ATTENTION: Due to the continuing threat of the spread of the COVID-19 Virus, all regular Carbondale Board of Trustee Meetings, Special Meetings, Executive Sessions and Work Sessions will be conducted virtually. If you have a comment concerning one or more of the Agenda items please email cderby@carbondaleco.net by 5:00 pm on September 8, 2020.

If you would like to comment during the meeting please email cderby@carbondaleco.net with your full name and address by 5:00 pm on September 8, 2020. You will receive instructions on joining the meeting on line prior to 6:00 p.m. Also, you may contact cderby@carbondaleco.net to get a phone number to listen to the meeting, however, you will be unable to make comments.

You may also watch a live streaming of the meeting on You Tube. Search Town of Carbondale September 8, 2020 meeting. Please be aware that you will experience a 15-30 second delay.

ZOOM INVITE INFO:

You are invited to a Zoom webinar.
When: Sep 8, 2020 05:30 PM Mountain Time (US and Canada)
Topic: Board of Trustees 9-8-2020 Regular Meeting

Please click the link below to join the webinar:
https://us02web.zoom.us/j/82944539820?pwd=emIrVjBDOEM5ejRoQlFMc09WZVVxZz09
Passcode: 628237
Or iPhone one-tap:
    US: +12532158782,,82944539820#,,,,,0#,,628237#
    +13462487799,,82944539820#,,,,,0#,,628237#
Or Telephone:
    Dial(for higher quality, dial a number based on your current location):
        US: +1 253 215 8782 or +1 346 248 7799 or +1 669 900 6833 or +1 301 715 8592 or +1 312 626 6799 or +1 929 205 6099
    Webinar ID: 829 4453 9820
    Passcode: 628237
    International numbers available: https://us02web.zoom.us/u/kzru7d14o

COMMUNITY HERO AWARD

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<td>5. Attorney’s Comments</td>
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<td>6. Proclamation – Library Card Sign-Up Month</td>
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<td>d. Environmental Board 8-31-20 Minutes</td>
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* Please note: times are approximate
BOARD OF TRUSTEES MEMORANDUM

ATTACHMENT A

Item No: Attachment A

Meeting Date: 09.8.2020

TITLE: Accounts Payable

SUBMITTING DEPARTMENT: Finance

ATTACHMENTS: Accounts Payable for 09.8.2020

DISCUSSION: The accounts payable include $3,425.00 for refunds at the RV Park. The 5th payment for the clarifier project to Gould Construction is for $180,301.02. Mueller Construction is being paid $58,691.00 on the WTP Filter Improvement Project. Payment for August trash service by Mountain Waste is $47,320.50. Included is the final payment for the mobile stage for $64,231.00.

The payroll for 8.21.2020 was $174,648.73. Tax liability for the town was $10,232.35. Pension and Retirement liability was $10,905.18.

If you have any questions concerning the Accounts Payable, please contact me.

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Grand Totals: 500,003.37
MINUTES
CARBONDALE BOARD OF TRUSTEES
REGULAR MEETING
AUGUST 25, 2020
VIRTUAL MEETING VIA ZOOM

Mayor Dan Richardson called the Board of Trustees virtual Regular Meeting to order on August 25, 2020, at 6:00 p.m.

ROLL CALL:

The following members were present for roll call:

Mayor
Trustees
Dan Richardson
Marty Silverstein
Ben Bohmfalk
Lani Kitching
Heather Henry
Erica Sparhawk
Luis Yllanes

Staff Present:

Town Manager
Town Clerk
Finance Director
Town Attorney
Planning Director
Jay Harrington
Cathy Derby
Renae Gustine
Mark Hamilton
Janet Buck

COMMUNITY HERO AWARD

The Community Hero Award was presented to the Board and Staff of Crystal Meadows Senior Housing for their response to the COVID-19 pandemic.

