorado Avenue
Colorado Avenue from 4th Street to 3rd and then 3rd Street south to Main Street needs to be rebuilt, including storm water management. The Colorado Avenue portion of this may be development funded, but the 3rd Street section will be the Town’s responsibility. This is a tight area with potential right-of-way issues and little to no room for sidewalks. Estimated Cost: $300,000

7. Village Road Sidewalk
A sidewalk has been proposed for construction along Village Road next to Gianinetti Park. 471 feet of new six inch barrier curb would be installed along with 615 feet of 6-foot wide sidewalk. Our public works staff will perform the preparation work on the project. Staff needs input from the Trustees if you want this project accomplished in 2017. If so, this would be the only sidewalk project scheduled for 2017. Estimated Cost: $52,000

8. SH 133 Street Lights
Part of the community has asked for street lights to be installed along the east side of SH 133 between Village Road and Cowen Drive. We have not started the engineering on this project but a quick calculation on the back of a napkin estimates this project will cost around the $200,000 range. Estimated Cost: $200,000

9. Snowmass Drive Trail
Construct a paved trail along Snowmass Drive connecting Main Street and the Rio Grande Trail to the existing Snowmass Drive trail (approximately 900 Feet.) Estimated Cost: $300,000
10. County Road 108 Trail
The existing County Road 108 trail terminates several hundred yards before the CRMS Campus. The trail needs to be extended to the County Road 108 Bridge. This will require land acquisition and irrigation ditch work. **Estimated Cost: $50,000**

**MAINTENANCE PROJECTS**

1. **HWY 133 Annual Maintenance**
   CDOT and the Town of Carbondale have completed the improvements to HWY 133 including the new roundabout. The first full season of landscape and drainage maintenance has been accomplished this year. A CDOT maintenance crew did replace concrete at the pedestrian crossing on HWY 133 next to Garcia’s this year. The Public Works Department will be working with CDOT and Holy Cross Electric to explore the options for a street light at that location to better illuminate pedestrians in that crosswalk. Our Parks Supervisor is tallying this year’s maintenance cost for the corridor. **Estimated Cost: $515,000**

2. **Village Road Rebuild**
   Village Road is deteriorating and will need to be roto-milled with a new asphalt overlay. In addition we propose to include curb and gutters along with dry wells to improve local drainage problems. We also need to improve parking delineation along the shoulders. Village Road was constructed in 1990 in conjunction with the Roaring Fork Village PUD. In 2007, the Public Works Department performed many local repairs in areas where settling had occurred over buried utilities. The local repairs were followed with a chip and seal surface. The recommended approach is to mill the surface and apply a three inch asphalt overlay and construct basic curb, gutter and drainage improvements. **Estimated Cost: $255,000**

3. **Meadowood Drive**
   Meadowood Drive has deteriorated and is in need of a new driving surface. The existing driving surface is in need of milling and overlaying with 3 inches of new asphalt. In addition, concrete curb ramps and short sections of sidewalks with striped crosswalks would improve the pedestrian access to the North Face Park and High School. **Estimated Cost: $50,000**

4. **Crystal Bridge Drive (RVR)**
   The Crystal Bridge Drive within RVR has experienced several areas of localized settlement. Crystal Bridge Drive historically requires annual localized street repairs within RVR. **Estimated Annual Budget: $50,000**

5. **Town Trails**
   The Town has an extensive trail system that requires ongoing maintenance. The majority of the trails are asphalt which over time can crack, heave and pothole which can be maintenance issues in addition to safety concerns for pedestrians. The Town annually is required to improve the Towns deteriorating trail connections with localized repairs and asphalt overlays. **Estimated Annual Budget: $50,000**
6. Concrete Street Repairs
   The Town has approximately 2 miles of concrete streets in the Old Town area that were constructed in the late 1970s. Some panel sections have deteriorated to a point that repairs need to be completed. Most of the concrete streets do not need full replacement and local panels of concrete can be replaced. **Estimated Annual Budget: $50,000**

7. Drainage Improvements
   There are several areas in Town that have drainage deficiencies that will not be corrected as part of any of these projects. The Town has never had a stormwater master plan and the trend historically has been to treat stormwater locally with the use of drywells as infiltration devices. These drainage devices require annual maintenance to assure they will continue to function properly. Ideally, a dry well maintenance plan should be developed to assist in prioritizing annual funds. **Estimated Annual Budget: $50,000**

8. Street Maintenance
   The Town has approximately 24 miles of asphalt streets and historically has been able to perform adequate street maintenance. Currently we are applying a chip & seal process on average approximately every 10 years, depending on the deterioration. Some streets in areas with poor drainage may have to be entirely re-built at a much higher cost such as Barber Drive was last year. The industry standard for street maintenance is totally dependent on drainage and traffic. Some communities maintain their streets as frequent as every four years while other communities are upwards of 10 years. The annual budget for Carbondale has been around $250,000 per year. **Estimated Annual Budget: $250,000**

**EXPANSION PROJECTS**

1. Hendrick Drive Sidewalk – DEVELOPMENT DRIVEN
   A new sidewalk will need to be constructed from Main Street to the existing sidewalk along the west side of Hendrick at Village Lane. The proposed City Market plans have an extension of Hendrick Drive from Main Street to the grocery store. The plans include a ten foot wide pedestrian walkway and a pedestrian actuated signal (RRFB) and enhanced crossing treatment at Main Street. Heavy foot traffic is anticipated using the new connection. **Estimated Cost: $50,000**

2. Second Street Extension – DEVELOPMENT DRIVEN
   The Second Street project is proposed to extend north from Main Street to the RFTA ROW with sidewalk, curb and gutter, along with drainage improvements. This project would be required if the properties to the North of the RFTA ROW are re-developed. **Estimated Cost: $292,000**
3. Industry Way – DEVELOPMENT DRIVEN

Carbondale is working with RFTA to evaluate the ability to extend and improve Industry Way across the RFTA corridor to connect to 8th Street at Merrill Avenue. This project is needed for two reasons. One, it creates a better grid network of Town streets to 8th street for a more efficient transportation system which will move vehicles to HWY 133 quicker and reduce the amount of localized traffic in neighborhoods. The HWY 133 improvements completed last year created Colorado Avenue as a right-in, right-out intersection which further requires the need for additional east - west travel lanes. Second, when the Carbondale Industrial Park is developed it will allow for a direct access from HWY 133 for construction traffic to reduce the amount of construction traffic on residential streets. Developments at the Overlook and Crystal River Marketplace are potential funding contributors. 

Estimated Cost: $1,500,000
Town of Carbondale
5-Year Capital Improvement Plan
FY 2017 thru FY 2021

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**Total Capital Outlay**

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Town of Carbondale  
2017 Five Year Capital Improvement Plan  
Parks and Open Space Related

The Five Year Parks and Open Space Capital Improvement Plan provides the Trustees with several proposed renovation projects as well as new improvement projects thru 2021. We tried to align the proposed projects with the recommendations within the 2015 Carbondale Parks, Recreation and Trails Master Plan. Many of these projects listed below are at a planning level so the costs that are shown are estimates. The projects are not listed on a priority basis.

There are a couple of large community planned park improvement projects that have not been included in the Plan because we cannot identify a funding source at that level. Those projects are:

- Gateway River Park ($4,500,000)
- Carbondale Nature Park ($4,000,000)

1. Renovation of the John Fleet Swimming Pool and Bath House
   This project has yet to be planned. There will be significant community input into this project. The projected cost has been obtained from communities that have built similar new swimming pool facilities. Estimated Cost: $3,500,000.

2. Renovate of Parks Bathrooms
   One of the priorities of the Parks Master Plan is to renovate or replace the bathrooms in the Parks. The bathrooms in Sopris, Miner's and Gianinetti Parks are slab on grade slump block construction. Due to the type of construction, we may have some challenges with renovations on these facilities.

   - Sopris Park Bathrooms
     This facility is the highest profile of all of our Parks bathrooms. Making the interior floors and walls brighter will certainly be a positive step. The bare concrete floor needs to be steam cleaned and a light colored surface sealer should be applied. We are experiencing excellent results with a concrete sealer in our public works garage area. Estimated Cost - $75,000.

   - Gianinetti Park Bathrooms
     Similar concerns as Sopris Park bathrooms. Estimated Cost - $50,000

   - Miner’s Park Bathrooms
     Similar concerns as Sopris and Gianinetti Parks bathrooms. Estimated Cost - $50,000
3. **ADA Accessible Playground Equipment**  
We have heard from members of the community that our playgrounds need to have better ADA access and additional all-inclusive playground equipment. We have performed quite a bit of research on ADA accessibility as well as all-inclusive playground equipment. The new Parks and Recreation Director will need to perform research to determine the best wheelchair accessibility product to allow access to the playground equipment.  
*Playground Equipment - $350,000 (total)*  
*Wheelchair Access - $60,000 (total)*

4. **Bonnie Fischer Park Improvements**  
The proposed DHM design for Bonnie Fischer Park has an estimated cost of $350,000. The improvement could be phased in.  
*Estimated Cost - $350,000*

5. **Gateway River Park Pedestrian Bridge**  
A key feature of the proposed Gateway River Park will be the construction of a pedestrian bridge over the Roaring Fork River.  
*Estimated Cost - $450,000*

6. **Gateway RV Park Irrigation**  
We recommend that we begin landscaping the RV Park so it will become a more enjoyable facility. We need to begin with an irrigation system. Staff needs to determine if the existing well will support irrigation demands or if we need to obtain shares from the irrigation ditch that bisects the parcel. The cost estimate provided can vary greatly depending on the use of well water or ditch water.  
*Estimated Cost - $10,000*

7. **RV Park Landscaping**  
The Master Plan for the Riverfront Park is extensive. Staff does not see that level of improvements at this location for many years – if ever. Modest landscaping for his area would cost $10,000 - $12,000.  
*Estimated Cost - $12,000*

8. **Bob Terrell Boat Ramp (Grant Match)**  
The Colorado Parks and Wildlife Department’s Bob Terrell Boat Ramp at the Gateway Park should be improved with a concrete launch ramp. Staff is identifying funds that would be used for a grant match for the engineer/design and construct a new concrete boat ramp.  
*Estimated Grant Match - $25,000*

9. **Nature Park Irrigation**  
The Nature Park has historically been flood irrigated; it was a pasture. The Nature Park is now one our most active regional parks. There are two irrigation water sources at the Park. One is the Carbondale Ditch and the other is the dewatering well that was installed for the construction of the water treatment plant. Staff proposes to utilize the well as an irrigation water source and install an agricultural style surface irrigation system.  
*Estimated Cost - $65,000*
10. **Crystal River Conceptual Restoration Plan**
There has been several discussion concerning the Crystal River and plans to improve the riparian habitat. If Carbondale is going to participate with the project, we will need to budget funds in anticipation of the project. **Estimated Cost - $50,000**
MEMO

April 18, 2017

Re: Carbondale Board of Trustees Mobility Work Session

Mobility
RFTA’s understanding of this work session is to define what mobility means for the Town of Carbondale and its wide range of demographic needs. Specifically, what is RFTA’s current and future role in providing both regional and local public transit, and trail options, that benefit Carbondale residents and visitors? It will be up to the Town and RFTA to work collaboratively toward safe, reliable, comfortable and affordable multimodal mobility options to maintain a high quality of life.

RFTA Staff is also working closely with We-cycle Staff on a planned expansion of the public bike share system for the Town. The bike kiosks would be placed at key locations allowing bus passengers to utilize integrated technology to pay for bikes for seamless first-last mile solutions.

Background
The Town of Carbondale joined the Roaring Fork Transportation Authority (RFTA) in 2000 by signing a formation IGA with RFTA and six other municipalities; as well as receiving positive voter approval to levy a 0.5% municipal sales/use tax increase to help fund the new RTA. Per Appendix C, item #2, of the formation IGA (Page 5), RFTA shall use its best efforts to provide “trunk service on Highway 133 at the current locations.” This language has been interpreted by the RFTA Board and Staff to mean that regional buses can provide mutually agreeable, localized transit service in Carbondale as long as regional route timepoints and equitable resource allocations are not compromised in the process. Other member jurisdictions pay extra for their circulator services in parallel to the RTA.

Town Services
RFTA currently serves the Town of Carbondale with both regional and local bus service. Residents can access VelociRFTA BRT and other regional buses at the Carbondale BRT Station at
SH 133/Village Lane. Transit parking, provided by RFTA and the Town, is available at the BRT Station, SH 133/Colorado Ave. park-n-ride and public parking downtown at 4th/Colorado.

Beginning in December 2013, following the September 2013 rollout of the nation’s first rural Bus Rapid Transit (BRT) system, RFTA began to replace approximately 91 daily downtown buses with a new Carbondale Circulator Route (CCR) for the purpose of faster and more frequent access to the hub BRT station (every 15 minutes).

In 2016, RFTA received grant funding to purchase a smaller, quieter compressed natural gas (CNG) shuttle wrapped in artwork from Carbondale Middle School students. The CCR operates approximately 18 hours per day, with service every 15 minutes along a 2.5 mile loop. The free buses carry passengers between downtown and the BRT Station, servicing four stops: Main St./SH 133 roundabout, downtown pool, recreation center and the BRT Station. Total CCR ridership for 2016 was 158,000; making it one of RFTA’s most productive services using a single vehicle.

There is also an approximate 1.5 mile section of the 42-mile Rio Grande Railroad Corridor/Rio Grande Trail (RGT) through the middle of Carbondale; bisecting the Carbondale BRT Station and providing year-round, non-motorized mobility. The RGT Carbondale pedestrian/bicycle counter logged approximately 100,000 users in 2016.

Several conceptual, and more detailed, reports and studies have also been completed that mention in-town mobility and a potential expansion of the CCR:

2009 VelociFeeder concept, former Trustee John Hoffmann
2009 Town of Carbondale Transportation Planning Report, Turn Key Consulting, LLC
2011 Dr. Stein Redevelopment Site Plan, Colorado Avenue
2011 Midvalley Local Transit Service Feasibility Study, LSC Consultants
2013 VelociRFTA Project
2014 SH 133 Redevelopment Project Leadership Team
2014 RFHS Project Citizen Class
2015 Renewed Circulator Route, former Trustee Russ Criswell
2015 Decision on Continuation of CCR at RFTA Board Meeting
2016 New City Market transit mitigation feasibility
2017 Local Circulator Project Definition, RFTA Integrated Transportation System Plan (ITSP)

Discussion
The CCR expansion conversation between RFTA and the Town has been framed around time, operational costs and priorities. To honor regional equity and a full expenditure of the Town’s RTA contribution, RFTA cannot spend more than the current 20-22 minutes operating in Town.
Therefore, the Town has been asked to choose where they want to concentrate transit service to best serve residents.

RFTA Staff sees a few options (please see map on Page 4):

1. Business as usual; approximate 15-minute, 2.5 mile route with 4 stops
2. Existing bus stops are reconfigured to stay within the current operating framework, i.e. maintaining 15-minute frequency to/from the BRT Station as a condition.
3. The existing route is expanded, essentially doubling the route timing and mileage to service 7 new stops in the south and western sides of south side of Town.

Options 1 and 2 will not require additional costs. Option 3 will require additional operating and capital costs; depending on the routing details. RFTA’s annual cost allocation formula sums the total cost per mile with the total cost per hour. It is important to note that although the expansion plan has a lower cost estimate, the frequency is proposed to drop from 15 minutes to 30 minutes and it would operate about 2 hours less per day. Staff is also exploring an option of storing and maintaining the bus in Carbondale, versus beginning and ending the route at the Glenwood Springs Maintenance Facility. This change would require more thought about who would pay for the satellite facility costs.

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<tr>
<td>Days/Year*</td>
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<td>365 Days</td>
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* Winter, Summer - 7 days/week; Spring, Fall, Fall Shoulder - 5 days/week

RFTA Staff is happy to continue exploring options with the Town to find mutually agreeable mobility solutions for Carbondale.

Thank you for your continued regional transit partnership and your consideration of this important topic.

Sincerely,

RFTA Staff
EXECUTION COPY

ROARING FORK TRANSPORTATION AUTHORITY
INTERGOVERNMENTAL AGREEMENT

by and among
CITY OF ASPEN, COLORADO
TOWN OF BASALT, COLORADO
TOWN OF CARBONDALE, COLORADO
EAGLE COUNTY, COLORADO
CITY OF GLENWOOD SPRINGS, COLORADO
PITKIN COUNTY, COLORADO

and

TOWN OF SNOWMASS VILLAGE, COLORADO

Dated as of September 12, 2000

providing for the creation of

the “Roaring Fork Transportation Authority” as a Rural Transportation Authority pursuant to the Colorado Rural Transportation Authority Law, Title 43, Article 4, Part 6, Colorado Revised Statutes, as amended.

APPENDIX C

REGIONAL TRANSIT SERVICE GOALS

The Authority shall use its best efforts to provide the following Regional Transit Services:

1. Transit service will be available at least every 30 minutes year-round in every community in the Roaring Fork Valley. Service will be provided every 15 minutes between El Jebel, Aspen, and Snowmass Village during winter peak hours.

2. Trunk service up the Brush Creek Road corridor.

3. Trunk service on Highway 133 at the current locations.

4. New service will be provided between Rifle and Glenwood Springs on weekdays every hour 5:30 a.m. until 8:30 p.m.; every two hours until midnight.

5. Service between Rifle and Glenwood Springs will be provided every two hours from 6:30 a.m. until 6:30 p.m. weekends.

6. Implementation of the new service plan will begin with an amended Transit Development Plan that will be adopted during 2001. Service improvements will be achieved on a phased basis, as necessary new equipment and staff (drivers) can be deployed. It is estimated that this process should take 12 to 18 months from the date the Authority is formed. As such, the service improvements may begin prior to full transition of RFTA to the Authority.
TO: Carbondale Town Trustees  
FROM: Mirte Mallory, WE-cycle, Co-Founder and Director  
DATE OF MEETING: April 18, 2017  
RE: Exploring Bike Share to Enhance Carbondale’s Transit Offerings

PURPOSE OF WORK SESSION

Bike share has emerged as a flexible, cost-effective, healthy, and convenient on-demand transit mode that is rapidly being incorporated into transit systems and communities of all sizes. The Town of Carbondale is forward thinking to consider bike share amongst its possible implementation tools as it prioritizes its mobility goals and community values.

WE-cycle, the Roaring Fork Valley’s bike transit system, will participate in the mobility discussion as a bike share resource expert and offer insight from its experience with launching and operating Aspen and Basalt’s systems.

As with all public transit systems, it takes time to plan, fund, and implement bike share’s capital and ongoing operational costs. At this work session, WE-cycle looks forward to receiving direction from the Town Trustees as to their interest in further exploring bike share as a transit option for Carbondale.

ABOUT WE-CYCLE

WE-cycle is a 501(c)(3) nonprofit organization founded as a public-private partnership with the mission to serve the Roaring Fork Valley with bike share as a first/last mile connection to RFTA’s transit corridor and as a form of pedal-powered mobility for in and around town transportation. WE-cycle’s vision is one in which increased bike and multi-modal transportation use help foster a more livable, vibrant, healthy, and environmentally-engaged community.
Bike sharing involves a number of bicycles at specific stations made available for shared use as a means of increasing mobility options and reducing traffic congestion and air pollution. Bikes are to be used for short station to station trips, typically under 30 minutes at a time. Overtime Fees are incurred for keeping the bike for longer periods of time to discourage using the bikes for extended personal or recreational use. Bike share programs are often considered a part of the first/last mile solution for transit, meaning that a bicycle can provide transit users with the link between their station/stop and their final destination. Bike sharing has grown rapidly in recent years with systems in over 120 cities in North America and 1,100 cities worldwide and over 2,300,000 bikes in operation. These systems have proven popular, safe, successful and convenient for both residents and visitors. Bike share systems have also proven effective in introducing bicycling to new groups of riders.

WE-cycle opened in Aspen in 2013 as North America’s first bike share system in a mountain resort town. The initial WE-cycle system of 100 bikes and 16 stations came to fruition thanks to the financial contributions from a federal Congestion Mitigation and Air Quality grant, through the City of Aspen and Pitkin County, private donors and foundations, and the visionary support of the Founding Partners including The Aspen Institute, Aspen Meadows Resort, Aspen Skiing Company, Aspen Valley Hospital, City of Aspen, Genshaft Cramer LLP, Nick DeWolf Foundation, TheMyersRobertsCollective, Pitkin County, and RFTA.

The Aspen System has grown to 110 bikes and 20 stations and is 100% powered by renewable energy. The bikes are powered by the riders, the stations by the sun, and the system is balanced by bike and an electric car which is powered on Aspen’s 100% renewable grid.

WE-cycle opened in Basalt, Willits, and El Jebel in 2016 by once again pioneering bike share into rural, lower density neighborhoods. WE-cycle partnered with its manufacturer, PBSC Urban Solutions, Inc, to provide infrastructure and technology specifically-designed to bring bike share into single-family neighborhoods not served by fixed-route transit. The Basalt System became a reality thanks to the initiative and financial contributions of Founding Partners - Town of Basalt, Eagle County, Pitkin County, RFTA, Valley Settlement Project, and Willits Town Center – and a dozen Inaugural Sponsors consisting of businesses and private foundations.
The Basalt System consists of 80 bikes and 23 stations. Per design, the Basalt stations are smaller and do not have kiosks such that there can be several in a neighborhood thereby facilitating their use.

WE-cycle's annual operations are funded through sponsorships, pass sales and Overtime Fees public sector contributions and private donations. Aspen I Snowmass Sotheby's has been WE-cycle Title Sponsor since launch. adidas TERREX joined as Aspen's Bike Sponsor in 2015 and Aspen Valley Hospital is the 2017 Basalt Bike Sponsor. WE-cycle is by nature a connector and thereby a collaborator and has over 50 community partners, sponsors, and collaborators. Committed to both financial and environmental sustainability, WE-cycle operates a lean organization and welcomes in-kind contributions and partnerships.

<table>
<thead>
<tr>
<th>WE-CYCLE AT A GLANCE...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>190</strong> bikes <strong>43</strong> stations</td>
</tr>
<tr>
<td><strong>38,539</strong> rides in 2016 <strong>4,000</strong> unique riders</td>
</tr>
<tr>
<td><strong>TRIPLED</strong> ridership in <strong>4</strong> years</td>
</tr>
<tr>
<td><strong>77%</strong> rides by Season Passholders</td>
</tr>
<tr>
<td><strong>1,225</strong> Season Passholders <strong>12%</strong> Carbondale</td>
</tr>
<tr>
<td><strong>37</strong> age of average Season Passholder</td>
</tr>
<tr>
<td><strong>49.8%</strong> male riders <strong>48.7%</strong> female riders</td>
</tr>
<tr>
<td><strong>7.12 min</strong> average Season Passholder ride time</td>
</tr>
<tr>
<td><strong>46%</strong> Season Passholder rides replace a car trip, according to Passholder Survey</td>
</tr>
<tr>
<td><strong>93%</strong> Season Passholders own a bike</td>
</tr>
</tbody>
</table>
WE-CYCLE = TRANSIT

As WE-cycle's first Founding Partner, RFTA has been a generous and instrumental financial supporter and collaborative partner of WE-cycle. Together, WE-cycle and RFTA continue to strive for a bike and bus integration in which their complementary services facilitate and thereby grow transit ridership. In this multi-modal transit ecosystem, WE-cycles function as the low-volume, on-demand, internal circulation, and first/last mile feeder to RFTA's high-capacity, fixed-route trunk lines on Highway 82.

**INTEGRATED TRANSIT SYSTEM**

- First mile
- Flexible timing
- Flexible route
- Long-haul
- Fixed schedule
- Fixed route
- Last mile
- Flexible timing
- Flexible route

It is WE-cycle and RFTA's collective vision that one day there will be a valley-wide bus and bike share system in which WE-cycle:

- Facilitates access to RFTA's Park & Rides thereby reducing pressure on the parking space and cost requirements
- Augments a community's transit service area by providing bike transit in lower-density areas where it is cost-prohibitive to operate circulator buses
- 24/7, on-demand connections between areas not on the fixed-route lines
- Introduces an active transportation alternative

**COORDINATED SYSTEM**

- **ENHANCE** connectivity, service area
- **REDUCE** pressure on circulators
Examples of other regional bike share systems that function in consort with regional transit systems include:

» **CABI**

» **BAY AREA**

» **HUBWAY**

An important component of increasing transit ridership and creating seamless connectivity between multiple modes of transportation is to reduce the friction of transitioning from one mode to another. In 2015, WE-cycle, in partnership with RFTA, introduced Transit App to the Roaring Fork Valley. Transit App is a mobile application that allows users to see real-time bike availability and check out a WE-cycle and valley-wide RFTA schedules. We encourage you to download and experience Transit App. While WE-cycle stations are not live, as the system is closed, you will see valley-wide RFTA schedules.

Available in the App Store and Android Marketplace.
As a first step towards fare integration, as of last summer, a RFTA Seasonal Zone Pass can also be activated as a WE-cycle Season Pass. This value-add is free to Zone Passholders thanks to the City of Aspen Drive Less Program underwriting the WE-cycle Pass component. As an example, a rider could check out a WE-cycle in Basalt with their pass card, pedal to the BRT stop, board RFTA showing the driver their pass card, disembark in Aspen and use the same pass card to check out a WE-cycle and pedal to the final destination.

Patterns of the desired effects of a cohesive and regional multi-modal transit system emerged this past summer when analyzing WE-cyclers who rode in both the Aspen and Basalt Systems. As illustrated below, a morning peak in Basalt is followed by a peak in Aspen, suggesting that users WE-cycled to RFTA and then picked up another WE-cycle once in Aspen. The reverse occurred in the evening.

![Graph showing Patterns of Rides]

WE-cycle and RFTA’s efforts to cross-pollinate services have proven effective. The bus-bike-bus ridership trend is confirmed by WE-cycle Season Passholders. Please visit we-cycle.org/films to hear WE-cycle riders tell their stories. According to WE-cycle Season Passholder surveys,

- 69% passholders use WE-cycle with RFTA
- 80% WE-cycle to or from RFTA
- 54% use Transit App for RFTA + WE-cycle
- 22% WE-cycle one way | RFTA the other
The busiest station in each system is BRT station/transit hub. CP Burger | Rubey Park in Aspen and the Basalt BRT. As bike share effectively delivers riders to the bus, BRT Stations are significantly more utilized than non-BRT stations.

Similar to RFTA, WE-cycle's highest use is during peak commuting times.

WE-CYCLE BASALT – YEAR ONE HIGHLIGHTS

WE-cycle opened in Basalt in June of 2016. Station locations were identified through a rider-sourcing engagement process and were placed at BRT stops, commercial centers, points of interest, and in residential neighborhoods currently underserved by transit. Stations included:

- Downvalley BRT Stop
- Library | Post Office
- Habitat for Humanity—Restore
- Café Bernard
- Rocky Mountain Institute
- Two Rivers | Cottonwood Dr
- Arbaney Park
- School Street
- Elk Run Dr | Wren Ct
- Wilits BRT
- Whole Foods Market
- Alpine Bank
- Lakeside Rugby Field
- Lakeside Townhomes
- Midvalley Medical Center
- El Jebel BRT | Park-N-Ride
- El Jebel BRT
- Orchard Plaza
- Crown Mountain Park
- Summit Visitor
- El Jebel Road
- El Jebel Mobile Home Park
- Blue Lake

As anticipated and designed, the Basalt System functioned largely as a transit system by connecting individuals from home to the bus or from the bus to work or from work to errands. Transit hubs emerged as the most active stations with
rides originating at the neighborhood stations with Lakeside Townhomes, Arbaney Park, School Street, and Blue Lake the busiest. WE-cycle refined Season Passholder ridership, i.e. locals, exceeded WE-cycle’s expectations in accounting for almost the entirety of all system rides. The Season Passholder rides totaled more than those completed by Season Passholders in Aspen in its first season, impressive given the smaller population of Basalt and unincorporated Eagle County served by the system.

In 2017, WE-cycle looks to optimize the operations of the system, grow ridership, and expand the Movimiento en Bici program, a bike equity partnership with the Valley Settlement Project and English in Action.

**we cycle**

community-supported bike share

<table>
<thead>
<tr>
<th>6,310 rides</th>
<th>STATIONS...</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.7 rides per day</td>
<td>#1 Basalt BRT</td>
</tr>
<tr>
<td>7.86 min average ride time</td>
<td>#2 El Jebel BRT Downvalley</td>
</tr>
<tr>
<td>95% rides by season passholders</td>
<td>#3 Rocky Mountain Institute</td>
</tr>
<tr>
<td>97% rides under 30 minutes</td>
<td>#23 Clark Dr</td>
</tr>
</tbody>
</table>

**MOVIMIENTO EN BICI**

WE-cycle Basalt received a Better Bike Share Grant to promote bike share in Latino community

Friday

busiest day of week

41 Bici rider participants 38 average age
WE-CYCLE IN CARBONDALE?

WE-cycle would welcome the opportunity to partner with the Town Trustees and RFTA to explore bike share in Carbondale with the goals of enhancing mobility and contributing to the community’s carbon emissions reduction goals.

As demonstrated in Basalt, WE-cycle Season Passholders understand, and value, the effectiveness of bike share and account for the majority of bike share ridership valley-wide. Passholders have expressed the interest in expanded WE-cycle service, with 78% of passholders indicating that they would ride WE-cycle in other towns in the Roaring Fork Valley and 85% would be more inclined to ride RFTA if one had access to WE-cycle at either end of the bus ride. Carbondale is the top-requested location for system expansion per Season Passholders with 56.5% saying they would use bike share in Carbondale. In spite of not having service, 12% of WE-cycle passholders currently reside in Carbondale and use bike share in other communities as their last mile transit. Imagine the engagement if residents also had access to WE-cycle as a first mile option!

Given its topography, land use pattern, and vibrant bike culture Carbondale is prime for bike share and would benefit the community’s transit services in numerous ways. Installing stations in neighborhoods would bring a fast, easy and convenient form of transportation for residents to circulate within Carbondale between residences and commercial centers and points of interest. Offering stations at important transit hubs, notably the Carbondale Park & Ride and near Sopris Park, would provide residents a seamless, on-demand first/last mile connection to RFTA’s valley-wide services on their own schedules.

As discussed previously, WE-cycle works most effectively in consort with a reliable bus service. WE-cycle does not see itself as a replacement to Carbondale’s Circulator, but rather as an enhancement and expansion of transit services. For example, if the Circulator has just left the Park & Ride upon the arrival of your BRT, you don’t have to wait for it to return but can hop on a WE-cycle and ride directly to your destination. WE-cycle recognizes that not everyone is interested in, or able to, ride a bike hence both services are important in trying to serve the greatest number of riders and encouraging increased transit use. Of note, the Carbondale Circulator is currently a “fare-free” service. WE-cycle would recommend that bike share be priced comparably to the existing or future cost of the Circulator.

Upon a preliminary assessment of Carbondale, WE-cycle is recommending a minimum system size of 90 bikes and a total of 228 docks distributed between 21 stations of varying sizes.
Initial estimates of a system of this scale would cost approximately $500,000 in system infrastructure and installation, depending on selected features. As the bike share industry is experiencing a period of tremendous growth and technological innovation, it is likely that new station concepts will emerge and factor into the system cost. WE-cycle estimates that year-round, 24/7 operations would cost between $175,000 - $250,000. Operational costs would depend upon finding economies of scale with a larger, valley-wide system and upon the costs of winter operations as WE-cycle has yet operate a year-round.

As the Town Trustees consider bike share, it is important to keep in mind the following factors to achieve a successful system:

**INTEGRATED** into transit system

**LEADERSHIP BUY-IN** encourage and facilitate use of system

**SUFFICIENTLY SIZED** ample options to serve community

**PROPERLY SITED** visible, safely accessible, conveniently located stations

If the Town Trustees are interested in bringing bike share to Carbondale, recommended next steps would be to undertake a scoping, sizing, siting and costing study, identify possible funding sources and partners, convene an Advisory Committee and engage the community.

WE-cycle looks forward to a productive conversation and learning more about how bike share might align with Carbondale’s mobility vision.
Town of Carbondale Accessibility Assessment

FIGURES 2

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Purpose and Scope

The purpose of this document is to consider the costs and benefits of developing mobility and accessibility options in Town of Carbondale, with a particular focus on “last mile” access to BRT stations. This report has been developed in response to community concerns about lack of parking at BRT stations, strategies to improve access to BRT, and the impacts of those strategies. This is not intended to be a comprehensive or specific analysis or a recommendation. Costs and assumptions are conceptual.

This report is divided into two parts:

Part 1: Local Transit System Feasibility Assessment

Part 2: Other Mobility Strategies

This document is an abridged version of the *Mid-Valley Accessibility Assessment*, which covers Carbondale, El Jebel and Basalt.
Part 1: Local Transit System Feasibility Assessment

Local transit system alternatives will be based upon routes developed in the *Mid-valley Local Transit Service Feasibility Study*, conducted by LSC Consulting in 2011: [www.lsccs.com/projects/rfta/final.htm](http://www.lsccs.com/projects/rfta/final.htm).

Carbondale Options

Current System

RFTA currently operates a circulator system that operates between the Carbondale Park and Ride and downtown. This system is funded under RFTA’s current operations, and provides access to parking areas at the Carbondale BRT Station and parking areas at 6th Street/Colorado Avenue and 4th Street/Colorado Avenue.

The circulator system replaced the local, regional, and express buses that used to travel through Carbondale, as a result of the Intergovernmental Agreement establishing the regional transportation authority. Of the one mandates of the Town of Carbondale, included in the IGA, was that buses would travel through the Town.

The system operates roughly 16.25 hours per day (5:00 a.m. to 9:15 p.m.) seven days per week during peak winter season. Using one bus, headways are 15 minutes.
Carbondale VelociFeeder Alternative

The *Mid-Valley Local Transit Service Feasibility Study* identified the VelociFeeder as one of two routes that generated promising performance, in terms of passengers/hour and cost/ rider.

**Proposed Route**

The route, shown below, provides connections to the same downtown parking areas as the current circulator, to higher-density residential areas to the east and west, and to the middle school and high school. Round trip mileage is 4.4 miles; roundtrip headway with one vehicle is 30 minutes.

**Potential Stops**

A cursory review of the route shows that the following stops may be appropriate:

- Carbondale PNR
- Heritage Park Care Center
- 8th Street/ Cleveland Place
- 6th/Colorado
- 2nd/Main
- 2nd/SH133
- SH133/River Valley Ranch
- Holland/Melissa
- Crystal Meadows Sr. Housing
- Main/SH133

---

1 Boarding locations shown in bold are existing regional bus stops
Figure 2: VelociFeeder Route
Carbondale Small Loop Alternative

*Proposed Route*
The second feasible route, shown below, is very similar to the VelocFeeder Route, but truncates the service in the north east quadrant of Carbondale and focuses more service to the south. Round trip mileage is 4.7 miles; roundtrip headway with one vehicle is 30 minutes.

*Proposed Stops*
A cursory review of the route shows that the following stops may be appropriate:

- Carbondale PNR
- Main Street/SH133
- 6th/Colorado
- 2nd/Main
- 2nd/SH133
- SH133/ Meadowood/ Crystal Bridge Drive
- Holland/Melissa
- Crystal Meadows Senior Housing
Figure 3: Carbondale Small Loop
Carbondale Preferred Option
RFTA's Operations Department developed the following preferred option, which balances the need for increased transit accessibility through the Town of Carbondale with RFTA's need to integrate the local systems with RFTA's existing routes and schedules.

The recommendation, shown below, would be to:

1) Operate the Carbondale Circulator as now with 15 minute headways, and  
2) Operate the Carbondale VelociFeeder Alternative with 30 minute headways.
Miles and Hours Calculations and Cost Estimates

The following miles and hours evaluations are combined with RFTA's cost allocation model to develop cost estimates for the service.

Existing Carbondale Circulator (starting from Glenwood Maintenance Facility, 15-minute headways)

Table 1: Existing Carbondale Circulator Mileage and Hours Estimates*

<table>
<thead>
<tr>
<th>Season</th>
<th>Number of Days</th>
<th>Miles/Day</th>
<th>Hours/Day</th>
<th>Total Miles</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>122</td>
<td>185.02</td>
<td>20.0</td>
<td>22,572</td>
<td>2,440</td>
</tr>
<tr>
<td>Spring (M-F)</td>
<td>45</td>
<td>178.20</td>
<td>19.25</td>
<td>8,019</td>
<td>866</td>
</tr>
<tr>
<td>Summer</td>
<td>87</td>
<td>182.67</td>
<td>19.75</td>
<td>15,892</td>
<td>1,718</td>
</tr>
<tr>
<td>Fall (M-F)</td>
<td>57</td>
<td>178.20</td>
<td>19.25</td>
<td>10,157</td>
<td>1,097</td>
</tr>
<tr>
<td>Fall Shoulder</td>
<td>16</td>
<td>178.20</td>
<td>19.25</td>
<td>2,851</td>
<td>308</td>
</tr>
<tr>
<td>Total (current)</td>
<td>327</td>
<td>--</td>
<td>--</td>
<td>59,491</td>
<td>6,429</td>
</tr>
<tr>
<td>Add Spring/Fall Sat/Sun</td>
<td>38</td>
<td>178.2</td>
<td>19.25</td>
<td>6,771</td>
<td>731</td>
</tr>
<tr>
<td>Total Proposed (daily)</td>
<td>365</td>
<td>--</td>
<td>--</td>
<td>66,262</td>
<td>7,160</td>
</tr>
</tbody>
</table>

*Starting from Glenwood Maintenance Facility, 15-minute Headways

Table 2: Proposed VelociFeeder Mileage and Hours Estimates*

<table>
<thead>
<tr>
<th>Season</th>
<th>Number of Days</th>
<th>Miles/Day</th>
<th>Hours/Day</th>
<th>Total Miles</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>122</td>
<td>157.4</td>
<td>18.00</td>
<td>19,202</td>
<td>2,196</td>
</tr>
<tr>
<td>Spring (M-F)</td>
<td>45</td>
<td>157.4</td>
<td>18.00</td>
<td>7,083</td>
<td>810</td>
</tr>
<tr>
<td>Summer</td>
<td>87</td>
<td>157.4</td>
<td>18.00</td>
<td>13,694</td>
<td>1,566</td>
</tr>
<tr>
<td>Fall (M-F)</td>
<td>57</td>
<td>157.4</td>
<td>18.00</td>
<td>8,972</td>
<td>1,026</td>
</tr>
<tr>
<td>Fall Shoulder</td>
<td>16</td>
<td>157.4</td>
<td>18.00</td>
<td>2,519</td>
<td>288</td>
</tr>
<tr>
<td>Total (current)</td>
<td>327</td>
<td>--</td>
<td>--</td>
<td>51,470</td>
<td>5,886</td>
</tr>
<tr>
<td>Add Spring/Fall Sat/Sun</td>
<td>38</td>
<td>157.4</td>
<td>17.92</td>
<td>5,981</td>
<td>684</td>
</tr>
<tr>
<td>Total Proposed (daily)</td>
<td>365</td>
<td>--</td>
<td>--</td>
<td>57,451</td>
<td>6,570</td>
</tr>
</tbody>
</table>

*Starting Carbondale Facility, 30-minute headways, 5:00 a.m. – 9:15 p.m.

Table 3: Cost Estimate - VelociFeeder

<table>
<thead>
<tr>
<th>Option</th>
<th>Cost/ Mile</th>
<th>Cost/ Hour</th>
<th>Total Miles</th>
<th>Total Hours</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>327 Days</td>
<td>$7.12</td>
<td>$62.28</td>
<td>51,470</td>
<td>5,886</td>
<td>$733,046</td>
</tr>
<tr>
<td>365 Days</td>
<td>$6.97</td>
<td>$60.92</td>
<td>57,451</td>
<td>6,570</td>
<td>$800,678</td>
</tr>
</tbody>
</table>
Capital Cost Impacts

In addition to operating costs, a number of other capital costs must be considered.