CONSENT AGENDA

- Accounts Payable totaling $424,527.24
- BOT 8-11-20 Regular Meeting Minutes
- BOT 8-18-20 Work Session Minutes
- Recommendation for Appointment – Planning & Zoning Commission
- Liquor License Renewal – White House Pizza
- Liquor License Renewal – El Pollo Rico
- Resolution No. 9, Series of 2020 – FMLD Grant – Gianinetti Park Playground Equipment
- Ordinance No. 11, Series of 2020 – Amending Town Sales Tax Regulations
Trustee Bohmfalk made a motion to approve the Consent Agenda. Trustee Silverstein seconded the motion and it passed with:

7 yes votes: Richardson, Henry, Yllanes, Silverstein, Bohmfalk, Kitching, Sparhawk

PERSONS PRESENT NOT ON THE AGENDA

Brittany Blebl thanked the Board and Jen for translating the meeting in to Spanish.

Summer Scott, Carbondale, stated that at the last meeting we talked about our three pillars – the Town’s priorities including social, economic and environmental issues. Only the Environmental Board is focusing on one of these pillars and it’s hard to try and have a discussion while trying to stay within the mission/focus of the Environmental Board while also feeling that these other issues are not being addressed. The Environmental Board feels it needs to be in the same conversation and should be addressed equally. Equity needs to be addressed in a lot more detail. Summer feels that there is miscommunication and misunderstanding regarding what that means and what it entails to take in the big picture of trying to understand what true equity and trying to understand economic and racial equity and try to address all of these issues together.

Mayor Richardson replied that he is not sure how to respond to addressing these issues and he is waiting for a specific request as they are not actionable items.

TRUSTEE COMMENTS

Trustee Sparhawk informed the Board that she will be representing Colorado Communities for Climate Action and the Town of Carbondale at a hearing with CDOT and State agencies concerning expanding the State’s electric truck fleet.

Trustee Silverstein thanked the Fire Department for responding to the Spring Valley Fire; it was quickly contained. Trustee Silverstein stated that he attended Lieutenant Chris Wurtzsmith’s retirement party and he thanked Chris for all of his years of community service. Trustee Silverstein talked about the 30/30 Bill. He said we can choose to endorse the Bill as a Town or individually – there is no financial commitment. Trustee Silverstein stated that the Chicken Bingo fundraiser at Carbondale Beer Works raised $1,700 for Thunder River Theater. Trustee Silverstein announced that there will be two more streaming music concerts from Steve’s Guitars.

Trustee Kitching stated that there are lots of water meetings this time of year. She attended the Colorado River District Meeting where they discussed SB 48 to protect conservation easements and water quality impacts due to the fires. She also attended the Water Now Alliance meeting which focused on equity for the California water delivery system. Trustee Kitching stated that Colorado Workforce released its July unemployment statistics. Unemployment rates are as follows: U.S. 10.2%, Colorado 7.4%, Garfield County 6.2% which is lower than Eagle and Pitkin County and shows the strength of our diverse economy.
Trustee Bohmfalk asked when is the Board going to return to in-person meetings? Mayor Richardson answered maybe when the school district returns to in-person learning. Staff will investigate the possibility of the Board returning to meeting in-person while the public attends via Zoom.

Mayor Richardson stated that he attended the RFTA Board meeting. Glenwood Springs has applied for an FMLD grant for an underpass at 27th Street. Mayor Richardson said that RFTA Executive Director Dan Blankenship has been appointed to the Regional Transportation District Accountability Board. Mayor Richardson said the COVID Task Force continues to meet. They discussed delivering ballots for people unable to drop them off. He noted that an individual may only deliver ten ballots at a time. They also discussed providing better support for the community’s mental health needs. We need a regional solution as mental illness will only continue to increase. Mayor Richardson said that in the last two weeks Garfield County has experienced the lowest amount of new COVID-19 cases since the pandemic started. Mayor Richardson told the Board that we need to have a conversation with the community on systemic racism. He found a great podcast from 2017 entitled Seeing White which he encouraged everyone to listen to. Mayor Richardson told the Board that comments on Jay’s evaluations are due on August 28th. Mayor Richardson thanked everyone involved in fighting the fires. Mayor Richardson also thanked Lieutenant Chris Wurtsmith for his caring dedication to the community.