Bus Stops

Average conceptual cost per stop is estimated at $50,000. Minimum requirements and amenities are likely to include:

- Shelter
- Bench
- Boarding/Waiting Area
- Garbage container
- Lighting
- Bicycle
- Concrete pad for shelter and for bus staging
- Bus pullout and tapers (concrete, curb and gutter)

Table 4: Capital Cost Estimates - New/Improved Bus Stops

<table>
<thead>
<tr>
<th>Route</th>
<th>Number of New/Improved Stops</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>VelociFeeder</td>
<td>8</td>
<td>$400,000</td>
</tr>
</tbody>
</table>

Implementation Process Requirements

The existing Circulator service is intended to be a replacement of the local and express buses that used to serve the commercial core prior to VelociRFTA BRT. It is important for that service to stay in place and for the frequency to remain at 15 minutes, if possible, to provide adequate feeder/collector service for the park & ride. Ridership on the existing Circulator is robust and increasing; reducing frequency could compromise its success.

The proposed VelociFeeder service would be an additional, local service that would be owned, funded and operated by the Town, similar to the services in Glenwood Springs, Aspen, and Town of Snowmass Village.

The towns can contract with RFTA or another provider to operate the service and/or maintain the fleet and facilities. The cost model herein assumes that RFTA would operate. The Town might realize different costs under different operating structures.

The majority of stops will be new, and each stop will require some degree of planning process, design and construction. It is best that the Towns plan, design, and construct the stops under their local land planning processes and to their specifications (in consultation with RFTA to ensure that specifications adhere to safety, ADA and other essential State and Federal requirements).
Americans with Disabilities Act (ADA) Impacts and Requirements

The ADA requires, in general, that complementary paratransit be provided within ¾-mile of the established route during the same hours of operation as the fixed route, for persons with disabilities. It is likely that complementary ADA service will need to be provided. LSC’s study used TCRP.

Report 119: Improving ADA Complementary Paratransit Demand Estimation to forecast ADA ridership in the mid-Valley area, between Carbondale and Basalt. This model predicted approximately 3,409 annual trips in Carbondale and 2,700 trips in the Basalt area, based on statistical analysis of transit systems across the country, peer comparison data, and other factors.

Option 1: Complementary ADA

According to LSC, one paratransit vehicle would be sufficient capacity to serve the total demand for the entire Mid-valley area. If it operated 15 hours per day the average productivity of the service would be below a desirable 2.0 passenger-trips per hour for paratransit service. It may be sufficient to offer the service 8-10 hours per day with a taxi-voucher program to cover sporadic early morning and late evening trip needs. Considering the lack of robust taxi service and the cost of such service, this is an unlikely option. Moreover, the majority of demand is likely to be needed during regular working hours.

Option 2: Deviated Fixed Routes

Another means of meeting ADA requirements would be to deliver the fixed route preferred alternatives, and allow them to leave the route to serve demand-response origins and destinations. The vehicles are required to return to the designated route within one block of the point of deviation to ensure that all intersections along the route are served. Both fixed route and ADA needs could be met with the fixed routes, but passengers would likely experience longer travel times than for exclusive fixed-route service and the service reliability is lower.

Option 3: Combination of Options 1 and 2

Under this option, a complementary ADA service could be implemented, and used if and when fixed route deviation is not preferred for specific trip requests.

Parking and Accessibility Analysis

One of the key purposes of providing and expanding transit circulator systems is to provide alternatives to parking at the BRT park and rides, and to provide access to outlying park and rides. The purpose of this section is to discuss parking options and opportunities. The table below outlines conceptual costs and benefits of various parking options:

<table>
<thead>
<tr>
<th>Parking Option</th>
<th>Cost/Space*</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared Parking</td>
<td>$0 - $1000/year</td>
<td>--potentially least expensive --highly flexible and efficient to implement</td>
<td>--renting or leasing may be considered a lost opportunity --land is impermanent --may or may not be located close to existing BRT station --could result in</td>
</tr>
<tr>
<td>Surface Parking Improvements (new, leased)</td>
<td>$2,000-$10,000 (capital) + lease</td>
<td>--moderate cost</td>
<td>--relatively expedient process</td>
</tr>
<tr>
<td>Surface Parking (new, fee simple ownership)</td>
<td>$25,000-$35,000 (based on last 3 years of property acquisition and construction)</td>
<td>--less expensive than structured parking</td>
<td>--relatively permanent, compared to improving existing surface parking</td>
</tr>
<tr>
<td>Structured above grade, existing</td>
<td>$25,000-$35,000</td>
<td>--may be cost equivalent to new surface parking</td>
<td>--more efficient use of land than surface parking</td>
</tr>
<tr>
<td>Structured above grade, new</td>
<td>$35,000-$55,000</td>
<td>--more efficient use of land than surface parking</td>
<td>--opportunities for creative development and partnerships at BRT stations</td>
</tr>
<tr>
<td>Structured below grade, existing PNR</td>
<td>$55,000-$85,000</td>
<td>--most efficient use of land</td>
<td>--least visually obtrusive</td>
</tr>
<tr>
<td>Structured below grade, new</td>
<td>$65,000-$100,000+</td>
<td>--most efficient use of land</td>
<td>--least visually obtrusive</td>
</tr>
</tbody>
</table>

*Operating Costs for all options are not included
The table below briefly summarizes the current and potential major parking options in Carbondale.

<table>
<thead>
<tr>
<th>Location</th>
<th>Status</th>
<th>Number of Spaces</th>
<th>Most Likely Future Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbondale BRT Station (Current)</td>
<td>Existing surface PNR, constructed in 2013</td>
<td>80</td>
<td>Surface (as-is)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Structured - Above Grade</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Structured – Below Grade</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New mixed-use development</td>
</tr>
<tr>
<td>Carbondale BRT Station (Expansion)</td>
<td>Land purchased in fee simple, construction in 2016 or 2017</td>
<td>70</td>
<td>Surface (as-is)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Structured - Above Grade</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Structured – Below grade</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New mixed-use development</td>
</tr>
<tr>
<td>6th/Colorado</td>
<td>Relatively unused, dirt parcel in CBD, served by current circulator</td>
<td>100</td>
<td>Surface Parking Improvements (by RFTA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New mixed use development (by others)</td>
</tr>
<tr>
<td>4th/Colorado</td>
<td>Relatively unused, Town-owned, paved and unpaved area across from Town Hall, served by current circulator</td>
<td>100</td>
<td>Surface Parking Improvements (by Town and/or RFTA)</td>
</tr>
<tr>
<td>SH133/Colorado</td>
<td>Unimproved dirt lot, owned by Stein, served by circulator</td>
<td>30</td>
<td>Surface Parking Improvements (by RFTA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New mixed use development (by others)</td>
</tr>
</tbody>
</table>
Part 2: Other Mobility Strategies

Local transit systems can provide enhanced mobility options within the Town of Carbondale; however, transit is just one part of the mobility picture. As the table below illustrates, walking, bicycling, transit carpooling and driving alone are all significant components of mobility and accessibility.

![Winter Resident Personal Trips Mode Share](image)

![Summer Resident Personal Trips Mode Share](image)

Figure 5: Personal Trips Mode Share in Carbondale (2014 Regional Travel Patterns Study)

The second part of this analysis will consider other strategies for enhancing mobility, particularly to last mile destinations from BRT stations.

**Bicycle and Pedestrian Improvements**

RFTA is in the process of creating a Regional Bicycle, Pedestrian and Access to Transit Plan. The purpose of the Plan is to develop a 25-year, prioritized list of bicycle and pedestrian projects, with a focus on access to transit, that can be included in the Statewide Long Range Transportation Plan. In March, RFTA and its consultant team met with the three counties and nine jurisdictions between Parachute and Aspen to discuss bicycle and pedestrian needs and priorities. The tables below show the bicycle, pedestrian and access to transit needs and priorities, and conceptual cost estimates

The following improvements were suggested by Town Staff, the Bicycle and Pedestrian Trails Commission, Environmental Board and general public.
### Table 7: Town of Carbondale Priority Bicycle and Pedestrian Improvements (DRAFT Regional Bicycle, Pedestrian, and Transit Access Plan)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Project</th>
<th>Cost*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Snowmass Trail Bike/Ped Connection</td>
<td>$5 - $55</td>
</tr>
<tr>
<td>2</td>
<td>Red Hill Access / HWY 82 Underpass</td>
<td>$55</td>
</tr>
<tr>
<td>3</td>
<td>HWY 133 Grade Separated crossing</td>
<td>$55</td>
</tr>
<tr>
<td>4</td>
<td>CRMS Trail Extension to CR109</td>
<td>$55</td>
</tr>
<tr>
<td>5</td>
<td>Catherine Store Bridge Bicycle-Pedestrian connection</td>
<td>$55</td>
</tr>
</tbody>
</table>

**Non-ranked Projects**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Project</th>
<th>Cost*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Improve bike/pedestrian facilities on Route 109 between West Bank and Carbondale, and create safe access to Rio Grande Trail</td>
<td>$55</td>
</tr>
<tr>
<td>B</td>
<td>Wayfinding at Satank to direct people to the Rio Grande Trail</td>
<td>$</td>
</tr>
<tr>
<td>C</td>
<td>Fill in missing north side SH133 pathway from Garcia’s to the Bridge</td>
<td>$5-$55</td>
</tr>
<tr>
<td>D</td>
<td>Bike/Ped access Kay PUD Area to BRT</td>
<td>$5-$55</td>
</tr>
<tr>
<td>E</td>
<td>More bike parking at BRT Station</td>
<td>$</td>
</tr>
<tr>
<td>F</td>
<td>Connections to the Rio Grande trail from Wheel Circle neighborhood</td>
<td>$5-$55</td>
</tr>
<tr>
<td>G</td>
<td>Bike/Ped connectivity between City Market and Euclid Avenue</td>
<td>$5-$55</td>
</tr>
<tr>
<td>H</td>
<td>Garfield Avenue Connection/Access Improvement to Sopris Park</td>
<td>$</td>
</tr>
<tr>
<td>I</td>
<td>Missing Link from Snowmass Drive on the Rio Grande trail connecting to the schools</td>
<td>$5-$55</td>
</tr>
<tr>
<td>J</td>
<td>Bike/Pedestrian Improvements - 8th Street/Weant, 2nd Street, 3rd Street, and Colorado Ave</td>
<td>$5-$55</td>
</tr>
<tr>
<td>K</td>
<td>Widen pathway connections near the Middle School along HWY 133</td>
<td>$5-$55</td>
</tr>
<tr>
<td>L</td>
<td>Crystal River Trail - continue to build towards Marble</td>
<td>$55</td>
</tr>
</tbody>
</table>

*$ under $50,000  $5 under $500,000  $55 over $500,000
Figure 6: Bicycle and Pedestrian Needs and Priorities – Carbondale (DRAFT Regional Bicycle, Pedestrian, and Transit Access Plan)
Summary
The Town of Carbondale exhibits very high rates of walking, bicycling and transit use. These modes offer benefits to mobility and accessibility, and to improving public health, reducing congestion, and leveraging economic benefits.

The information herein is intended to assist the Town of Carbondale in making decisions about transit, parking, walking and bicycling options.
TO: Mayor Richardson and Carbondale Board of Trustees
FROM: CLEER and CORE staff; Carbondale Environmental Board
RE: Work session on Carbondale Climate and Energy Plan update
Date: April 13, 2017

On February 21, 2017 the Board of Trustees discussed the updated Carbondale Climate and Energy Plan, which focused primarily on overall carbon reduction goals the Town might adopt.

The Board of Trustees set a follow up discussion to delve into the goals and strategies for each sector listed in the plan.

CLEER and CORE staff have made updates to the draft plan and the most current version is attached. At the February meeting a few questions were asked about climate resiliency planning and you’ll find more detailed information about that on page 9. Additional questions were asked about climate science behind setting goals for communities, you’ll find more details on pages 8 and 13.

We have also attached the Executive Summary from the county-wide Xcel Energy Partners in Energy Action Plan that lists the goals and strategies of that effort, which has many complementary programs to the local Carbondale Climate and Energy Plan, and can help with reaching some of the Carbondale goals.
Carbondale Energy Climate Action Plan - 2017-DRAFT

Updated 4-12-17. Still in draft format for Trustee comment. Will go to professional editor following 4-18 worksession.

1. Executive Summary
2. Acknowledgements
3. Introduction
   - Letter from Town Trustees/Mayor
   - Introduction
4. Climate Action & Background
   - The Time to Act is Now
   - Economic and Community Benefits
   - Background
     - Local Commitment
     - Federal, State, and Regional Commitments
5. Carbondale's Energy Picture and Results to date
   - Carbondale Community Wide Energy and Emissions
   - Actions implemented since 2006, Progress to Date
   - Goals
     - Action Steps
     - Buildings Energy
       - Renewables and Energy Supply
     - Transportation
     - Waste Reduction and Reuse
     - Local Food & Purchasing
7. Options for Financing and Economic Development
   - Possible funding sources for reaching targets
8. Tracking results and follow-up
Annual metrics
Community Updates

9. Links to existing plans and resources

References/Bibliography
  Appendix B. Status of 2006 action steps, progress to date
1. Executive Summary

*Note: this is still very much in draft form and will be completed with a designer to live as a stand alone document highlighting past success and goals to a sustainable community.*

Carbondale has a rich history of clean energy, sustainability and renewable energy pioneers. Living out that history and tradition, the community has been hard at work to reduce energy use, adding renewables and implementing green transportation options. By constantly being a leader on all fronts, Carbondale has helped prove to other communities the benefits of taking action.

- From 2009 to 2016, the wastewater treatment plant (WWTP) has reduced energy costs by 50%, saving the town $80,000 a year on utility bills. This has been achieved by implementing behavioral changes, closely monitoring the operations, and adjusting controls, proving that savings can be achieved without costly capital improvements.
- The Town of Carbondale has been a leader in the Roaring Fork Valley on adopting residential codes and green commercial codes.
- In 2010, the town has adopted energy goals along with other member municipalities of Garfield Clean Energy: (1) increase energy efficiency by 20% by 2020 (2) reduce petroleum consumption 25% by 2020 (3) obtain 35% of energy from renewable sources by 2020. There have been efforts to track progress towards this goal through 2009 benchmark and 2014 update.
- The Town of Carbondale passed a resolution dedicating 20% of severance tax and federal mineral lease funding to fund progress toward clean energy targets.
- The Town of Carbondale became a member of the state’s first clean energy authority – Garfield Clean Energy – a 10 member government collaborative that provides energy efficiency and clean energy and petroleum reduction services to homes, businesses, and governments throughout Garfield County.
- The Town of Carbondale is also a member of CORE, and through CORE membership they receive access to the Renewable Energy Mitigation Program (REMP) funding, technical assistance on energy, waste, and water.
- As of June 2016, there is over 1MW of solar on public buildings in the town limits of Carbondale
- The Town of Carbondale installed the first electric vehicle charging station in the Roaring Fork Valley at their Town Hall in XXXX.

The 2017 Energy and Climate Action Plan outlines strategies across five key sectors, all of which work towards the overarching goal: carbon neutrality. As detailed, reductions in carbon emissions will take the shape of changing daily behaviors, such as walking or driving; of bigger decisions, such as energy efficiency retrofit in a business; and larger policy changes, such as implementing strong building codes to transform that community away from fossil fuels.

**Buildings Energy**
- Boost energy efficiency in existing commercial and residential buildings
- Encourage sustainable energy choices through education, market demand, social norming, and community campaigns
- Build it Right from the Start

**Energy Supply & Renewable Energy**
- Increase the number of quality builders and contractors to ensure buildings are energy efficient, durable, and safe
- Accelerate the installation of renewable energy systems on homes and businesses
- Evaluate neighborhood or district renewable energy systems
- Advocate for comprehensive policies at the regional and state-level

**Transportation**
- Continue to build on in-town and regional efforts to encourage biking, walking, telecommuting, use of transit and carpooling.
- Continue to accelerate adoption of cleaner vehicles/fleet replacement with lower-carbon options.
- Continue progress on land-use/mobility linkages and community design strategies that support biking and walking and reduce need for driving.

**Waste Reduction & Reuse**
- Decrease the amount of recyclable and compostable materials entering the landfill
- Reduce waste by expanding reuse and repair initiatives
- Make it simple for everyone to participate in waste programs and waste goals

**Local Food & Purchasing**
1. Increase production, availability and consumption of locally grown food
2. Increase production, availability and consumption of local products and services

The success of this Plan requires collaboration from all levels: residents, businesses, community organizations, as well as the involvement of regional, state and national actors. In particular, the Town of Carbondale serves an invaluable role in modeling replicable solutions and helping its residents take action. Each of the five sectors emphasize how the Town can lead by example and support the work of others through education and outreach.

*Timeline rough draft below - will be updated and part of the design work.*
2. Acknowledgements

This Climate Action Plan would not be possible without the guidance and contributions made by the following elected officials, community members, and organizations.

Town Council
Dan Richardson, Mayor
Ben Bohnfalk
Katrina Byars
Heather Henry
Frosty Merriott
Marty Silverstein

Town Staff
Jay Harrington, Town Manager
Mark O'Meara, Utilities Director

CLEER Staff
Alice Laird, Director

Erica Sparhawk, Director of Programs and Services
CORE Staff
Mona Newton, Executive Director
Sarah Gruen, Energy Programs Specialist
Environmental Board (E-Board)

Environmental Board (E-Board)
Brad Davis
Julia Farwell
Natalie Fuller
Matt Gwost
Patrick Hunter
Scott Mills
Amanda Poindexter
Jason White

Citizens Advisory Group
Michael Kinsley (facilitator)
Clare Bastable* (facilitator)
Ellie Barber

Kevin Brehm
Roy Davidson
Jeff Davlyn
Jeff Dickinson
William Draper
Adrian Fielder
Gwen Garcelon
Laurie Guevara-Stone
Matt Hamilton
Chris Hildred
Brandon Jones
Amy Kimberly
Soozie Lindbloom
Joani Matranga

Chris Menges
Julia Morton
Steve Novy
Ken Olson
Ali O’Neal
Alyssa Reindel
Katharine Rushion
Carey Shanks
Emily Steers
RJ Todd
Karen Wahrmund
Colin Quin
Pam Zenitmyer*

Former elected officials and members of the Technical/Finance Advisory Committee (if mentioned above have*) that made sure this plan happened include: Stacey Bernol, Allyn Harvey, Michael Hassig, Casey Sheahan and Tom Baker.

Primary Authors: CLEER and CORE Staff
Editing: Heather McGregor
Design: Traci Schalow, Kindred Graphic Design

Funding for this plan was provided by the Town of Carbondale, CLEER and CORE.
3. Introduction

Letter from Town Trustees/Mayor

Make request to current board + Mayor

Introduction

Over the last two decades, the Town of Carbondale has been a leader on climate action and sustainability. It was known then, and has since become more apparent, the Carbondale can and must dramatically reduce its greenhouse gas emissions. Perhaps more importantly, the community has a lot to gain by doing so.

Addressing the community’s carbon footprint can secure energy independence, spur greater economic development, create good jobs, increase tourism, support clean air and water, and make a more thriving, sustainable community.

The 2006 Carbondale Energy and Climate Protection Plan, the first climate plan for Carbondale was written in 2006. Now, ten years later, the Town of Carbondale has asked Clean Energy Economy for the Region (CLEER) and the Community Office for Resource Efficiency (CORE) to update that Plan.

Over the course of four months, community workshops brought together community members and experts to develop new targets for the community to work towards, and to identify new strategies to address the community’s carbon emissions. To this target, five key strategy areas were identified:

- Buildings Energy
- Energy Supply and Renewable Energy
- Transportation
- Waste
- Local Food & Purchasing

This plan, the 2017 Carbondale Energy and Climate Protection Plan, is a roadmap to carbon neutrality and for creating a sustainable future that will serve the entire community. Each strategy area details specific action items, with areas and actions contributing to form one integrated plan. These actions are intended to be implemented by the Town, with support from the Environmental Board, partner organizations, and the entire community.

Background

This Plan does not represent the beginning or the end of Carbondale’s sustainability efforts. It is one step on a long path.

The Town of Carbondale, and those who choose to call Carbondale home, have worked to prioritize climate-friendly policies by by adopting emission reduction goals, building bike lanes, purchasing solar power, upgrading the efficiency of municipal buildings, and passing progressive energy codes.