ATTORNEY COMMENTS

The attorney did not have any comments.

CONTINUED PUBLIC HEARING – CARBONDALE CENTER PLACE – ORDINANCE NO. 10, SERIES OF 2020 GENERAL REZONING
Applicant: Carbondale Center Place, LLC
Location: 900-958 Highway 133 and 1201 Colorado Avenue (Sopris Shopping Center and Sopris Self Storage)

Janet stated that the Board considered this application at its July 14, 2020 and August 11, 2020 meetings. After discussion at the August 11, 2020, the Board continued the public hearing to August 25, 2020 and directed Staff to prepare a rezoning ordinance for consideration of approval.

Staff recommend approval of the ordinance.

Janet noted that if the rezoning is approved, the applicants would have to come back through public hearings before the Planning & Zoning Commission and the Board of Trustees for the Major Site Plan Review.

Discussion ensued.

Trustee Bohmfalk stated he is not sure why we need the Conditions of Approval – what protection are we getting from them?
Janet explained that mainly we don’t want to end up with a building that is located within two zone districts.

Planner Mark Chain, representing the applicant, stated that the applicants’ intent is to submit one application for a lot split.

Mayor Richardson opened the public hearing. There was no one present who wished to address the Board so Mayor Richardson closed the public hearing.

Trustee Henry stated that she believes it is best to leave the conditions as is.

Mayor Richardson noted that Patrick Hunter sent the Board an email concerning Carbondale Center. Mayor Richardson stated he believes the Trustees have already addressed Patrick’s questions adequately.

Trustee Silverstein made a motion to approve Ordinance No. 10, Series of 2020. Trustee Henry seconded the motion and it passed with:

7 yes votes: Yllanes, Richardson, Silverstein, Sparhawk, Henry, Bohmfalk, Kitching

RESULTS OF THE CARES ACT SURVEY

Carbondale Chamber of Commerce Executive Director Andrea Stewart reported on the results of the Carbondale business owner survey on CARES Act funding.

Andrea stated that they received 67 responses to the survey. 82% of business owners reported that they had COVID-related impacts and expenses (loss of sales, loss of employees, rent, utilities, etc.) The majority of respondents stated that they would like the money to be allocated to a town-wide marketing camping, individual marketing efforts and rent/mortgage relief. Forty five businesses stated that they would apply for funding. Comments included heightened stress levels and to put mental health at the forefront.

Trustee Silverstein stated that the survey showed a tremendous amount of empathy amongst business owners. (Some owners said they could handle their deficits and they would like the money to go to businesses and non-profits in danger of closing.)

Jay explained the framework for distributing the funds: There would be a simple application based on need and there will be a threshold amount for allocation. We will need to verify that the money will be spent in accordance with CARES Act regulations. Smaller amounts would be dispersed administratively. Staff has been contemplating asking the Revolving Loan Fund Board to review and allocate funds for larger requests. The Trustees would serve as an appeal Board. Jay stated that allocations may be done on a first come, first serve basis. Larger grants could be based on business interruption.

Trustee Sparhawk asked how do we make sure that all businesses know about the funding? Jay stated that homebased businesses could be difficult to contact.
Trustee Bohmfalk stated that he doesn’t like the idea of allocating funding on a first come, first serve basis. He asked staff to investigate what other communities are doing.

**CARBONDALE CHAMBER OF COMMERCE UPDATE**

Executive Director Andrea Stewart provided an update on what the Chamber has been doing in 2020.

Andrea made the following points:

- Since March 90% of their efforts have been COVID related - they are serving as an economic lead in relief efforts
- Andrea noted that they were not eligible for PPP funding.
- Chamber membership retention remains high at 87%.
- The majority of their business is conducted via email. People open their emails at a rate of 32% which is higher than the norm
- They have seen an increase in interest in their social media accounts – especially Instagram
- Since April there have been no in-person First Friday events – she thanked the Carbondale Creative District, Thunder River Theater and Steve’s Guitar’s for holding virtual events
- The Tourism Council has seen a decrease in the Lodging Tax
- Their annual Business Confluence meeting will be held virtually on October 21st
- They have created a Roaring Fork Farm Map which will be distributed in the Fall

**YOUTHZONE UPDATE**

YouthZone employees Lori Mueller, Carol Wolff and Keith Berglund were present for the meeting.

Lori thanked the Board for their continued partnership. Lori made the following points:

- Over the past year the majority of their clients (minors) are using marijuana and alcohol
- Substance abuse in minors has increased 25% over the past ten years
- In the past three years kids with higher needs and risk levels have had better outcomes – this is a huge affirmation that the Town’s contribution is a good investment
- Their major goal is to keep kids out of the court system
- Carbondale kids have higher substance usage – comparable to Aspen
- They have found that their clients have optimism, they are good at problem solving and they believe that they have control over their lives
- Lori asked the Board to consider giving the Town’s marijuana or tobacco excise tax to YouthZone
- They have cut their budget by 20% due to COVID and they are in a hiring freeze
- They are cutting costs and expenses without laying off people
Discussion ensued.

Trustee Sparhawk asked Lori if other local governments have allocated their tobacco tax to YouthZone? Lori responded that she has just started the process of talking to the other local jurisdictions.

Mayor Richardson noted that we started collecting tobacco tax in July and we don’t have any data yet. He noted that the tax will probably be substantially less than subsequent years. Jay explained that YouthZone is currently funded through the Community Request Grant and is supplemented from the VALE fund. The VALE Fund has seen a substantial drop this year due to COVID.

Trustee Sparhawk noted that other eligible non-profits might also want money from the marijuana and tobacco tax.

Trustee Bohmfalk asked Lori how YouthZone is funded in General. Lori explained that their budget was $1.5 million but they have reduced it to $1.3 million. They are funded by local municipalities, counties, state grants (no federal grants) and (small) individual and business contributions. Raising money is always challenging.

**CARBONDALE ARTS CREATIVE DISTRICT UPDATE**

Amy Kimberly, Executive Director of Carbondale Arts, was present for the meeting.

Amy made the following points:

- Creatives brought in $42 million in sales tax in 2018
- Carbondale Arts is appreciative of the help the Town gave them with rent relief during COVID
- Carbondale Arts has invested more money in marketing than they receive
- Carbondale Arts has helped local artists with their rent
- Mountain Fair gave the Town $4,000 in taxes
- Carbondale Arts anticipates a $100,000 loss this year due to COVID but they still feel hopeful
- Carbondale Arts has been putting money into the community to help keep it vibrant
- Some businesses earned 25% of their revenue on First Friday
- They are working on a valley-wide campaign (Oct. – Dec.) which focuses on supporting valley creatives
- Next year is Carbondale Arts’ 50th anniversary

Mayor Richardson thanked Amy for all of her work on the COVID Task Force. He said he is amazed that the arts are such a huge part of the economy and community.

Trustee Sparhawk noted that having creative people’s help with figuring out problems is hugely important.

**COVENTURE UPDATE**
Michael Lowe and Jonathan Stokely of CoVenture were present at the meeting.

Michael and Jonathan made the following points:

- CoVenture has a robust YouTube channel and a weekly blog
- Most of their efforts since March have been responding to the COVID crisis – helping companies seek PPP loans and SBA loans - as a result 52 companies received a total of $1.7 million
- CoVenture has been keeping in touch with agencies distributing grants
- CoVenture praised their strategic partners Alpine Bank and 1st Bank
- All of their programs are on line
- They had a 20% drop in members = 67 but they are now back up to 78
- They have forgiven $17,000 in rent for entrepreneurs in their building
- Their Pitch event will take place virtually on September 24th
- They have lost some grants but they will be receiving an Economic Development Grant
- They are creating a web portal for community seniors looking for part-time jobs
- They are supporting the community where they can and they are trying to make sure that the Valley isn’t left behind

Mayor Richardson asked Michael and Jonathan how businesses can adapt during COVID. Jonathan responded go digital – take your business on line.