{Add one to two sentences on results to date}
Moving Forward

The 2017 Carbondale Energy and Climate Protection Plan raises the bar; it challenges Carbondale to go further, faster. The Plan seeks carbon neutrality for the entire community by 2050. It imagines a community in which:

- All buildings have net-zero emissions
- All energy is powered by renewable sources
- The majority of trips are made by walking, biking, and public transit, and all vehicles use low-carbon fuels
- All waste is recycled or reused
- A thriving economy for local food, products, and services

Meeting this goal requires a bold vision of moving beyond changing light bulbs, to transforming the entire community. First, the total amount of energy consumed (fuel for cars, electricity in homes, etc.) must be decreased, then the energy needs to be replenished with renewable sources. This transition will lead to a balanced carbon footprint for buildings, for transportation, and for the entire community.

Let’s be clear – Carbondale, along with many other communities with similar goals, has not yet defined the exact path to take to reach carbon neutrality. The 2017 Climate Action Plan is a roadmap, embracing strategies that can lead to enormous decreases in carbon emissions in the next 10 years. There are a number of potential pathways, with the correct path for Carbondale’s 2050 goal still evolving. As best practices are refined, and modeling of carbon impacts improves, this path will become clearer.

What is certain is that collective action is needed: every individual, business, and neighborhood needs to be engaged. In particular, neighborhoods will be the building blocks of community-wide action. An emphasis on the neighborhood facilitates innovation, investment, and replicability. The successful introduction of policies and programs at the neighborhood level, can help enable community-wide adoption.

Encouragingly, Carbondale has proven its ability to cut emissions. With this new plan to guide action, Carbondale has taken one step closer to carbon neutrality. we

[Sidebar] What is a headline from the Sopris Sun in 2050?

- Ski Area Closes from Lack of Snow
- Roaring Fork Farmers Produce Food and Energy
- Carbon Neutrality is Achieved by Earth
- Fire District out of Money to Combat Wildfires
- Phones are uncool, people go outside once again!

(Stakeholder responses from meeting 1)
4. Climate Action & Background

The Time to Act is Now

"We are the first generation to feel the effect of climate change and the last generation who can do something about it."
- Governor Jay Inslee, Washington State

There is widespread consensus that the Earth's climate is changing due to the increasing concentration of greenhouse gases in the atmosphere. Furthermore, scientists agree that everyday human activities are the dominant cause of this accumulation. This includes the burning of fossil fuels (coal, natural gas, gasoline) to heat homes and power vehicles, among other actions. The warming of the climate will pose a significant threat to our natural and human systems on all continents and across the oceans.

Studies have shown that:

- The Earth is warming quickly: 2016 was the hottest year recorded, beating the record-warm years of 2015 and 2014.¹
- Even more, this warming is not isolated, but part of a long-term trend: 16 of the 17 hottest years on record for the world have occurred this century.²

Communities have committed to tackling this challenge head-on. At the United Nations Framework Convention on Climate Change (UNFCCC) conference in Paris in November, 2015, the world's governments agreed to limit the rise of global temperatures to 2 degrees Celsius. The commitment underscores the importance of "holding the increase in global temperature to well below 2 degrees C above pre-industrial levels..." with an emphasis on limiting warming to 1.5 degrees.³ This action is grounded in the Intergovernmental Panel on Climate Change (IPCC) 2014 report. This report underscores the following facts on climate change:

- Acting on climate change is more urgent than ever. The impacts of climate change are expected to become more severe as the climate continues to warm. Unless we rapidly reverse the trajectory of greenhouse gas emissions, we risk triggering irreversible climate impacts.
- The sooner we act, the more cost-effective it will be. According to the head of the IPCC, "2C is achievable, and if we fail to act according to what the IPCC has been advising, the cost will rise phenomenally. The sooner we act, we will be able to achieve 2C stabilisation cost-effectively. The longer we wait to take action, the cost will be a lot higher and to pursue efforts to limit the temperature increase to 1.5 degrees C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change."⁴

[Sidebar] The Carbondale Community Weighs In

Largely, the Carbondale community has a great acceptance that climate change is

¹Earth Sets a Temperature Record for the Third Straight Year. NYT
²2016 hottest year ever recorded – and scientists say human activity to blame. Guardian
³Adoption of the Paris Agreement; see text: http://www.npr.org/sections/energy/2015/12/12/456502597/2-degrees-100-billion-the-world-climate-agreement-by-the-numbers
⁴Adoption of the Paris Agreement; see text: http://www.npr.org/sections/energy/2015/12/12/459402287/2-degrees-103-billion-the-world-climate-agreement-by-the-numbers
caused by human activities, and a favorable view of the government working to enable the community change. Results from 2016 Energy and Environment Survey Include:

- 93% agree that the earth is getting warmer. The climate is changing;
- 87% agree that human caused emissions are causing climate change;
- 83% agree that technology will not solve climate changes without any changes in individual behavior;
- 81% agree that government should be involved in addressing climate change.

84% agree that governments should offer voluntary programs that enable citizens and businesses to reduce climate change.

- 77% agree that governments should enact legislation and regulations to reduce climate change;
- 89% agree with the statement: "I feel a personal obligation to reduce greenhouse gas emissions."

*This survey ran from June 2016 to December 2016 and received responses from 406 residents of Carbondale, who voluntarily participated in the survey.

"If present trends continue, this century may well witness extraordinary climate change and an unprecedented destruction of ecosystems, with serious consequences for all of us."

- Pope Francis, Laudato Si

Planning for a resilient future

Despite Carbondale’s successes in reducing GHG emissions locally, the climate is already changing. Projections for the future suggest that local shifts in climate could bring warmer winters and drier summers. These changes could lead to cascading impacts, including exacerbating wildfire conditions, putting extra pressure on water providers and users, impacting the recreation economy, and threatening other sectors of the Carbondale community.³

Projections have led communities around the world to engage in resiliency planning to ensure that they are equipped to address climate-related vulnerabilities. Carbondale among them. Resiliency planning (also referred to as "adaptation planning") is a twofold process.

1. First, it is an analysis of projected climate change impacts

2. Using this information, it then entails the development of strategies that can work to limit the scale of the impacts and the costs of climate-related vulnerabilities.

Existing efforts include:

- Water studies performed by the *Colorado Water Conservation Board*; the availability and flow of water has been studied under different climate scenarios
- Efforts to mitigate wildfire hazard and increase wildfire response capacity (ADD INFO)
- Participation in the *Colorado Local Resilience Project: Carbondale*, along with representatives from 30 local governments around Colorado identified actions that could be implemented to make communities more resilient to climate change-related risks.
- In 2017, Garfield County is updating the countywide 2012 Hazards Mitigation Plan

Local community members are concerned about how these climate-related impacts will affect the environment, their businesses, and their personal well being.

[Sidebar: Community Spotlight: Roaring Fork Food Alliance] The Roaring Fork Food Alliance provides a platform for coordinated action throughout the Roaring Fork Valley and Colorado River Valley in support of a thriving local food system. The Alliance developed out of a grassroots coalition that includes producers, consumers, educators, and policy makers. The Alliance considers local food production to be one of the biggest climate change issues. As changes in precipitation and seasons become more amplified, agriculture and food supply around the world will be impacted. The Roaring Fork Food Alliance calls for these impacts to be accounted for in future planning and believes that projections underscore the importance of a thriving local food system to supply the region with nutritious food.

Economic and Community Benefits

Again and again there is evidence that taking action on climate change results in a multitude of co-benefits.

In particular, clean energy is a “jobs bonanza” and Carbondale is well prepared to take advantage of the clean energy economy. In 2014, the number of solar jobs in the United States were roughly equivalent to the number of coal industry jobs. Carbondale already has at least 36 companies that perform energy efficiency or clean energy projects across the region between 2010 and 2015. These companies range from general contractors who have learned building science principles and efficiency practices, to solar design and installation companies, and even innovative efficiency technology developers.

In addition to supporting the clean energy economy, the transition to carbon neutrality will provide additional community benefits and economic opportunities, including:

- Lower utility bills. The community spends over $7 million every year paying for electricity and natural gas. When families save on their utility bills, they are more likely to spend that money locally. When businesses save on their utility bills, they likely invest those savings into more product, more staff or improved equipment to help their business increase productivity.

[Source: Vox Media. There are about as many solar jobs as coal jobs in the US. Brad Plumer, Jan 18, 2015. http://www.vox.com/2015/1/18/7736229/solar-jobs]

- Safer, more comfortable, and more affordable buildings: Initiating energy efficiency upgrades in buildings can have a big impact. Increased access to public transit and alternative transportation: this can reduce air pollution emission and reduce road congestion.
- Improved transportation infrastructure: to improve biker and pedestrian safety. It also works to improve public health by getting more people moving.

It’s clear, just as climate change affects everyone, climate action can benefit everyone.

[Sidebar] Why do You Act on Climate?

- Our future, our kid’s future
- Clean air and clear water
- The health impacts of climate change
- It’s cheaper to mitigate now
- The economic vitality of our valley which relies heavily on healthy natural resources and snow
- The public benefits of acting on climate
- The economic benefits of clean energy
- Once you’re aware, you’re responsible
- To prepare for community resilience – how we will bounce back
- Frustration with climate denial, and would rather put my energy into proactive, positive change
- It is exciting to witness the transformation

(Source: Stakeholder responses from meeting 1)
Background

Reducing global carbon emissions is not a challenge that Carbondale can solve alone, but Carbondale can play a key role. Coordination of local, regional, state, federal, and global action, as well as partnerships, are required to address the climate challenge. In particular, local governments serve an invaluable role in modeling replicable solutions and helping its citizens take action.

Local Commitment

The Town of Carbondale has demonstrated a commitment to climate action, starting with pledges and efforts made over two decades ago. This 2017 Energy and Climate Action Plan, and its more aggressive emission reduction goal, is the latest in a series of actions and represents advances in the strategies on how to best address climate change. Below is a summary of the energy and climate protection targets the Town has adopted.

Mayor's Climate Protection Agreement (2005)
The Town of Carbondale joined the Cities for Climate Protection Campaign by adopting the US Mayor's Climate Protection Agreement. The Agreement outlined the threat posed by climate change, and the preventative steps cities could take, resulting in a commitment to developing an emissions reduction strategy. (Please verify the relationship between the Cities for Climate Protection Campaign and the US Mayor's Climate Protection Agreement is accurate.)

In 2006 the Town moved forward developing and adopting an emissions reduction strategy, the Energy and Climate Action Plan.

Through community meetings involving over 150 citizens, the following goals were developed to guide emission reduction efforts:

- Reduce emissions directly attributable to Town facilities and Town operations by 25% by 2010 through increasing energy efficiency in all buildings and operations, and increasing the percentage of renewables.
- Reduce community-wide CO2 emissions by 25% below our 2004 base year by 2012.
- Turn emissions reduction efforts into an economic advantage by reducing household, business, and local government energy bills; keeping more money currently spent on energy flowing in the local economy; and investing in existing jobs/creating jobs tied to sustainable energy.
- Leverage community investments to obtain 25-50% of non-community funds or significant investment returns to create new economic activity, through installations of renewable energy production on municipal facilities, homes, and businesses.
- Obtain at least 30% of our energy for heating and electricity from renewable sources by 2015.
- Develop a resource-efficient building ethic in Carbondale to serve as a model for other communities.

Garfield Clean Energy (2009)
Garfield Clean Energy Collaborative (which, grew out of Garfield New Energy Communities Initiative) is an intergovernmental authority which uses energy efficiency, renewable energy and alternative fuels to build a more resilient economy. In addition to the Town of Carbondale, GCE is comprised of the following members: Garfield County, the Town of Parachute, City of Rifle, town of Silt, Town of New Castle, City of Glenwood Springs, Roaring Fork Transportation Authority and Colorado Mountain College.
As a member of Garfield Clean Energy, the town adopted the following goals:

1. Increase per capita energy efficiency by 20% by 2020 over a 2009 baseline.
2. Reduce petroleum consumption 25% by 2020 over a 2009 baseline.
3. Obtain 35% of energy from renewable sources by 2020 over a 2009 baseline.

All as a means to a stronger, more resilient, energy-secure economy.

The Energy Action plan launched energy efficiency and renewable energy action planning county-wide. Through Xcel Energy’s Partner in Energy Savings program, this plan was developed with input from all municipalities in Garfield County, CLEER, utilities, and local contractors. The adoption of this plan commits Carbondale to the following goals:

Collaborating with local governments, utilities, non-profit organizations, and businesses, GCE’s overarching goal will be to achieve 30 percent increase in energy efficiency over the Garfield 2015 baseline by 2030 and to obtain between 35 and 50 percent of energy from renewable sources by 2030.

Federal, State, and Regional Commitments

This report focuses on how the Town of Carbondale can reduce emissions locally, but acknowledges the additional significant work being done elsewhere. The efforts of the United States, Colorado, and neighboring communities can drive and enhance local efforts. For example, statewide action will reduce the carbon content of electricity through the Renewable Energy Standard, including the electricity provided to Carbondale homes and businesses. The cleaner energy resulting from this effort will be fundamental in supporting the emissions reduction efforts in Carbondale.

This section does not represent a comprehensive list of climate action efforts, but illustrates how Carbondale’s efforts can support, and be supported by, federal, state, and regional efforts. Addressing climate change is most successful through partnerships, with the initiatives below providing inspiration how collaboration can drive deeper reductions.

United States Goals and Initiatives
In 2016 the United States ratified the Paris Agreement, committing to hold global temperature rise to “well below 2 degrees Celsius” above pre-industrial levels. Following the agreement, the US submitted a national plan for curbing greenhouse gas emissions. Specifically, the US plan pledges to reduce greenhouse gas emissions 26 percent to 28 percent by 2025 (as compared to a 2005 baseline). One of the centerpieces of the plan is the Clean Power Plan, which set national standards on reduction carbon pollution from existing power plants (currently stayed by the Supreme Court).

Additionally, the Environmental Protection Agency has used its authority under the Clean Air Act to regulate emissions through fuel efficiency standards, and more.

7 Source:
http://www4.unfccc.int/submissions/INDC/Published%20Documents/United%20States%20of%20America/1U.S.%20Cover%20Note%20NDC%20and%20Accompanying%20Information.pdf
Colorado Goals and Initiatives
Colorado has adopted statewide legislation to address climate change and reduce greenhouse gas emissions.

Colorado Climate Action Plan
The Colorado Climate Action Plan was developed in 2015 to meet the requirements of Colorado House Bill 12-1239. This plan articulates a strategy to reduce greenhouse gas emissions at the state agency level through state level legislation, as well as improve Colorado’s ability to adapt to future climate change impacts.

Milestone greenhouse gas emissions legislation includes the following:

- Emissions Reduction Commitment (2008) — formally declared emissions reduction goals of 20% by 2020 and 80% by 2050 (below 2005 levels)
- The Clean Air Clean Jobs Act (2010) — convert coal-fired power plants to natural gas and other lower emitting sources
- Regulation of methane emissions (2014) — measures for methane emissions from the state’s oil and gas industry

Regional Goals and Initiatives
Many regional local governments are monitoring their own GHG emissions in order to reduce their impact on climate change. A few examples include:

Aspen
Emissions Reduction Targets: 30% reduction by 2020; 80% reduction by 2050 (compared to a 2004 baseline)
Climate Action Plan: the 2017 Climate Action Plan, which builds on the 2007 efforts

Eagle County
Emissions Inventory: baseline inventory completed for 2014
Emissions Reduction Targets: 25% reduction by 2025; 80% reduction by 2050 (as compared to a 2014 baseline)
Climate Action Plan: the 2016 Climate Action Plan for the Eagle County Community

Carbon Neutral Commitments

For most communities, a carbon neutral commitment means an 80% reduction in emissions by 2050. Many refer to this as the “80x50” challenge. The carbon emissions reduction amount is in line with scientific analysis for what it will take limit the increase in earth’s temperature. While they have all set these long-term commitments, there are interim goals established as well. See the sidebar for more about how communities are planning for the “80x50” challenge. Here are sample commitments from communities around the world:

- Copenhagen, Denmark: 100% carbon neutral by 2025
- Colorado Mountain College: carbon neutral by 2050
- Oslo, Norway: 100% fossil fuel free carbon by 2030
- Park City, Utah: net zero municipal operations by 2022. net zero community wide by 2032
- Seattle, Washington: carbon neutral by 2050
- New York City, 80% GHG reduction by 2050

[SIDEBAR] Carbondale is not alone in this effort. The Carbon Neutral Cities Alliance (CNCA) promotes best practices to achieving long-term, aggressive carbon reduction goals. Source: Carbon Neutral Cities Alliance, “Framework for Long-Term Deep Carbon Reduction Planning”
The "80x50" Challenge
A growing number of cities worldwide have committed to reduce carbon emissions within their boundaries by at least 80 percent or more by 2050 or sooner, in line with consensus scientific analysis of climate change imperatives. Most cities' climate action plans focus on interim goals on the way to 80x50, shorter time horizons, such as 2020 or 2030, accompanied by incremental reduction targets of 20-30 percent. No city has detailed strategies and plans for getting all the way to the 80x50 target yet, and there are large gaps in what cities know about exactly what will need to be done to reach the ambitious 2050 targets. There is wide recognition among the cities that doing so will require a fundamental, transformational redesign of core systems and the development of new technologies.

5. Carbondale’s Energy Picture and Results to date

Carbondale Community Wide Energy and Emissions

Emissions from building energy use since the 2005 Climate Action plan have reduced by approximately 36% according to data compiled in 2004 compared to the data compiled in 2015. This is a huge success and important for the community to acknowledge this progress. As detailed in the next section, the Town government and local organizations have implemented programs, services and investments to make this progress happen. In addition to local actions,
It's important to acknowledge that statewide and regional changes were enacted in the years closely following the 2004 inventory that was completed by Carbondale energy professional Joani Matranga. These changes impacted the energy supply from the utilities and explained with charts [cx,xx] on the next page.

The community of Carbondale spends over $7 million annually on building energy use.

The Carbondale community spends over $7 million every year on electric and natural gas bills. When the community saves on utility bills, that creates significant funds that can be spent on other local purchases. Carbondale residents spend over $4.5 million on the bills to heat and light their homes and apartments. Housing is the largest contributor to emissions compared to other building types in Carbondale. In order for Carbondale to reach the climate reduction goals, it is imperative that households get engaged and do what they can to become more energy efficient. Households are responsible for 57% of the emissions in the built environment in Carbondale.

Energy Supply
When reviewing energy data consumed by the community over a period of time, it is important to evaluate how the energy supply from utility companies have changed at the same time. Important state policy helped spur these changes and the utilities have since embraced adding more renewables to their mix:

- In November 2004, Colorado voters passed the Renewable Energy Portfolio standard, requiring Investor Owned Utilities (Xcel Energy was one of those) to supply 10% of their retail electric sales from renewable sources by 2020 (This was the first RPS passed by a ballot initiative in the Country).
- In September 2004, Holy Cross Energy launched their We CARE program, providing efficiency and renewable rebates.
- The Colorado Legislature has added to the RPS three times since 2004, added electric cooperatives to the Renewable Energy Portfolio Standard and increasing the requirements for electric coops to 20% and investor owned by 30%.

Below are two charts and explanations for how Xcel Energy and Holy Cross Energy have added more renewables and reduced their carbon emissions since 2005.

![Colorado CO₂ Emissions Chart]

Xcel Energy CO₂ emissions have been reduced by 25% since 2005.

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Transportation

Transportation data is notoriously difficult to gather without significant financial investment. In the absence of a travel patterns study for Carbondale, or extensive measurement devices (such as transportation counters), the emissions analysis relied on county-wide data and is informed by regional, national, and state trends. These trends, as well as Roaring Fork Transportation Authority’s 2014 update of the Regional Travel Patterns Study (RTPS), are used to drive the calculation of transportation emissions locally.

The Colorado Department of Transportation data for Garfield County was used to determine the contribution transportation makes to overall emissions. In Carbondale, transportation represents approximately 45% of overall emissions. In particular, emissions primarily result from gas-powered cars and trucks.

It is important to note that this results are in line with regional and national patterns. The City of Aspen’s 2014 Greenhouse Gas Emissions Inventory did include a detailed transportation study for the City and they found that 77% of emissions attributed to vehicles were from gasoline powered passenger vehicles. *

Carbondale residents' use of public transit, biking and walking is higher than the national average. According to the 2014 RTPS, an analysis of commute mode reveals that while the majority of Carbondale residents drove alone (52%), a significant portion relied alternative transportation 14%

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* City of Aspen 2014 Greenhouse Gas Emissions Inventory.
carpoled, 28% used a bus, 2% walked and 5% biked. As one might expect, the summer commute mode share reflects a greater reliance on walking and biking (at 3% and 17%, respectively).

![Winter Resident Commute Mode Share](image)

![Summer Resident Commute Mode Share](image)

Source: Carbondale Profile, RTPS

**Actions implemented since 2006: Progress to Date**

The community of Carbondale has a long history of being involved in the clean energy industry. As the data demonstrates in the prior chapter, the community has achieved community-wide emission reductions and we know that some of those savings can be attributed directly to the actions taken by the Town government, the local schools, businesses and families.

[need to insert participation and economic investment figures.]

Since the adoption of the Plan, the Town of Carbondale has made major strides towards adopting and implementing the identified actions (almost 75 recommendations). The planning team has put together a broad summary of the achievements made between 2006 and 2016.

This summary is organized around the 2006 Plan’s five key strategies:

1. Town government actions: lead by example
2. Change the rules that influence energy use
3. Create programs to remove barriers to wiser energy use
4. Increase local renewable energy supplies
5. Cultivate clean energy jobs and businesses

To view the original 2006 Plan in its entirety, please find the document at Carbondalegov.org.

The table of achievements can be found in Appendix B. The authors encourage everyone to review how much has been accomplished community-wide in Carbondale.

Goals

"Reducing greenhouse gases requires honesty, courage and responsibility." — Pope Francis, Laudato Si

By 2050, Carbondale will be carbon neutral. This means that the community will achieve a balance of greenhouse gas emissions under which the net emissions associated will be zero. The carbon emitted will be balanced through renewable energy, efficiency measures, etc. [team working on better definition of carbon neutrality]

[Sidebar] Carbon Neutral City = the net greenhouse gas emissions associated with a city is zero. (Source: Carbon Neutral Cities Alliance)

To reach this ambitious goal, a roadmap of targets was developed using a linear method. A linear method calls for an annual emissions reduction of 2.17%.

- Targets
  - 34% by 2020
  - 50% by 2025
  - 57% by 2030
  - 67% by 2035
  - 78% by 2040
  - 89% by 2045
  - 99% by 2050

  * all goals are measured against a 2004 baseline.

The interim goals represent one opportunity to assess progress towards becoming a carbon neutral town. However, stakeholders also identified sector-specific targets. These targets include:

- Grow bike and walking mode share by 2% annually over the 2014 Regional Travel Patterns Study level

[Add more]

[Sidebar: The Art of System Change Carbon] System transformation requires multiple strategies, alignment of stakeholders around an ambitious carbon emissions goal, a vision for what the redesigned system will look like, policy decisions at multiple levels of government, enormous capital investments by government and the private sector, and behavior changes by enterprises and individuals. All these components have to be balanced while meeting system performance requirements such as service availability, reliability, and affordability, which have implications for previous
Investments (in utilities or property, for instance) and on future costs of essential services. These changes have to be sequenced and sustained for several decades in the face of uncertainties brought on by election cycles, new technologies, and energy market volatility. Culture change, in particular, can be a slow-moving transition on the way to a ‘tipping point’ in which people’s expectations and habits have become radically different.

Source: Carbon Neutral Cities Alliance, *Framework for Long-Term Deep Carbon Reduction Planning*

**Action Steps**

No single action can be deployed to reach carbon neutrality, the actions listed here work together to form a comprehensive plan. Together, the 2017 *Energy and Climate Action Plan* identifies over XX actions that will boost energy efficiency in buildings, increase the amount of energy generated by renewable sources, increase alternative modes of transportation, and reduce the amount of waste sent to the landfill. While emissions related to growing and transporting food are not quantified, increasing growing and purchasing of local foods was also identified as an area for action. The actions are grouped into five strategy areas:

- Buildings Energy
- Energy Supply and Renewable Energy
- Transportation
- Waste Reduction and Reuse
- Local Food and Purchasing

All actions included in this plan were selected through a thorough evaluation process. Recommendations were well-researched and collaboratively developed, relying on input from key stakeholders, including the Environmental Advisory Board, the Citizens Advisory Group, and experts in their field. A number of the listed actions build-on or accelerate existing programs, while a number identify new opportunities to reach carbon neutrality. The majority of the listed actions are voluntary efforts as incentivizing change has been a proven lever that can accomplish goals. In instances when voluntary initiatives do not produce the desired results mandates may be recommended.

It should be noted that actions have not been prioritized in terms of community benefits, carbon reduction potential or cost.

**Potential Partners**

The Town of Carbondale will lead the implementation of the action items. But the Town can not complete all action items alone, partnerships will continue to be key to achieving success. In addition to collaboration with residents and businesses, local entities will be relied upon for support. The climate action team has identified potential partners that may be able to offer support. In areas in which the Town does has less control, the Town will advocate for regional or state policies and work to influence change.

**Example Programs**

Example programs and case studies from other communities helped to guide the development of these action steps. Links to other programs are included to further drive efforts and inspire change.
Buildings Energy
The energy used to heat and power buildings is the community of Carbondale’s greatest source of greenhouse gas emissions: building energy use accounts for approximately 57% of carbon emissions in Carbondale.

This section identifies actions to reduce emissions in existing buildings and new buildings, leveraging the Town’s role as a model, targeting workforce, and education campaigns.

Strategies:
1. Lead by example: improve energy efficiency of Town buildings
2. Boost energy efficiency in existing commercial and residential buildings
3. Encourage sustainable energy choices through education, market demand, social norming, and community campaigns
4. Build it Right from the Start
5. Increase the number of quality builders and contractors to ensure buildings are energy efficient, durable, and safe

Strategy 1: Lead by example: improve energy efficiency of Town buildings

Action Steps

<table>
<thead>
<tr>
<th>Effectively manage municipal energy use</th>
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</thead>
<tbody>
<tr>
<td><strong>Tactics</strong></td>
</tr>
<tr>
<td>Adopt an energy and resource efficient target for municipal operations</td>
</tr>
<tr>
<td>Build/remodel all new municipal buildings to be net-zero energy use</td>
</tr>
</tbody>
</table>
### Increase energy efficiency and energy performance of municipal operations

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximize energy efficiency improvements. Building on gains to date</td>
<td>Continue to dedicate funds to retrofit existing buildings so that they perform like new buildings.</td>
<td>GCE/CLEER</td>
<td>See all buildings and data at: <a href="http://garfield.buildingenergynavigator.com/">http://garfield.buildingenergynavigator.com</a></td>
</tr>
<tr>
<td>Use energy audits to strategize improvement projects</td>
<td>To strategize upgrades, consult the engineering-level energy assessments that were performed at nine municipal facilities to identify opportunities for energy-saving projects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade all lighting to LED</td>
<td>Projects may include lighting upgrades</td>
<td></td>
<td></td>
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<tr>
<td>Develop a capital replacement plan for major equipment</td>
<td>This will help ensure that replacements are made with approved energy efficient equipment and equipment replaced before failure saves in costs.</td>
<td></td>
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</tr>
</tbody>
</table>

### Strategy 3: Boost energy efficiency in existing commercial and residential buildings

#### Action Steps

| Continuously improve, expand and accelerate existing building energy programs |
|---|---|---|---|
| Tactics | Additional Details | Potential Partners | Examples |
| | | | | |

23
| Targeting the highest users in town for energy monitoring to facilitate demand shedding | Grocery stores, marijuana growers |
| Increase new participation in energy efficiency programs | Education, outreach and engagement campaigns will continue to be an important tool to spur energy efficiency projects. Example campaigns may include “neighborhood blitzes” to target neighborhoods and the development of more case-studies showcasing energy retrofit successes. |
| Increase energy assessment uptake to reach more homes and businesses | For example, continue and expand the Town of Carbondale’s free assessment program for up to 20 homeowners. Continue providing free walkthroughs for businesses to identify easy opportunities. |
| Promote existing financing options | Residential: Garfield Clean Energy Revolving loan fund Commercial: Colorado Commercial PACE Financing Provide educational presentations to local business organizations on all financing and grants available for projects. Provide a presentation to the Carbondale Chamber in 2017 |
| Continue to promote new energy efficient technologies using existing rebate programs | Continue to introduce new technology that enables more participation in energy efficiency, such as “smart” or “Wi-Fi enabled” thermostats. |
| Expand complementary Energy Coaching services to pair professionals with homeowners during remodels Assign Energy Coach during remodels | Develop a “matchmaking” service for homeowners and efficiency professionals. During the permit process for remodels, the building department would ask that the builder/owner be assigned/ connected to a local Energy Coach Consultant for guidance on available rebates and best practices. |
| Designate carbon-neutral or net-zero districts and targets areas of town, one neighborhood at a time | Taking a neighborhood approach lays the foundation for future community-wide action. The idea is to select one part of town, ideally a mixed use and mixed housing stock and focus on engaging those owners and renters in strategies (mostly strategies listed below) to create a process. |

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>Implement a sustainability certification for local businesses</td>
<td>Certification to recognize businesses that meet the energy standards</td>
<td></td>
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</tr>
<tr>
<td>Consider requiring energy code compliance with remodel permits</td>
<td>Many homes and businesses experience remodel projects during their life. The 2015 IECC has added a section on additions, renovations, remodels &amp; repairs for residential &amp; commercial. It specifies thresholds and limits for action on existing construction. The town code should be amended as it is adopted.</td>
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<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>Provide education on green leasing</td>
<td>Green leases are rental agreements that allow tenants and landlord to work together to save money and energy in which tenants commit to energy conservation and other sustainable actions.</td>
<td></td>
<td><a href="https://www.go-gba.org/resources/green-building-methods/green-leasing/">https://www.go-gba.org/resources/green-building-methods/green-leasing/</a></td>
</tr>
<tr>
<td>Evaluate a policy to require energy efficiency at time of sale for a rental property</td>
<td></td>
<td>City of Burlington’s Minimum Rental Housing Time of Sale Energy Efficiency Standards Ordinance addresses insulation and thermal performance at the time of sale for a rental property.</td>
<td></td>
</tr>
<tr>
<td>Evaluate a policy to require all rental housing is brought up to meet basic energy efficiency standards</td>
<td></td>
<td>Boulder’s SmartRooftop program</td>
<td></td>
</tr>
</tbody>
</table>
Strategy 4: Encourage sustainable energy choices through education, market demand, social norming, and community campaigns: encourage climate friendly energy habits to reduce energy use in homes. Using a variety of strategies which could include social norming, utility bill plans, etc. to show how individual actions impact energy use.

Action Steps

<table>
<thead>
<tr>
<th>Tactics</th>
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<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborate with youth and schools to promote climate-friendly energy choices</td>
<td>Incorporate energy conservation and energy efficiency into school curriculum or school energy clubs to raise awareness of energy issues. Conservation lessons can extend to how students can practice these methods at home and in their community.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage healthy competition and peer pressure to make saving energy a social norm and community value</td>
<td>Residential: Develop programs that create healthy competition between neighbors or neighborhoods. Commercial: Consider business of the year contests that showcase businesses making changes to save energy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide education on utility rates</td>
<td>Time-of-use rates can be optimized for utility bill savings. A time-of-use rate plan can be used to help reduce utility bill costs. The utility offers lower rates when the demand is low (and conversely, offers higher rates when the demand is high). A program is currently available through Holy Cross Energy and will become available through Xcel Energy. - Consider an event for carbondale businesses to specifically educate on financing options, demand shaving, and project ROI. Bring in a local champion (alpine bank?) to educate businesses.</td>
<td></td>
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</table>

[SIDEBAR] Community Spotlight: School programs can impact home energy savings - Rueben Gomez

Strategy 5: Build It Right from the Start: all new buildings should be super efficient and include on-site renewables

Action Items
### Ensure all new construction achieves energy standards

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Leverage building energy codes to ensure minimum level of energy efficiency in new construction</td>
<td>The Town should continue to review and adopt the highest building codes standards.</td>
<td>Town of Carbondale, Colorado Code Council, Colorado Energy Office, Jeff Dickinson</td>
<td></td>
</tr>
<tr>
<td>Develop opportunities to incentivize above-code buildings</td>
<td>Develop incentives for buildings that exceed code requirements. In addition to financial incentives, rewards could include discounted or delayed permit fees, priority code processing and review, expedited plan approvals, priority field inspections, and discounted utility hook-up fees.</td>
<td></td>
<td>Ex. Add code alternative for Zero Energy Home levels - Link to CORE grant for funding</td>
</tr>
<tr>
<td>Increase the number of new buildings that achieve green building or energy efficiency certifications</td>
<td>Encouraged certifications and rating systems could include the Energy Star certification, the US Green Building Council's Leadership in Environmental and Energy Design (LEED) certification, the Department of Energy's Zero Energy Ready certification, and more.</td>
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</table>

### Recognize achievement in new construction

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<th>Tactics</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>Showcase exemplary performance using existing communication channels</td>
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<tr>
<td>Develop a recognition program</td>
<td>See Eagle’s comm program?</td>
<td></td>
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</tbody>
</table>

**Sidebar** Zero Energy Homes

Increase the number of buildings that are not zero energy homes. These low energy buildings are the next level of home performance. These homes produce the same amount of energy that they consume (on an annual basis). (Add specific case study or showcase)

**Strategy 6:** Increase the number of quality buildings and contractors to ensure buildings are energy efficient, durable, and safe

**Action Items**
## Promote qualified workforce and good green jobs

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>Recognize qualified contractors, architects, and consultants</td>
<td>Add a continuing education requirement for contractors and builders brainstorm how to leverage existing mechanisms (such as the contractor licensing department) to incorporate continuing education requirements. Establish a regional certification program: recognize and support builders and contractors who want to provide a high level of energy performance services.</td>
<td>Board of Examiners for Standardized Testing Card (B.E.S.T.)</td>
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## Provide necessary resources on green building and building energy science

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<th>Tactics</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>Develop network to provide technical assistance</td>
<td>Informal sharing of info among practitioners.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure access to educational resources</td>
<td>Bring educational information to the workforce. This may include educational posters at construction sites and mobile apps such as &quot;Construction Instruction.&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Host and/or promote workshops and trainings</td>
<td>Conduct outreach to workforce on workshops and trainings. Educational topics may cover energy efficiency concepts, code requirements, financing opportunities (such as PACE), and more</td>
<td>International Code Council (ICC), Colorado Energy Office (CEO), Department of Energy (DOE), etc.</td>
<td></td>
</tr>
<tr>
<td>Collaborate with all actors influencing building performance</td>
<td>Involve builders, architects, engineers, etc.</td>
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</table>

## Initiate comprehensive programs and advocate for regional/statewide policies
<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
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</table>

[sidebar] Community Spotlight: Marble Distillery

[sidebar] Community Spotlight: WWTP, and Rec Center
http://www.garfieldcleanenergy.org/gov-case-study-wastewater-plant.html

Renewables and Energy Supply

Carbondale’s strategic approach to achieving carbon neutrality involves new renewable energy generation and the elimination of fossil fuels from grid-supplied electricity. This approach involves reducing energy consumption, and then transitioning towards renewable energy.

1. Reduce energy consumption. The Renewables and Energy Supply sector is complementary to the Buildings Energy sector, as the overall demand for energy needs to be reduced through energy efficiency and energy conservation programs. Reducing the demand for energy is the most cost-effective way to pave the path for renewable energy.

2. Increase the supply of renewable energy. Switch to renewable forms of energy such as rooftop solar and community solar arrays.

(Add more)

The primary renewable energy sources available locally are solar photovoltaic (PV) systems, solar thermal (or "solar hot water") systems, and heat pumps.

- Solar PV: solar modules (composed of photovoltaic cells) convert the sun’s energy into electricity
- Solar thermal: collectors circulate a fluid that is heated with the sun’s energy. This system can support a building’s hot water or space heating needs
- Heat pumps: heat in the air or in the ground is used to provide a building’s hot water or space heating needs

Through policies already in place, Carbondale’s electricity supply will become less carbon-intensive. It is worth noting that the Public Utilities Commission, rather than the Town of Carbondale, has control over the utility providers. For actions outside the Town’s control (such as de-carbonizing the grid), the Town will foster change through advocacy, partnership and support.
[Sidebar] Power Purchase Agreements

What is already being done. [Add more]

Strategies:
- Lead by example: expand the amount of renewable energy delivered to Town buildings
- Accelerate the installation of renewable energy systems on homes and businesses
- Evaluate neighborhood or district renewable energy systems
- Advocate for comprehensive policies at the regional and state-level

Strategy 1: Lead by example: expand the amount of renewable energy delivered to Town buildings

Action Steps

| Supply a greater percentage of municipal building's energy from renewable sources |
|---|---|---|---|
| Tactics | Additional Tactics or Description | Potential Partners | Examples |
| Continue to seek out renewable energy sources | Explore opportunities to expand on-site systems and utility-scale solar farms. | (Add example) |
| Continue to explore financing mechanisms to support the delivery of more renewable energy | Continue to leverage Power Purchase Agreements at remaining sites. | (Add example) |

Strategy 2: Accelerate the installation of renewable energy systems on homes and businesses

Action Steps

<p>| Expand incentives and participation in programs |
|---|---|---|---|
| Tactics | Additional Tactics or Description | Potential Partners | Examples |
| Pilot a bulk purchase campaign for solar PV | A bulk-buy or group-buy program can bring down the | | The Solar Energy |</p>
<table>
<thead>
<tr>
<th>Education and promotion of available financing mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tactics</strong></td>
</tr>
<tr>
<td>Develop guides and resources to connect homes and businesses with information on renewable energy systems and financing</td>
</tr>
<tr>
<td>Convene a roundtable with solar thermal installers to discuss barriers to household installation and strategize how to address the barriers</td>
</tr>
</tbody>
</table>
**Strategy 3: Evaluate neighborhood or district renewable energy systems**

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot a micro-grid development project within the town</td>
<td>Partner with utilities to identify and pilot a micro-grid project in the Town of Carbondale, which entails efficiency, load control, on-site solar and storage and maybe includes residential and commercial.</td>
<td>Holy Cross Energy</td>
<td>NY?</td>
</tr>
<tr>
<td>Discuss feasibility of district heating systems for proposed new developments.</td>
<td></td>
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</tbody>
</table>

**Strategy 4: Advocate for comprehensive policies at the regional and state-level**

**Action Steps**

**Influence, partner and support policies to expand renewable energy**

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocate for improved utility infrastructure and battery storage incentives to meet the needs for distributed power.</td>
<td>Work with utilities to ensure that the grid can meet all of Carbondale's needs. This includes addressing issues of interconnecting renewables into the grid.</td>
<td>Holy Cross Energy, Xcel Energy</td>
<td></td>
</tr>
<tr>
<td>Advocate for more stringent renewable energy standards.</td>
<td>Partner to increase the grid-supplied renewable energy.</td>
<td></td>
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</tr>
<tr>
<td>Advocate for renewable energy and energy storage incentives at the state and federal levels.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Advocate for local community solar arrays</td>
<td></td>
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</tbody>
</table>
Transportation

Why focus on this area?

In Carbondale an estimated 45% of overall emissions came from the vehicles used to move around Carbondale, largely a result of the gasoline-powered passenger vehicles. By 2050 trips need to be made by foot, bike, public transit, and clean vehicles (low or zero emissions vehicles).

Walking and cycling are popular methods already. Largely, Carbondale residents agree that bicycling in Carbondale is safe, convenient, and that there is easy access to bike paths (75% of survey respondents). Accordingly, pedestrians and bicyclists are commonly seen around town. Strategies address improvements in safety, convenience, as well as making these active transportation modes fun.

(Add context? Countywide, transportation accounts for an estimated over x% of energy ... In the US, emissions from passenger vehicles generally represent one of the largest portions of a community’s greenhouse gas emissions.)

What is already being done:

- The expansion of EV infrastructure and charging stations. Since 2010 public charging stations have been installed around town, including at Town Hall, Colorado Mountain College, Third Street Center, Roaring Fork High School and the RFTA Bus Rapid Transit (BRT) Station.
- Extensive programs that continue to build and celebrate bike culture such as Ride Garfield County and Bike Week.
- Highway 133 improvements were designed with bikes and pedestrians in mind, improved safety and the new west-side trail with fewer driveway crossings.
- The Rio Grande Railroad Corridor, which includes the Rio Grande Trail, makes it possible for Carbondale residents to bike and walk to Glenwood and Basalt: some Carbondale residents commute by bike to other towns in region.
- RFTA continues to diversify its fuel sources, including clean diesel, compressed natural gas (CNG) and assessment of battery electric buses.