**ADJOURNMENT**

The August 25, 2020, regular meeting adjourned at 8:40 p.m. The next regularly scheduled meeting will be held virtually on September 8, 2020, at 6:00 p.m.

**APPROVED AND ACCEPTED**

ATTEST:  

Dan Richardson, Mayor

Cathy Derby, Town Clerk
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All Amounts are in US dollars
Payment terms: 30% to confirm, balance prior to departure of the unit
Dear Board of Trustees,

Please find attached a set of questions and references regarding new and proposed development on the North leg of SH 133.

Before zoning is changed on the Sopris/Stein property I believe it would be wise to review the overall situation. Blindly following guidelines and ordinances created years before does not address the current impacts of newly built development and especially the overarching current threat of climate change.

I apologize for the rough format and tardiness of these comments.

1. There is no urgency for additional self-storage. Another larger project is making an application. This location is much better suited to active commercial activity.
2. Placing residential on a stare highway raises many issues.
3. Displacing exiting commercial does not help town tax revenues.
4. Sopris houses several very durable local businesses that will likely be eliminated.
5. Locking in this zoning will greatly constrain the options for a much better development.

Respectfully,

Patrick Hunter
1131 County Road 106
Carbondale, CO 81623
970-379-0274
Questions about North section of Hwy 133
8-13-2020

1. Putting housing on a state highway 133?
2. How many 3 story buildings on 133?
3. How many buildings on 133 that DO NOT have the parking in front?
4. Does this fit within the Climate and Energy plan?
5. Capacity of Roundabout?
6. Duplication of existing businesses? How many banks, coffee shops, gas stations are wanted?

Discussion of above:

1. Very little housing on 133 North.
   Lutrell: home
   Remax: 1 unit.
   Mohl CPA; 1 unit.

   Health issues with residential on highways.
   Studies in Spain and US show clear health issues, especially with children.

   Air quality is worse with VOCs and particulates. East side of 133 is the windward side
   and more subject to vehicle emissions.

2. Why 3 story buildings? Increasing building heights increases density. But density has no value
   in itself. Density does not add quality of life to a community. It creates congestion and
   numerous other infrastructure issues. Aspen tried it and is far worse.

3. Parking location relative to the building. Virtually all business on 133 has front parking.

   Exceptions:

   Back parking. Goat Restaurant

4. Have the emissions of the new projects on 133 North been calculated?
   Has the new additional square footage of construction elsewhere in Carbondale been
   calculated for emissions?

   The first target goal of the climate plan was 2025 in Feb of 2019 draft. That was
   changed to 2030 in the adopted plan. So, from 8 years hence to 13 years hence from now
5. All of the new projects on the west side of 133 North will force their returning to Hwy 82 traffic through the roundabout. Roundabout will incur longer and unsatisfactory waiting times to enter. Stacking will take place. Traffic will divert other streets. Calculations by the traffic consultants misstate the growth rate of traffic on Hwy 133.
   - City Market grocery
   - City Market gasoline
   - 115 units on W. Main
   - Starbucks
   - Lumber yard
   - First Bank

References:

Excerpt from 2017 Carbondale Climate & Energy Action Plan p. 18

Tracking and Measurement

Regular tracking, evaluation, and monitoring is important to ensure successful implementation of the emissions reduction strategies. Measuring emissions levels is essential. Measurement provides the data to assess progress in reducing emissions and provides information on overall trends in emissions.

At a minimum, the Town of Carbondale will perform a comprehensive update of the community emission inventory every four years. A progress report on the emissions from energy use will be performed annually. The progress reports will report on emissions trends as well as factors that may have influenced emissions.

This tracking, evaluation and monitoring will allow for adjustments prior to the next Energy and Climate Action Plan, as well as to help structure E-board work plans and regional clean energy work.

These reports will be shared with the public. To further encourage public participation, creative strategies will be pursued to engage the public, such as a display or “thermometer” to show progress.