[Sidebar: Carbondale Circulator; RFTA secured a grant for the purchase of a smaller CNG-powered circulator bus that was wrapped with art from middle school students.] [Add more information: https://www.rfta.com/carbondale-circulator-unveiling]

[Sidebar: Carbondale Benefits from Being A Member of RFTA: RFTA is the second largest transit system in Colorado and the largest rural transit system in the country. In 2015, system-wide ridership was 4.8 million riders. Carbondale is hub for activity; it has one of eight Bus Rapid

\[19\] RFTA. CARBONDALE Travel Patterns Community Profile

Transit (BRT) (or "VelociRFTA") stations where passengers can catch all bus services; and, the Carbondale BRT station has some of the highest passenger boardings in the system.

**Strategies**

1. Lead by example:
2. Accelerate in-town and regional efforts to encourage biking, walking, telecommuting, use of transit and carpooling (Regional Transportation Demand Management)
3. Continue to accelerate adoption of cleaner vehicles and lower-carbon options, including electric vehicles (EVs)
4. Continue progress on land-use/mobility linkages and community design strategies that support biking and walking and reduce need for driving.

**Strategy 1: Lead by Example**

**Action Steps**

<table>
<thead>
<tr>
<th>Town government actions can lead by example</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>Fleet replacement should consider low carbon vehicles, when relevant</td>
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<tr>
<td>Support alternative transportation efforts for staff and consider telecommuting if it makes sense for the job.</td>
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</tbody>
</table>

**Strategy 2: Accelerate in-town and regional efforts to encourage biking, walking, telecommuting, use of transit and carpooling (Regional Transportation Demand Management)**

**Action Steps**

<table>
<thead>
<tr>
<th>Grow bike culture through organizing and implementing ongoing events, promotions, and campaigns</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue to promote and expand community bike events</td>
<td>Restart and secure consistent funding for Carbondale Bike Week. The event was not held in 2016 due to lack of funding.&lt;br&gt; Promote the full moon bike rides and other community bike events.&lt;br&gt; Continue Ride Garfield County: work with employers and chamber to grow participation of this bike/bus competition/promotion.</td>
<td>Carbondale Rec Dept., GCE</td>
<td><a href="http://usnews.nbcnews.com/_news/2008/12/16/4377237-creating-a-culture-of-cycling-in-boulder-co">http://usnews.nbcnews.com/_news/2008/12/16/4377237-creating-a-culture-of-cycling-in-boulder-co</a></td>
</tr>
<tr>
<td>Sustain biking year-round</td>
<td>Start a winter bike commuting campaign and create media coverage of winter bike commuters</td>
<td></td>
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<tr>
<td>Promote Carbondale as “Biking Town”</td>
<td></td>
<td>Carbondale Chamber, Carbondale Rec Dept.</td>
<td></td>
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</table>

### Make biking and walking as the first choice transportation

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<th>Tactics</th>
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<th>Potential Partners</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Encourage pedestrian mobility and enhance the pedestrian experience</td>
<td>The Unified Development Code (Sec. 5.5 Transportation and Connectivity) speaks broadly to the pedestrian experience in terms of new developments and redevelopments</td>
<td></td>
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<tr>
<td>Promote biking and walking as the preferred form of transport to major community events</td>
<td>Events include First Fridays, Mountain Fair, Five Point Film Festival etc.</td>
<td></td>
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<tr>
<td>Partner with schools and parents to promote biking and walking</td>
<td>Promote neighborhood “bike train” leaders to help kids all bike to school safely.&lt;br&gt; Discuss option of kids taking bikes to school on the bus and then being able to bike home or to afterschool activities.&lt;br&gt; Restart Bike to School week to reach hundreds of families. This campaign was previously funded with CDOT Safe</td>
<td></td>
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<tr>
<td>Continue to increase bike ownership and access to bikes</td>
<td>Support the Bonedale Bicycle Project: find out what they need to serve more kids/people who need bikes. Look into communities that have program helps all kids get a bike. When families and children have functioning bicycles, studies show they bike more. Build the fleet of bikes that can be used by people who commute into Carbondale to take trips during the day. (For example, the 3rd Street Center now has 2 bikes for general use.)</td>
<td>Bonedale Bicycle Project</td>
<td>This could be modeled on the Kids on Bikes program in Colorado Springs. When families and children have functioning bicycles, studies show they bike more. Link: <a href="http://kidsonbikes.net/what-we-do/access-to-bikes">http://kidsonbikes.net/what-we-do/access-to-bikes</a></td>
</tr>
<tr>
<td>Promote electric bikes, cargo bikes and other transportation-oriented bikes</td>
<td>Organize a “Multi-use Bike Show” to bring cargo bikes, pedicabs, etc etc to Carbondale to have people try them out.</td>
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</table>

## Continue to ensure best practices in Bike/Pedestrian Infrastructure

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<th>Tactics</th>
<th>Additional Details</th>
<th>Potential Partners</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Continue to identify areas in town where bike safety and bike infrastructure can be improved and work for improvements.</td>
<td>Ensure that design for new City Market works well and fully supports trips by biking and walking. Ask for shoppers who use bikes to review site plan and bicycle infrastructure linking to the new store and confirm that getting to the story by bike is convenient and pleasant; bike parking is conveniently and prominently sited.</td>
<td>Bike and Ped Commission, RFTA</td>
<td>City of Aspen in process of completing a very comprehensive bike and pedestrian master plan update. Matt Kuhn (Parks) and Justin Foreman (Engineering) are principal contacts on that project.</td>
</tr>
<tr>
<td>Learn what is included in RFTA’s bike/ped plan and support implementation.</td>
<td></td>
<td>RFTA, We-Cycle, Bike and Ped Commission</td>
<td></td>
</tr>
<tr>
<td>Tactic</td>
<td>Additional Details</td>
<td>Potential Partners</td>
<td>Examples</td>
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<tr>
<td>Create bike share program placed at key first mile and last mile locations.</td>
<td>If placed at key first and last mile locations, a bike share program can extend the reach of transit and walking trips. RFTA is helping WeCycle expand their public bike share system as an extension of public transit. Kiosks exist in Aspen and El Jebel/Willis, and WeCycle is interested in expansion in Carbondale and Glenwood Springs.</td>
<td>Bike and Ped Commission, We-cycle, RFTA</td>
<td></td>
</tr>
<tr>
<td>Find out what we need to do to reach &quot;platinum&quot; level for Bike Friendly community.</td>
<td></td>
<td>Bike and Ped Commission</td>
<td></td>
</tr>
<tr>
<td>Promotion of Car-pooling, use of transit, and telecommuting</td>
<td></td>
<td>RFTA, City of Aspen Transportation Department, all RFTA Jurisdictions</td>
<td>Aspen's town bus routes could provide a goods case study of efficacy and network scale. Aspen WeCycle stations located near transit and key working locations also provide good examples of bike share focused on connectivity and reducing single occupancy vehicle trips.</td>
</tr>
<tr>
<td>Find out status of regional transportation demand programs that were included in planning for regional transit and advocate for strengthening these programs</td>
<td>Find out what programs are relevant to Carbondale and add them to this plan.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work with partners to continue to improve in-town transit service and how people get to and from RFTA park and ride lot; encourage utilization of in-town CNG shuttle.</td>
<td>Work session with CAP group and Trustees to focus on an expanded circulator route. Include bike share discussion in this planning. Bike share is a good first and last mile connectivity tool. As is supporting ridesharing. How about EV on demand shuttles to park and ride or Encourage use of app connected ridesharing</td>
<td>RFTA, We cycle</td>
<td></td>
</tr>
<tr>
<td>Work with car-share program in Aspen to see how car-share program could serve more than just Aspen residents and offer multiple kinds of vehicles. (Carshare program needs</td>
<td>Consider community shared vehicles include EVs for any potential community shared vehicles. Consider one town-owned EV that community residents can reserve.</td>
<td>RFTA, City of Aspen Transportation Department</td>
<td></td>
</tr>
<tr>
<td><strong>Tactics</strong></td>
<td><strong>Additional Details</strong></td>
<td><strong>Potential Partners</strong></td>
<td><strong>Examples</strong></td>
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<tr>
<td>---------------------------------------------------------------------------</td>
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<tr>
<td>Economies of scale, would be tough for just a Carbondale-based one</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work with regional partners to strengthen employer outreach to employees to encourage use of carpooling and transit.</td>
<td>Find out what the status and funding is for regional TDM: what entities are working on this and how can this effort be strengthened?</td>
<td>RFTA, Large employers in the Valley (including the Aspen Skiing Company, etc.)</td>
<td></td>
</tr>
<tr>
<td>Encourage businesses to provide telecommuting options for workers.</td>
<td>Work with Chamber to promote telecommuting examples and best practices with local businesses.</td>
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</table>

**Strategy 2:** Continue to accelerate adoption of cleaner vehicles and lower carbon options, including electric vehicles (EVs)

**Action Steps**

### Improve EV charging access and infrastructure

<table>
<thead>
<tr>
<th><strong>Tactics</strong></th>
<th><strong>Additional Details</strong></th>
<th><strong>Potential Partners</strong></th>
<th><strong>Examples</strong></th>
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</thead>
<tbody>
<tr>
<td>Improving EV charging access and infrastructure</td>
<td></td>
<td></td>
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<tr>
<td>EV policy</td>
<td>clarifying policies about EV charging in multifamily housing</td>
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</table>

### Encourage use of alternative fuels and EVs

<table>
<thead>
<tr>
<th><strong>Tactics</strong></th>
<th><strong>Additional Details</strong></th>
<th><strong>Potential Partners</strong></th>
<th><strong>Examples</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage residents and businesses to take advantage of bulk EV purchase program (Spring 2017)</td>
<td></td>
<td>GCE, CLEER, CORE, RFTA</td>
<td></td>
</tr>
<tr>
<td>Provide easy access to vehicle comparisons and promote purchase and lease options for more climate-friendly vehicles to encourage</td>
<td></td>
<td></td>
<td>Souldor, Fort Collins, a number in California (see)</td>
</tr>
</tbody>
</table>
new car purchases to take greenhouse gas emissions into consideration when purchasing a new vehicle.

Pursue funding sources and encourage innovation and use of demonstration vehicles by public sector to lead by example with cleaner vehicles as technology and fuel options evolve

Encourage RFTA and Town to adopt more green fueling options for buses and circulators.

<table>
<thead>
<tr>
<th>Strategy 3: Continue progress on land-use/mobility linkages and community design strategies that support biking and walking and reduce need for driving.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Action Steps</th>
<th>Pursue transit oriented development projects, mitigating additional growth of emissions with future developments.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tactics</strong></td>
<td><strong>Additional Details</strong></td>
</tr>
<tr>
<td>Promote concept of housing near transit and bike paths.</td>
<td></td>
</tr>
<tr>
<td>Find partners and developers to create affordable housing near transit.</td>
<td></td>
</tr>
<tr>
<td>Identify potential sites and determine what kinds of incentives, support or funding partnerships could be used to build affordable housing near transit.</td>
<td>Community Housing Requirements are included in the UDC (Sec. 5.11), there are even community housing location preferences and prioritizations outlined in this section, however there are no specific guidelines for community housing to be located near transit, or incentivized to locate near transit</td>
</tr>
<tr>
<td>Identify/remove barriers to more efficient use of land in town (for example, granny flats are prohibited in some neighborhoods; residents)</td>
<td>The Carbondale UDC has taken steps to address some of these issues, for example, Accessory Dwelling Units “ADUs” or Granny flats are now allowed in all Residential zone districts and mixed use zone districts. Some of the large PUDs however still prohibit ADUs in their covenants</td>
</tr>
<tr>
<td>Reference UDC guidelines for transit oriented development.</td>
<td>which are not regulated by the Town</td>
</tr>
</tbody>
</table>
Waste Reduction and Reuse

Why focus on this area?

Moving towards carbon neutrality calls for little to no trash being sent to the landfill. Greenhouse gas emissions are created by two primary drivers: first, as waste buried in the landfill degrades, and second during the manufacturing of goods and food. Therefore to reduce impacts on the environment it is necessary to adopt an approach that addresses waste diversion and waste reduction. Under waste diversion, waste needs to be diverted from the landfill through compost programs, recycling programs, and the repurposing of materials. Under waste reduction, the amount of waste generated needs to be reduced through practicing more sustainable consumption patterns.

Rethinking what constitutes garbage by recycling and composting presents a ripe opportunity for emission reductions. Carbondale’s trash is largely comprised of materials that could be diverted from the landfill. According to a 2014 waste audit, the three materials that make up the largest portion of the waste stream (over 65%) are papers, plastics, and organic materials.\(^\text{12}\)

In addition to garbage from homes and businesses, the construction and demolition waste (C&D) represents a waste stream that needs to be addressed. New construction, renovations and building projects produce debris that can be salvaged and reused. The building materials, concrete, and wood can be more sustainably managed and diverted for new, productive uses.

Not just for building materials, but many other products can be reused or diverted once they reach the end of their useful life. The vast majority of a product’s lifecycle emissions are created before the product even reaches the consumer during the mining of materials.

\[^{12}\text{Weaver Consultants Group, “Phase 1 Roaring Fork Waste Diversion Plan”}\]

\[^{13}\text{Portland Climate Action Plan}\]

\[^{14}\text{Information here: http://www.arkansas.org/DownloadAttachment?PassId}\]
Source: Phase I Roaring Fork Waste Diversion Plan

What is already being done:
- A single use plastic bag "ordinance" was voted on by citizens, levying a ten cent fee on paper bags and eliminating plastic bags at grocery stores 3,500 square feet or larger (Ordinance No. 6, 2012)
- The Town supports annual community-wide recycling events and "drop off days" including Waste Diversion Day and Spring Clean Day.
- Education campaigns targeting proper waste disposal, including the production and distribution of the "Roaring Fork Valley Recycling Guide" and the annual Mugshot Challenge hosted by Waste Free Roaring Fork.

Strategies:
- Lead by example
- Decrease the amount of recyclable and compostable materials entering the landfill
- Reduce waste by expanding reuse and repair initiatives
- Make it simple for everyone to participate in waste programs and waste goals

Strategy 1: Lead by example: practice reducing, reusing, recycling and composting in departments

Action Steps

<table>
<thead>
<tr>
<th>Practice reducing, reusing, recycling and composting in Town departments</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase recycling and composting</td>
<td>Expand recycling and composting, including electronic waste recycling.</td>
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<tr>
<td>Enact an environmentally responsible purchasing policy</td>
<td>This may also include the use of recycled paper and Energy Star-certified equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continue recommending zero waste events at Town facilities (or start requiring zero waste).</td>
<td>Town of Carbondale currently recommends that events on Town property adopt zero waste practices, however it is not required as of 2018.</td>
<td></td>
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</tbody>
</table>
Strategy 2: Decrease the amount of recyclable, compostable, and reusable materials entering the landfill

**Action Steps**

<table>
<thead>
<tr>
<th>Make recycling easy and convenient</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluate a single-stream recycling policy</td>
<td>Instead of sorting recyclables into separate bins, all approved materials are combined into one bin. The recyclable materials are then sorted at the collection facility. The ease of this approach has been shown to increase recycling rates. Some, but not all, of curbside recycling in Carbondale is single-stream.</td>
<td>Waste haulers.</td>
<td>Boulder and many other communities have single stream systems.</td>
</tr>
<tr>
<td>Evaluate a universal recycling ordinance</td>
<td>Require waste haulers to automatically offer recycling along with the basic trash service package</td>
<td>Waste haulers.</td>
<td>Aspen’s ordinance requires that the cost of recycling is already included in trash bills.</td>
</tr>
<tr>
<td>Evaluate a Pay as You Throw (PAYT) or “volume based disposal” program</td>
<td>This program treats garbage as a utility, (such as water and energy) charging customers a fee based on the amount of garbage generated. This program has been shown to increase the volume of recycling by more than 50 percent.</td>
<td>Waste haulers.</td>
<td>More than 7,000 communities use this system. Fort Collins passed a PAYT ordinance in 1995. Since then, almost 95% of residents recycle, and more than half of the community’s waste is recycled or composted.</td>
</tr>
<tr>
<td>Evaluate an equal space ordinance to ensure buildings have adequate space for waste diversion collection and storage</td>
<td>Use building codes to ensure trash enclosures are able to accommodate recycling and organic collection/storage.</td>
<td>Building department.</td>
<td>Communities across Colorado have adopted this policy, including Boulder, Broomfield, Superior, Fort Collins, and Lafayette.</td>
</tr>
<tr>
<td>Evaluate voluntary waste audits for</td>
<td>A waste audit is a systematic analysis of a building’s waste</td>
<td>Waste haulers.</td>
<td></td>
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</table>

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15 Lakewood Sustainability Plan 2015
16 Community Zero Waste Roadmap
<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Tactics or Description</th>
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<tbody>
<tr>
<td>Expand public composting bins and infrastructure</td>
<td>Position compost bins alongside trash and recycling bins to ease compost participation.</td>
<td></td>
<td>The Patagonia sponsored waste bins around Carbondale.</td>
</tr>
<tr>
<td>Expand composting at home by addressing barriers</td>
<td>Composting food scraps and yard waste can decrease a household’s waste stream by over 20%. Evaluate and address barriers to composting at home, which may include ensuring that curbside compost collection is available at all households and creating incentives for compost bin purchases.</td>
<td>Waste haulers, Evergreen ZeroWaste,</td>
<td></td>
</tr>
<tr>
<td>Expand composting in workplaces by addressing barriers</td>
<td>Behavior at the office can impact behavior at home and help to create habits. Evaluate incentive programs including offering discounted household compost service if their workplace is enrolled in a compost service.</td>
<td>Waste haulers, Evergreen ZeroWaste,</td>
<td></td>
</tr>
<tr>
<td>Expand compost at restaurants and grocery stores by addressing barriers</td>
<td>Evaluate and address barriers, which may include the cost of high-quality commercial compost bins, the odor of the compost and more</td>
<td>Waste haulers, Evergreen ZeroWaste,</td>
<td></td>
</tr>
<tr>
<td>Advocate for local expansion of recycling and composting facilities</td>
<td>In order to continue to meet the needs of local communities, the Town can advocate for expansion of recycling transfer facilities and expanded composting services at local landfills</td>
<td>Town of Carbondale (BOT)</td>
<td></td>
</tr>
</tbody>
</table>

**Strategy 3: Reduce waste by expanding reuse and repair initiatives**

**Action Steps**

17. [https://www.epa.gov/recycle/composting-home](https://www.epa.gov/recycle/composting-home)
### Increase the salvage and reuse of construction and demolition (C&D) waste

<table>
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<tr>
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<tbody>
<tr>
<td>Continue to include requirements for builders to deal with construction waste as currently in the IgCC (as of 2018).</td>
<td>Make sure to include C&amp;D waste in future adoptions of IgCC.</td>
<td></td>
<td>Fitchburg, Wisconsin: <a href="http://www.fitchburgwi.gov/244/Construction-Demolition-Reuse-Recycling">http://www.fitchburgwi.gov/244/Construction-Demolition-Reuse-Recycling</a></td>
</tr>
<tr>
<td></td>
<td>Develop resources to support material recycling such as posters at building sites advertising on the most valuable reuse items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitate the reuse of construction materials through exchange networks</td>
<td>Develop an online network to promote the availability of recycled construction materials</td>
<td>Habitat for Humanity, Aspen Deconstruction, Pitkin County Landfill</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Develop a local “reuse yard” for contractors and the public to access</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Expand reuse initiatives

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expand the hard-to-recycle market</td>
<td>Thrift stores and other reuse markets have trouble finding end markets for their goods</td>
<td></td>
<td>USAgain (based in Denver) has a partnership with the Pitkin County Landfill to address used textiles.</td>
</tr>
<tr>
<td>Promote thrift stores, reuse programs, fix-it clinics and community share programs</td>
<td>Ensure access to facilities which can recycle, reuse, or repair a wide range of materials.</td>
<td></td>
<td>Portland, Oregon spearheaded a “Be Resourceful Campaign” and website to promote reuse, repair and sharing. An example program is a “tool library” to facilitate sharing of equipment among community members.</td>
</tr>
</tbody>
</table>

### Shift marketplace toward more sustainable products and away from disposal packaging

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase diversion of “seconds” and “ugly produce” to restaurants, shelters, school, pantries, etc.</td>
<td>Develop program to collect blemished food from large grocers &amp; redistribute to local restaurants.</td>
<td></td>
<td><a href="https://www.boulderfoodrescuer.org/how-it-works/">https://www.boulderfoodrescuer.org/how-it-works/</a></td>
</tr>
<tr>
<td>Encourage businesses to reduce use of plastic bags</td>
<td>Establish incentives to encourage the use of durable rather than disposable bags. Highlight businesses that have already removed bags from their store including Miser's Mercantile and Dandelion Market.</td>
<td>Shops, restaurants.</td>
<td></td>
</tr>
<tr>
<td>Encourage the use of reusable water bottles</td>
<td>Increase the marketing around our quality mountain water. Increase information on where people can fill their own water bottle. Consider working with shops and restaurants to sponsor a water bottle filling station.</td>
<td>Shops, restaurants.</td>
<td></td>
</tr>
</tbody>
</table>

Strategy 4: Make it simple for everyone to participate in waste programs and waste goals

**Action Steps**

| Ensure easy access to information about how to reduce waste and on sustainable disposal habits |
|---|---|---|---|
| **Tactics** | **Additional Tactics or Description** | **Potential Partners** | **Examples** |
| Develop outreach materials and education campaigns to promote waste resources | Waste resources may include information on waste haulers, recycling policies, and waste collection facilities. Develop materials in Spanish and English. |  |  |
| Educate the community on sustainable disposal habits | Distribute waste information using the Town website and other existing communication channels to educate residents, businesses, and waste haulers. Continue to distribute and update the "Roaring Fork Valley Recycling Guide," which identifies recycling and waste policies. | Waste Free Roaring Fork |  |
| Use community art projects to inspire, engage, and educate |  | Carbondale Arts | San Francisco’s "The Art of Recology" program. |
| Ensure all waste signage is consistent and simple | Education materials and signage should use consistent colors, designs, and terminology | Waste haulers | San Francisco has a signmaker program to encourage effective and consistent signs. |
| Build participation in programs through education, inspiration, and convenience |
|---|---|---|---|
| **Tactics** | **Additional Tactics or Description** | **Potential Partners** | **Examples** |
| Collaborate with schools | Teaching children proper waste habits from a young age will help to extend the practices past the school and into the community. To this end, ensure that all campuses have composting and recycling facilities, and incorporate practices into the curriculum. | Roaring Fork School District, Ross Montessori, CRMS, Carbondale Community School | Schools across the U.S. introduce waste-related concepts into curriculum using programs such as TerraCycle |
| Promote community waste collection events to support the proper disposal of hard-to-recycle items (electronics, tires, batteries, yard waste, and metals) | Continue to promote Waste Diversion Day, and expand community collection events. Community collection events should be held at an ongoing, consistent, and seasonally-appropriate schedule. There is also an opportunity to work with neighborhoods to host collection events. | Environmental Board, | |
| Showcase waste efforts through zero waste events | | | |
| Ensure all education campaigns and materials address entire community | Work to better ensure community awareness campaigns target the entire community, which includes renters, multi-family residences, non-English speakers, and more. | | |

| Develop reporting and tracking standards to measure success over time |
|---|---|---|---|
| **Tactics** | **Additional Tactics or Description** | **Potential Partners** | **Examples** |
| Develop measurement standards to best assess the effectiveness of programs | Data collection could focus on how many tons are entering the landfill, calculating the waste diversion rates, and other metrics. | Waste haulers. | Boulder County has adopted an ordinance on waste hauler reporting: [http://www.bouldercounty.co/je/env/trash/pages/haulerlicensure.aspx](http://www.bouldercounty.co/je/env/trash/pages/haulerlicensure.aspx) |

**Sidebar: Waste Diversion Day**

The Town of Carbondale hosts the annual community collection event. Discounted, or even waived, recycling fees are offered to encourage the proper disposal of electronics, etc. Anecdotally, participation increased in 2016 with over 250 tires diverted, over two 28-foot trucks of electronic waste.14

14 Julia Fanwell, personal communication. May 2016.
[Sidebar] Mountain Fair
One of Carbondale’s largest public festivals promotes a zero-waste culture with reusable cups, compostable dish ware, and volunteer-manned waste sorting stations. (Add more)

Local Food & Purchasing
In recent years there has been considerable growth in buy-local movements as citizens recognize that purchasing local foods and goods is an accessible approach to shrinking their carbon footprint, while also strengthening the local economy, and fostering community. An analysis of lifecycle carbon emissions, which include the emissions from production, processing, and transportation of foods and goods, provides a more comprehensive picture of the importance of local, sustainable consumption. Food and goods consumed within the community, but produced elsewhere, tend to be responsible for a greater share of emissions.

For food, the vast majority of emissions occur as the food is grown (83%), with the transportation of that food accounting for only 11 percent of overall greenhouse gas emissions. Encouraging local consumption can address the emissions generated at both stages. First, smaller farms tend to be employing more environmentally friendly practices than the farms of the global, industrialized food system. These practices include applying a lesser amount of carbon-intensive chemicals to crops. Second, the distance from farm to fork is dramatically decreased, as is the packaging required for transportation. Studies suggest that the average food found at the grocery store travels 1,500 miles, with the average locally-sourced food traveling nearly 50 miles.

Despite being responsible for a relatively small share of overall emissions, local foods and local purchasing is a key part of sustainability initiatives. A vibrant food system and thriving local products would allow local purchasing to be the norm for all segments of the community. Equitable access to lower-carbon foods and goods will be key. This will involve ensuring that access to hubs for local products (such as farmers markets and community supported agriculture programs) and information on healthy consumption choices is expanded and equitable across the community.

[Sidebar: What you eat matters] Carbon emissions per calorie of food can vary widely with animal products (beef, milk, cheese) having greater emissions than grains and vegetables. (Add more)

[Sidebar: Community Spotlight: Local Businesses, Artists and Artisans] The variety of local businesses, artists and artisans... (Add more)

18 “Food Miles and the Relative Impacts of Food Choices in the United States” http://ogp.sagepub.com/cgi/content/abstract/10.1080/09613270.2009.1041530
20 Worldwatch Institute http://www.worldwatch.org/node/65064
21 Portland Climate Action Plan
What is already being done:
- The annual Dandelion Day celebration has turned into a festival that promotes sustainability and features local food and local companies.
- The Roaring Fork Food Alliance was formed in 2012 to create greater collaboration and planning across diverse sectors and jurisdictions of the local food system.
- The Dandelion Market (Carbondale's Community Food Co-op) has been in existence since 2007 providing an important way for local farmers and food producers to market their products.

[Photo] 4-season growing i.e. Casey Piscura behind Sustainable Settings (Reach out to Casey)

Strategies:

1. Lead by example
2. Increase production, availability and consumption of locally grown food
3. Increase production, availability and consumption of local products and services

Strategy 1: Lead by example:

Action Steps

<table>
<thead>
<tr>
<th>Purchase local foods, and local products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tactics</strong></td>
</tr>
<tr>
<td>Enact a purchasing policy for local food</td>
</tr>
<tr>
<td>Use town-owned land for community gardens</td>
</tr>
</tbody>
</table>

Strategy 2: Increase production, availability and consumption of locally grown food.

Action Steps

<table>
<thead>
<tr>
<th>Make it simple for citizens to buy local food through expanding access</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tactics</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Increase reach of the Carbondale Farmer's Market</td>
</tr>
<tr>
<td>Increase the presence of local farmers at the Carbondale Farmer's Market</td>
</tr>
<tr>
<td>Promote community supported agriculture (CSA) shares offered by local farmers</td>
</tr>
<tr>
<td>Ensure low-income residents have access to local foods</td>
</tr>
<tr>
<td>Create a local food hub</td>
</tr>
<tr>
<td>Secure a long-term building and location for the Dandelion Market</td>
</tr>
<tr>
<td>Recommend a policy to remove sales tax on fresh produce</td>
</tr>
</tbody>
</table>

**Increase food availability by supporting local growing efforts**

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expand community gardens</td>
<td>Evaluate a policy that requires new developments.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish a yard swap program</td>
<td>This voluntary program allows homeowners to publicize that their yard is available for local gardener or farmer who would like to convert it for food production.</td>
<td>Roaring Fork Food Alliance</td>
<td>Fleet Fermin (Minneapolis, MN)</td>
</tr>
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</tr>
<tr>
<td>Support the planting of food-bearing trees</td>
<td>Encourage the development of agroforestry systems and edible gardens by planting edible trees, bushes and other perennials. This effort could leverage both town property and private property.</td>
<td>Central Rocky Mountain Permaculture Institute, CMC, Roaring Fork Permaculture Guild, Roaring Fork Food Alliance</td>
<td>The fruit trees and bushes that were included around the solar array at the nature park by the Roaring Fork Water Treatment Plant.</td>
</tr>
<tr>
<td>Perform an assessment of farming policies</td>
<td>Perform a comprehensive assessment of how local policies support or hinder agricultural production. In particular, examine how land use regulations and protections incentivize or disincentivize local agriculture.</td>
<td>Aspen Valley Land Trust</td>
<td></td>
</tr>
<tr>
<td>Preserve the health of ditch water</td>
<td>Implement the Source Water Protection Plan to preserve the health of ditch water in Carbondale.</td>
<td>Town of Carbondale, Roaring Fork Conservancy</td>
<td></td>
</tr>
</tbody>
</table>

**Promote the benefits of local food and opportunities for residents to get engaged**

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create an online directory and map of regional food resources</td>
<td>Connect the community to local farmers, as well as to opportunities to learn about food production, storage, and processing.</td>
<td>Carbondale Chamber, Roaring Fork Food Alliance</td>
<td>Local Food CS App: <a href="http://localfoodvaco.com/local-food-vaco">http://localfoodvaco.com/local-food-vaco</a></td>
</tr>
<tr>
<td>Expand Carbondale’s reputation as a hub for community agriculture</td>
<td>Create marketing materials to highlight the agritourism in and around Carbondale, including farm-to-table dining, catering, retailing, and food cart vending.</td>
<td>Carbondale Chamber, Roaring Fork Food Alliance</td>
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<td></td>
</tr>
<tr>
<td>Celebrate and promote the local food movement</td>
<td>Continue support for Dandelion Day, and expand support for community events. Provide a forum for local food conversations which could include a speaker series or films.</td>
<td>CMC, ACES, Sustainable Settings, Dandelion Day, Edible Aspen, Roaring Fork Food Alliance</td>
<td></td>
</tr>
<tr>
<td>Increase agricultural science and garden education in local schools</td>
<td>Create long-lasting habits to create school gardens to show students how to grow food, develop curriculum to teach students about the importance of local food, and encourage local food in the cafeteria to share with students how delicious healthy food is.</td>
<td>Local farmers, schools, Roaring Fork Food Alliance</td>
<td></td>
</tr>
<tr>
<td>Get young people interested in this career path</td>
<td>Vocational classes - horticulture, food growing and processing</td>
<td>CMC, Aspen T.R.E.E.</td>
<td></td>
</tr>
</tbody>
</table>

**Strategy 3: Increase production, availability and consumption of local products and services (beyond food).**

**Action Steps**

Identify existing local products and services that are currently available, and identify the gaps of key products and services that are currently unavailable.

<table>
<thead>
<tr>
<th>Tactics</th>
<th>Additional Tactics or Description</th>
<th>Potential Partners</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote the locally available products and services</td>
<td>Partner with the Creative District and the Carbondale Chamber to remind residents about the importance of shopping locally and the availability of local products.</td>
<td>Creative District, Carbondale Chamber</td>
<td></td>
</tr>
<tr>
<td>Publicize the gaps in current key products/services</td>
<td>Partner with the Town to approach existing businesses to fill the gaps or identify outside businesses to recruit. Partner with Colorado Mountain College business and</td>
<td></td>
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</tbody>
</table>

52
7. Options for Financing and Economic Development

The Town of Carbondale has been investing in energy management and efficiency programs since the adoption of the plan in 2008. The progress achieved would not have been possible without the Town making the work a priority. In addition to Town funding, the Town of Carbondale is a member of CORE (Community Office for Resource Efficiency) and a member of Garfield Clean Energy and both organizations have mobilized additional resources to pay for programs, services and projects. Below is a timeline to give a general idea of when programs were started and investments were made. CORE rebates started before this timeline and have continued through all of the years included here. [NOTE: this is a draft placeholder timeline - the graphic designer will make this clearer and easier to read]

Possible funding sources for reaching targets

<table>
<thead>
<tr>
<th>Option</th>
<th>Description and Background</th>
<th>Range of funding</th>
<th>Action required</th>
<th>Pros</th>
<th>Cons</th>
<th>Potential Uses</th>
<th>Notes</th>
</tr>
</thead>
</table>

POTENTIAL ONGOING FUNDING SOURCES THAT TOWN COULD ACT ON:
<table>
<thead>
<tr>
<th>Existing energy related franchise fees that Town receives</th>
<th>Retail sales tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town collects 3% of total energy sales from Holy Cross, Source Gas and Xcel Energy in franchise fees. When the Carbondale energy/climate plan was created in 2006 the Town Trustees envisioned dedicating energy-related franchise fees to execute the plan, and used the franchise fee amount to shape the first year of funding for the plan. Use of this funding is subject to each board’s decision. Currently, franchise fees are put in the general fund and are currently relied on for overall Town budget.</td>
<td>A small percentage of sales tax added to all retail sales. Boulder County adopted a 0.15% “Sustainability Tax” on the in 2016. This equates to 1.5 cents for every $10.00. Boulder County worked on this concept for over 2 years, and conducted several polls leading up to the vote.</td>
</tr>
<tr>
<td>The Town receives about $190,000/yr from energy utilities. Total franchise fees (includes cable) 2012: $240,641 2013: $245,000 2014: $244,800 2015: 2016.</td>
<td>See accompanying sales tax workbook on what various sales would generate. 25% (quarter penny would generate over $217,000 based on 2013 Carbondale retail sales figures.)</td>
</tr>
<tr>
<td>Could be as simple as an annual decision by the board.</td>
<td>Public Vote</td>
</tr>
<tr>
<td>Existing funding source, not a new tax. The franchise fees that are derived from utilities are directly related to energy use.</td>
<td>Sets up long-term funding for EE/RE, waste reduction, open space programs and projects. Taxing all taxable retail sales acknowledges the energy implications of all goods related to manufacturing, transporting, selling, consuming, disposal. This tax involves more people than a tax on energy use since visitors would pay as well. A low rate on retail sales tax can generate more</td>
</tr>
<tr>
<td>The Town currently puts franchise fees into the General Fund, used for general operating support and infrastructure. Franchise fees can also be allocated to cover expenses related to the cost of the utility doing business within town limits.</td>
<td>Rebates, grants, services, projects.</td>
</tr>
<tr>
<td>Rebates, grants, services, projects.</td>
<td>Could use the revenue to back bonds.</td>
</tr>
<tr>
<td>Energy use fee on energy utility bills. (Excluse tax) Climate Action Tax</td>
<td>Add a small percentage to all utility bills, collected by utilities, disbursed to town. See examples of other communities in accompanying page.</td>
</tr>
<tr>
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</tr>
<tr>
<td>Fee on water bill</td>
<td>Town could add a fee on water bills to finance water conservation projects. The Town spent $184,000 on energy bills at the wastewater and water treatment facilities in 2013.</td>
</tr>
<tr>
<td>Dedicate a percentage of severance tax and federal mineral leasing funding received by Town of Carbondale</td>
<td>Carbondale receives funds from the state-collected severance tax and federal mineral leases.</td>
</tr>
<tr>
<td><strong>Green Bank</strong></td>
<td>Garfield County could explore setting up a Green Bank to finance projects</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>C-PACE</strong></td>
<td>Property assessment to finance energy efficiency and renewable energy projects</td>
</tr>
<tr>
<td><strong>Create a regional sustainable utility district</strong></td>
<td>Model a sustainable utility district on those that have been implemented in Washington D.C. and the state of Delaware. Under the DC Sustainable Energy Utility model, customers invest in the district, which then provides efficiency and renewable services.</td>
</tr>
</tbody>
</table>

8. Tracking results and follow-up

**Annual metrics**


**Community Updates**

One recommendation from a member of the Citizen’s Advisory Committee recommended partnering with Carbondale Arts and First Fridays to have a display or “thermometer” showing progress and it gets updated annually.
9. Links to existing plans and resources

Existing Carbondale policies/master plans/etc
  Carbondale Comprehensive Plan,
  UDC, Unified Development Code
  Water Management Plan,
  Parks & Rec Master Plan
Regional/State plans that impact Carbondale
  Garfield Clean Energy: Energy Action Plan
  RFTA Transit studies,
  Waste Studies
  Water Studies

References/Bibliography


Appendix B: Status of 2006 action steps, progress to date

1. Town Government Actions: Lead by Example
Municipal government should make its buildings and operations a model of energy efficiency and renewable energy while reducing energy costs. Government can be the early adopter, making it easier for more households and businesses to adopt practices once they see they work.

Status Update:
- The Town used energy performance contracting, rebates, and grants to finance energy efficiency improvements and renewable energy projects at municipal buildings,
• Town staff has given a great deal of attention to managing energy use at Town facilities, primarily using the Garfield Building Energy Navigator platform.
• Since the creation of the Plan, the wastewater treatment plant (the largest energy user) has seen a 50% reduction in energy costs.
• Town facilities track and monitor energy use - in 2008 there was no system in place to track energy data; Individual facility energy use was not easy to track.

Status Update:

<table>
<thead>
<tr>
<th>Programs &amp; Projects</th>
<th>Status Update Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish a program for energy efficiency retrofits in municipal buildings</td>
<td>The Town adopted the Active Energy Management resolution in 2012, making a commitment to increasing energy efficiency in Town facilities.</td>
</tr>
<tr>
<td>Measure and track annual energy consumption and expenses in municipal buildings</td>
<td>The Town has been tracking energy consumption at major buildings and facilities since 2009 using the Energy Navigator. Actual bill data is tracked for all the buildings currently on the Energy Navigator. For the largest consuming facilities, 15-minute interval data is tracked at the Roaring Fork Water Treatment Plant, Rec Center, Town Hall, Public Work and Waste Water Plant. The public can view data at: garfield.buildingenergynavigator.org</td>
</tr>
<tr>
<td>Conduct energy audits of municipal buildings to identify opportunities for saving energy and money.</td>
<td>Engineering-level energy assessments were completed as part of energy performance contracting at nine facilities/buildings in 2010. Walk-through energy assessments were completed at all municipal buildings in 2011/2012.</td>
</tr>
<tr>
<td>Invest in energy efficiency improvements (especially low-hanging fruit with fast payback)</td>
<td>The Town has installed higher efficiency lighting (such as LEDs), higher efficiency rooftop units, and updated control systems across nine facility/building sites. (Includes water treatment facilities and Town buildings).</td>
</tr>
<tr>
<td>Address energy efficiency improvement opportunities at the wastewater treatment plant (the highest municipal consumer of energy).</td>
<td>From 2009 to 2016, the wastewater treatment plant (WWTP) has reduced energy costs by 50%. Energy efficiency at the WWTP has been improved by implementing behavioral changes, closely monitoring the operations, and adjusting controls.</td>
</tr>
<tr>
<td>All new town vehicle purchases strive for the most fuel-efficient models.</td>
<td>The town has focused more on including Electric Vehicles (EVs) and compressed natural gas (CNG) technology in new vehicle purchases.</td>
</tr>
<tr>
<td>The Town will support alternative transportation efforts for staff.</td>
<td>Town employees are encouraged to rely on bicycles for in-town trips. Bikes are available for employees to use, a bus pass system was implemented (and then cancelled).</td>
</tr>
</tbody>
</table>

2. Change the rules that influence energy use
Many aspects of energy use are the result of rules (policies, ordinances, regulations). Change these rules and we significantly change how we use energy. Our public policies can increase energy efficiency, increase use of renewable energy, encourage more friendly approaches to mobility and access, and reduce dependence on oil.