Goals from the “draft” plan * all goals are measured against a 2009 baseline

The interim goals:

50% by 2025  2009 to 2025 is 16 years.  $\frac{50\%}{16\text{ years}} = 3.1\%$/yr

75% by 2038
90% by 2045
100% by 2050

Goals from “adopted” plan in 2017.

Baseline is also 2009
2009 to 2030 is 21 years. $\frac{20\%}{21\text{ yrs}} = 2.4\%/\text{yr}$

**Baselines, Visions and Targets**

**Energy Use in Buildings strategy area**

**Vision:** All buildings have net-zero emissions

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<th>2030 Target</th>
<th>2050 Target</th>
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<td>Decrease community-wide emissions from building energy usage</td>
<td>47,957 metric tons CO$_2$e (2009)</td>
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<td>Decrease emissions from town government facilities</td>
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**IPCC report Oct. 2018**

*We have just 12 years* to make massive and unprecedented changes to global energy infrastructure to limit global warming to moderate levels, the United Nation’s climate science body said in a monumental new [report](https://www.vox.com/2018/10/8/17948832/climate-change-global-warming-un-ipcc-report) released Sunday.

As expected, the report doesn’t pull any punches: Staying at or below 1.5°C requires slashing global greenhouse gas emissions 45 percent below 2010 levels by 2030 and reaching net zero by 2050.

*45%/20yrs = 2.25%/yr* assuming we are at point zero in 2018.

Problem: we are now ABOVE the baseline levels! We have only 12-2yrs = 10 years.
Town of Carbondale  
511 Colorado Avenue  
Carbondale, CO  81623  
Retail Marijuana Facility Renewal Application

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Applicant is renewing a:

- [ ] Store
- [ ] Cultivation
- [ ] Manufactured Infused Products (MIP)
- [ ] Lab
- [ ] Other (Please Specify)

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<table>
<thead>
<tr>
<th>Street Address</th>
<th>Business Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>922 Highway 133, Carbondale, CO 81623</td>
<td>970-510-3067</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mailing Address</th>
<th>Home Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basalt, CO 81621</td>
<td>Basalt, CO 81621</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating Manager</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Reid Ewart</td>
<td></td>
</tr>
</tbody>
</table>

1. Do you have legal possession of the premises at the street address above?  
   Yes ☐  No ☐
   Is the premises owned or rented?  ☐ Owned ☐ Rented. If rented, expiration date of lease: 8/31/23

2. Is the establishment within 500 ft. of a school?  
   ☐ Yes ☐ No

3. Since the date of filing of the last annual application, has there been any change in the financial interests (loans, etc.) or organizational structure (change of officers, managing members, etc.)? If yes, explain in detail and provide documentation.  
   Yes

4. Since the date of the filing of the last annual application, has the applicant or any of its agents, owners, managers been convicted of a felony?  If yes, attach a detailed explanation.  
   ☐ Yes ☐ No

5. Since the date of the filing of the last annual application, has the applicant hired any new employees?  
   ☐ Yes ☐ No  If yes, have they been:  ☐ fingerprinted ☐ Yes ☐ No

   Had a background check performed?  ☐ Yes ☐ No  Unless not because of COVID-19

**OATH OF APPLICANT**

I declare under penalty of perjury in the second degree that this application and all attachments are true, correct, and complete to the best of my knowledge. I also acknowledge that it is my responsibility and the responsibility of my agents and employees to comply with the provisions of the Town of Carbondale Municipal Code, which affects my license.

<table>
<thead>
<tr>
<th>Applicant Signature</th>
<th>Date: 8/17/20</th>
<th>Title: Managing Member</th>
</tr>
</thead>
</table>

Has the local authority conducted a site visit to ensure that the premises is in compliance with Town Code?  ☐ Yes ☐ No

**THIS APPLICATION HAS BEEN:**  ☐ Approved ☐ Denied

<table>
<thead>
<tr>
<th>Authorized Signature</th>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Attest</th>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
</table>
ADDENDUM

CHANGE OF OWNERSHIP

In May 2020, HQ LLC, HQ Sopris LLC and HQ Mammoth LLC were approved for changes of ownership with the MED related to the merger of all High Q operations under Plum Companies LLC. Plum Companies LLC was formed in January 2020 to effect the merger of all High Q operations and to start new marijuana manufacturing and cultivation businesses. Effective June 2, 2020, the following licensed companies are 100% owned by Plum Companies LLC: HQ LLC, HQ Sopris LLC, HQ Mammoth LLC, HQ Landing LLC, Plum Manufacturing LLC and Plum Agriculture LLC. Attached is a diagram that shows the corporate structure of Plum Companies LLC and its subsidiaries.