**Status Update:**

- The Town of Carbondale has been a leader in the RFV on adopting residential codes and green commercial codes.
- In 2010, the town has adopted energy goals along with other member municipalities of Garfield Clean Energy: (1) increase energy efficiency by 20% by 2020 (2) reduce petroleum consumption 25% by 2020 (3) obtain 35% of energy from renewable sources by 2020. There have been efforts to track progress towards this goal through 2009 benchmark and 2014 update.
- The Town of Carbondale passed a resolution dedicating 20% of severance tax and federal mineral lease funding to fund progress toward clean energy targets.
- There is a Transit Oriented Development policy that encourages development around transit.
- Carbondale voters had the opportunity to invest in clean energy through the "Climate Action Tax" (spring 2016). The tax would have assessed a small surcharge on electricity and gas usage in homes and businesses in Carbondale town limits.

**Programs & Projects**

<table>
<thead>
<tr>
<th>Programs &amp; Projects</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade the building code to encourage greater energy efficiency and use of renewable energy in all new buildings constructed in town.</td>
<td>The Residential Efficient Building Program (REBP) addresses new residential construction. To address new commercial construction the Town adopted the 2012 International Green Construction Code (IGCC) in 2013, and is moving to adopt the 2015 IGCC in 2016. This adoption will include the 2015 International Energy Conservation Code (IECC).</td>
</tr>
<tr>
<td>Increase transit mode share by working regionally to upgrade transit</td>
<td>RFTA has successfully implemented Bus Rapid Transit (BRT) service. This service began in 2013. According to the 2014 RFTA Travel Pattern Study, 23% of commuters in Carbondale now use the bus compared to only 7% in 2004.</td>
</tr>
<tr>
<td>Utilize a Town Task force to advise on energy independence goal.</td>
<td>Carbondale Environmental Board (E-board) is a citizens committee that meets monthly to address energy and sustainability efforts.</td>
</tr>
<tr>
<td>A regional accountable for local food production will be held.</td>
<td>The Roaring Fork Food Alliance was formed in 2012 to serve as a regional food hub. In addition, the Dandelion Market (Carbondale’s Community Food Coop) has been in existence since 2007.</td>
</tr>
<tr>
<td>Conduct ongoing publicity campaigns to promote sustainable transportation, including the promotion of biking, walking as main transportation modes within</td>
<td>The Carbondale bike community has been voluntarily hosting Bonedale Bike Week for the last 3-5 years. Bike/Walk Challenges in schools have taken place across Garfield County and in recent years, there has been the county-wide Ride Garfield County program.</td>
</tr>
</tbody>
</table>
Carbondale, make Carbondale known for respecting, encouraging biking and walking. | Town of Carbondale has also been designated a Bike Friendly Community, recognizing safe accommodations for bicyclists and education efforts.

Actively work with other communities and any statewide efforts to improve regional, statewide, and national policies and laws influencing energy use and a more climate friendly transportation system. | GCE has worked with Colorado Energy Office (CEO) to get EV charging stations across the region. CLEER has also worked with CEO to develop CNG infrastructure and vehicle purchases across the county.

### 3. Create programs to remove barriers to wiser energy use

Partner with utilities and others to accelerate the transition to a clean energy future, offering programs to households and businesses that combine financing, technical assistance, and education.

#### Status Update:
- The Town of Carbondale became a member of the state’s first clean energy authority – Garfield Clean Energy – a 10 member government collaborative that provides energy efficiency and clean energy and petroleum reduction services to homes, businesses, and governments throughout Garfield County.
- The Town of Carbondale is also a member of CORE, and through CORE membership they receive access to the Renewables Energy Mitigation Program (REMP) funding, technical assistance on energy, waste, and water.
- CORE and CLEER (using the Energy Smart Colorado platform) partner to make access to financing, rebates, and technical information for energy projects simple and convenient. These entities collaborate with the Town and utility providers to communicate these programs with the public through the rebate brochure, performing outreach at public events, and more. The financing and Energy Smart Colorado platform were developed thanks to federal funding from a Department of Energy grant.
- To address the lack of financing for energy efficiency work and the high upfront costs of some energy efficiency work, a low interest revolving loan fund program (DOE funding) and a cash-back rebate program has been implemented (DOE funding in 2010-2013 and CORE REMP funding since 2004).
- To address the lack of information, complementary energy coaching, home energy assessments and walk-through assessments for businesses have been implemented.
- EV charging stations in Carbondale: Since the first station (with 2 plugs) has been installed at Town Hall, there are now charging stations at CMC, Third Street Center, RFHS, and the RFTA Park and Ride. (GCE assisted to secure grant funding from Colorado Energy Office).
- The Roaring Fork School District schools & Colorado Mountain College facilities are tracking energy usage.

#### Status Update (Summary):

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<thead>
<tr>
<th>Programs &amp; Projects</th>
<th>Details</th>
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<tbody>
<tr>
<td>Work with partners to establish what is currently available and how it can be packaged into one</td>
<td>Great deal of outreach has been delivered through CORE and GCE programs since 2009.</td>
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<tr>
<td>Easy to use program with technical assistance and financing.</td>
<td>The Joint Energy Resource Center was opened at the Third Street Center in 2014 to be a one-stop-shop for information on programs and rebates. It is a hands-on spot the public can engage with energy concepts.</td>
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<td>Advise local contractors/architects/engineers through outreach</td>
<td>SCE/CLEER/CORE have sponsored annual contractor workshops since 2011 with utilities presenting and staffing booths to share their programs and incentives.</td>
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<td>Create an income-qualified program</td>
<td>An income-qualified program was launched in 2015. Town of Carbondale dedicates funds to support this effort and has identified this program as a high priority in future plans. Utility rebates and Energy Outreach Colorado are leveraged support this program.</td>
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4. Increase local renewable energy supplies
The Town, with the ability to tap significant funding, can view itself as a local energy producer and investor.

**Status Update:**
- In 2010, along with other member municipalities of Garfield Clean Energy, the town adopted the goal of obtaining 35% of energy from renewable sources by 2020.
- The Town of Carbondale has significantly increased solar on public buildings. As of June 2016, there is over 1MW of solar on public buildings. These buildings include: Town Hall, Sopris Park, Rec Center, Third Street Center, Carbondale Senior Housing (Crystal Meadows), Roaring Fork High School, Roaring Fork Water Treatment Plant, Public Works Building, Carbondale Branch Library and Roaring Fork High School (Part of Third Street Center and Crystal Meadows was part of the DOLA New Energy Communities Grant, the remainder have been funded by Power Purchase Agreements). 
- Town of Carbondale has purchased into the Clean Energy Collective solar arrays to offset usage at the Waste Water Treatment plant.
- Carbondale was awarded the Solar Friendly Community designation by Colorado Solar Energy Industries Association to recognize achievements in removing regulations that serve as barriers to developing on-site renewable energy generation projects.

**Status Update (Summary):**

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<td>Actively encourage installation of renewable energy systems on private property through financing mechanisms and community campaign.</td>
<td>Rebates for solar thermal and solar PV systems have been available since the early 2000s.</td>
</tr>
<tr>
<td>Town will consider purchases of green power to reduce GHG.</td>
<td>The Town participated in Xcel’s WindSource program for a couple of years, investing an additional $11,000 each year. The Town decided to withdraw from the program in 2011 and instead to dedicate that $11,000 to local projects.</td>
</tr>
<tr>
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<tr>
<td>Develop the current Carbondale Elementary School site to provide a campus for sustainable energy education and a business incubator for sustainable businesses.</td>
<td>Renovation of the Third Street Center was completed in 2010 to serve as a green center and offer affordable space for local and regional non-profits, and artists. The Energy Resource Center is located at the Third Street Center.</td>
</tr>
<tr>
<td>Partner with sustainable energy businesses and the Chamber to create a green brand for the Town.</td>
<td>Green businesses have been highlighted by the Chamber. More could be done here.</td>
</tr>
<tr>
<td>Work with the Chamber to create a self-guided Green Tour highlighting SEI, CORE, strawbale construction, Blue Creek affordable housing, PV systems on Town Hall and other opportunities.</td>
<td>CLEER/CORE partnered with the Sierra Club to host Solar Home Tours across Garfield County, with 2-3 sites from Carbondale included annually (2010-2012). In 2014, CLEER/CORE partnered with Sunsense Solar to host a bike tour featuring local solar projects.</td>
</tr>
<tr>
<td>Conduct outreach to state and national audiences of the resources Carbondale offers for sustainable energy education; promote Carbondale as an example of sustainable energy technologies.</td>
<td>Garfield County communities, including the Town of Carbondale, were included as featured partners in the 2015 Colorado Climate Action Plan. More effort could be dedicated to actively pursue national recognition.</td>
</tr>
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5. **Cultivate clean energy jobs and businesses**

Carbondale can pursue implementation of this energy plan in ways that strengthen the community’s "green brand" and supports and creates local jobs. In addition, Carbondale can take active steps to support and grow sustainable energy enterprises.

**Status Update:**
- In 2016, Chamber created a community map of Carbondale and many green businesses are highlighted.
- Carbondale’s green values have been incorporated into its regional reputation

**Status Update (Summary):**
GARFIELD COUNTY ENERGY ACTION PLAN
EXECUTIVE SUMMARY

Our Vision and Goals
Garfield Clean Energy Collaborative (GCE) will be a national leader in using energy efficiency, renewable energy, and alternative fuels to build a strong, resilient, and diverse economy.

Collaborating with local governments, utilities, non-profit organizations, and businesses, GCE’s overarching goal will be to achieve 20 percent energy conservation over the 2015 baseline by 2030 and to foster a growing culture of renewable energy that seeks to obtain between 35 and 50 percent of energy from renewable sources by 2030.

How Will We Get There?
To make progress toward these goals, GCE will address six focus areas identified as priorities for Garfield County around which meaningful strategies were developed. The rationale behind the focus areas was built on the basis of priorities identified by the planning team, existing programs and initiatives that are working well in the region, identified opportunity gaps, and a view for what might be possible.

Focus Areas

- Commercial/ Industrial/ Agricultural
- Renewable Energy
- Residential
- Innovative Design and Construction
- Public Institutions
- Policy and Institutional Frameworks
Focus Area 1: Commercial/Industrial/Agricultural

Customers in this focus area account for 62 percent of total electricity use in the county and 33 percent of natural gas use. Building on the success of the available commercial programs in the county and the efforts of more than 300 businesses in 2015 that have undertaken energy efficiency improvements, this focus area aims to continue to serve a variety of businesses and targets critical businesses that have not participated in efficiency historically. These target businesses can improve their bottom line while helping the county reach its energy efficiency targets. A robust program to help all commercial, industrial, and agricultural users will produce significant gains in energy efficiency and grow the total economic benefits of a county-wide energy efficiency/economic development program that will stimulate job growth.

Strategy 1: Increase Energy Efficiency in Businesses throughout the County

- Build on the success of existing programs to grow participation county-wide.
- Create ongoing utility-GCE partnerships to bundle energy efficiency offerings and use innovative financing and incentive approaches to make it easier for all types of businesses to make energy efficiency improvements.
- Increase access to and visibility of energy efficiency programs.
- Create local county-wide incentives to boost participation and show investment in our business community.
- Provide an incentive for innovation and early adoption of new technologies through a county-wide energy efficiency fund.
- Target businesses, such as hospitals, large retail, and hospitality.
- Highlight successes of participants to demonstrate the economic value of energy efficiency.

Strategy 2: Catalyze Energy Savings for the Oil and Gas Industry

- Develop a targeted program with unique tools and outreach and education materials to reach oil and gas companies, which have unique energy use needs and potentially have the greatest opportunities for savings.

Strategy 3: Create Targeted Programs for Agricultural Energy Users (Outdoor and Indoor)

- Identify the unique needs of this subset of partners that are a new economic driver in the county and also account for significant energy use and create a program to help this sector become more resource efficient.

Strategy 4: Promote Use of C-PACE and Other Financing Tools

- Leverage this new statewide financing option by raising awareness among local businesses and contractors and help Garfield County businesses and contractors use this tool.
Focus Area 2: Residential

Residential energy use accounts for 34 percent of county-wide electricity use and 64 percent of county-wide natural gas use. Helping households cut energy expenses is especially important in a region that faces affordable housing challenges, giving families more disposable income for other important priorities.

Strategy 5: Boost Efficiency in Residential Sector

- Build on energy efficiency programs and results to date.
- Increase access to and visibility of programs throughout the county.
- Create ongoing utility-GCE Partnerships to make it easier for more households to participate, use innovative financing and incentive programs, and create a sustained effort.
- Build on existing programs for low-income households to maximize efficiency.

Focus Area 3: Public Institutions

Maximizing energy savings and tapping energy innovations for public facilities demonstrates efficient use of tax-payer funds, ensures local governments are leading by example on resource efficiency, and is an important part of regional economic resilience. And while this focus area only accounts for about 3 percent of total electricity and natural gas use in the county, efforts at this level are important in demonstrating to the broader county community that energy efficiency and renewable energy make good economic sense. In addition, there is a strong framework that already exists within the public-school sector that can be refreshed and expanded.

Strategy 6: Lead by Example at Municipal and Government Facilities

- Show government leadership through a sustained commitment to exercising continual improvement and cost savings over time. Include energy efficiency considerations in all facility upgrades.
- Build on GCE’s existing data-driven energy management program and conduct benchmarking and data analysis for additional energy/cost savings and better decision making.
- Develop funding to help local governments cover the cost of making upgrades (zero interest loans for efficiency upgrades, etc.).
- Create an energy stewardship culture that empowers employees at all levels to get engaged in energy savings.
Strategy 7: Engage Schools and Educational Institutions

- Build on the existing data-driven energy management programs started at Roaring Fork School District RE-2 to sustain and increase energy cost savings for school districts; expand to Parachute schools.
- Incorporate hands-on clean energy education and job skill development in curriculum and support additional out-of-classroom experiences, such as energy clubs.
- Develop schools as learning labs for efficiency.
- Introduce programs that can be sustained over time for continued impact.
- Create a community culture of energy savings.
- Use benchmarking and data analysis as teaching tools.
- Use schools as demonstrations of best energy practices and community energy education venues.

Focus Area 4: Renewable Energy

Energy efficiency in the built environment is key to any long-term goals; however, energy efficiency alone will only take the county so far. As the county population continues to increase and demand for energy necessarily follows that pattern, it becomes more important to look toward generating renewable energy in order to have a more robust and resilient community and economy. Taking the long view about energy implies an understanding of need, capacity, innovation, and policy that removes barriers and encourages investment and participation in renewable energy throughout the county.

Strategy 8: Accelerate Residential and Commercial Solar Adoption

- Acknowledge the tremendous growth to date in solar installations on government buildings and lower costs for installations for homes and businesses.
- Streamline regional permitting efforts for greater consistency across the county.
- Increase education about and awareness of economics, financing, and incentives related to solar installations.
- Develop a regional power plan that addresses barriers and connects partners to move projects forward.
- Work on creative partnerships and collaboration across sectors to advance projects.

- Highlight the tremendous growth in the last 5 years thanks to Clean Energy Collective, a Carbondale founded business that has developed an innovative community solar model.
- Advocate for improved infrastructure and updated internal tracking and billing systems at utilities.
- Develop a regional power plan that addresses barriers and connects partners to move projects forward.
- Advocate for state policies that support additional renewable energy options.

Focus Area 5: Innovative Design and Construction

Along with improvements to existing buildings and facilities, the region is expecting growth in new homes and businesses over the coming decades. By ensuring that new buildings and facilities are built to the highest energy efficiency standards, those facilities will have a smaller impact on overall energy use than buildings built today. In addition, when housing is built with efficiency in mind, housing stays more affordable over time.

Strategy 10: Build in Efficiency and On-site Renewables from the Start

- Provide educational materials to building owners and contractors during the permitting process.
- Provide training to contractors and builders on how to meet and exceed adopted codes and why it is important to do so.
- Update building and energy codes throughout the county.
- Provide resources for contractors to assist in understanding building science during the construction process.
- Develop incentives to encourage owners and builders to achieve above-code certifications, including ENERGY STAR®, U.S. Department of Energy Zero Energy Ready, and LEED, to increase the efficiency and innovation of new buildings.
- Provide education on new materials and practices to encourage innovation in new construction.
- Promote planning for electric vehicle infrastructure at homes and businesses.
- Provide education and data on lower costs of ownership for high performance homes.

Focus Area 6: Policy and Institutional Frameworks

State and local leadership and policies have played an essential role in energy efficiency and renewable energy gains in Garfield County to date. This plan identifies short-term goals and actions that will enable the county to make continuous progress, to share successes, and to engage greater numbers of its population in energy efficiency and renewable energy alternatives. It also offers a forum and framework for looking beyond the short term – being visionary and influencing local, regional, state, and even national conversations and efforts to increase investment, innovation, and policy in ways that better serve the needs of everyone.
Trustee Meeting Minutes
February 21, 2017

Byars stated that it is important to address the impacts of converting employee work force housing to short-term rentals. Staff should look at pro-forma and tax revenue and the Board will then revisit this matter in the fall/winter.

- P&Z is considering the following UDC revisions: revise variance criteria – grant variances for community or public benefit rather than hardship. Jay and Mark stated that they should use caution because there could be legal impacts; they would also like to revisit minimum lot area per dwelling unit (density).
- PUD’s – Staff will create a PUD matrix which will include zoning standards and fees and a list of variances associated with each PUD.

Philip Jeffreys, Aspen Skiing Company Project Manager, gave a presentation on tiny houses. Philip stated the Ski Co has installed several trailer coaches (tiny houses) on six acres at the Aspen Basalt Campground. They chose the trailer coaches due to the speed of delivery, cost efficiency, they are extremely high quality, they are resource efficient and innovative.

**PARKS & RECREATION COMMISSION ANNUAL CHECK-IN**

The Board met with the Parks and Recreation Commission for their annual check-in.

Eric informed the Board that the Commission has established their goals for 2017. The following points were made:

- The Commission is utilizing the Parks Master Plan to set priorities and make budgetary decisions.
- The Commission is addressing financial stability and sustainability—they would like to undertake a public awareness campaign to buy local. They have considered creating a foundation and they are considering ways to solicit donations.
- They are focusing on maintaining our existing amenities.
- The Commission is working collaboratively with the Bicycle, Pedestrian and Trails Commission to fill the gaps in the trails network.
- The Commission is partnering with the Colorado Parks and Wildlife Department to schedule a work day to create an additional boat ramp tie off and new launch area.

The Commission would like to participate in an on-going effort to restore the banks of the Crystal River.

**GARFIELD CLEAN ENERGY – CLIMATE ACTION PLAN REVIEW**

Members of the CLEER AND CORE staff were present at the meeting.

Trustee Sparhawk explained that the purpose of the Plan is to update the goals and strategies of the 2006 Carbondale Energy and Climate Protection Plan.

The community of Carbondale spends over $7 million annually on building energy use.
Trustee Meeting Minutes
February 21, 2017

CLEER held three Citizen Advisory Group workshops. Also, the Environmental Board provided extensive input.

Discussion ensued.

The Board inquired about the measurable progress to date. Erica stated that CO2 emissions have been reduced 25% since 2005, with 35% projected by 2020. The Board asked how much did this effort cost? GCE staff did not know.

The major goal is for Carbondale to be carbon neutral by 2050. GCE’s memo provided targets for emission reduction. GCE staff asked the Board if they believe the proposed targets are realistic. Mayor Richardson responded he feels that carbon neutrality should be a vision rather than a goal because there is no proper definition. The Board did not reach consensus on emission targets but they did agree that we need measurable, achievable, accountable numbers.

Trustee Henry posed the question should we be focusing on resiliency to climate change impacts (fires, floods, etc.) and job creation in environmental fields rather than focusing on emission targets.

The Board agreed that another work session is needed. The work session has been scheduled for April 18th.

ADJOURNMENT

The February 21, 2017 work session adjourned at 9:15 p.m. The next regular scheduled meeting will be held on February 28, 2017, at 6:00 p.m.

APPROVED AND ACCEPTED

____________________________
Dan Richardson, Mayor

ATTEST:

____________________________
Cathy Derby, Town Clerk