Subsequent to the merger, Melyssa Canonico (Ms. Grossman’s niece) lent Plum Companies LLC $100,000, which was converted into equity of Plum Companies LLC. In addition, one of the CBO’s of HQ LLC, Chandra Edwards Geren (M109552) lent Plum Companies LLC and HQ Holdings LLC a total of $800,000.
To: Mayor Dan Richardson and
Carbondale Board of Trustees

From: Gene Schilling
Chief of Police, Carbondale Police Department

Ref.: Liquor License Renewal Application for Phat Thai

Date: September 3, 2020

I have completed the requested record check for the establishment and following individual:

Lari Ann Goode / Manager

I have found no liquor violation records that would cause me to recommend denial of this liquor license renewal.
Retails Liquor or Fermented Malt Beverage License Renewal Application

<table>
<thead>
<tr>
<th>Licensee Name</th>
<th>Doing Business As Name (DBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>THREE 43 MAIN INC</td>
<td>PHAT THAI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liquor License #</th>
<th>License Type</th>
<th>Sales Tax License #</th>
<th>Expiration Date</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>07-72538-0000</td>
<td>Hotel &amp; Restaurant</td>
<td>07725380000</td>
<td>11/12/2020</td>
<td>09/28/2020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Address</th>
<th>Home Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>343 MAIN ST Carbondale CO 81623</td>
<td>rbondale CO 81623</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phone Number</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>9709637001</td>
<td></td>
</tr>
</tbody>
</table>

1. Do you have legal possession of the premises at the street address above? Yes [ ] No [ ]

Are premises owned or rented? Owner [ ] Rented [ ]

If rented, expiration date of lease: [ ]

2. Are you renewing a storage permit, additional optional premises, sidewalk service area, or related facility? If yes, please see the table in upper right hand corner and include all fees due. Yes [ ] No [ ]

3a. Since the date of filing of the last application, has the applicant, including its manager, partners, officer, directors, stockholders, members (LLC), managing members (LLC), or any other person with a 10% or greater financial interest in the applicant, been found in final order of a tax agency to be delinquent in the payment of any state or local taxes, penalties, or interest related to a business? Yes [ ] No [ ]

3b. Since the date of filing of the last application, has the applicant, including its manager, partners, officer, directors, stockholders, members (LLC), managing members (LLC), or any other person with a 10% or greater financial interest in the applicant failed to pay any fees or surcharges imposed pursuant to section 44-3-503, C.R.S.? Yes [ ] No [ ]

4. Since the date of filing of the last application, has there been any change in financial interest (new notes, loans, owners, etc.) or organizational structure (addition or deletion of officers, directors, managing members or general partners)? If yes, explain in detail and attach a listing of all liquor businesses in which these new lenders, owners (other than licensed financial institutions), officers, directors, managing members, or general partners are materially interested. Yes [ ] No [ ]

5. Since the date of filing of the last application, has the applicant or any of its agents, owners, managers, partners or lenders (other than licensed financial institutions) been convicted of a crime? If yes, attach a detailed explanation. Yes [ ] No [ ]

6. Since the date of filing of the last application, has the applicant or any of its agents, owners, managers, partners or lenders (other than licensed financial institutions) been denied an alcohol beverage license, had an alcohol beverage license suspended or revoked, or had interest in any entity that had an alcohol beverage license denied, suspended or revoked? If yes, attach a detailed explanation. Yes [ ] No [ ]

7. Does the applicant or any of its agents, owners, managers, partners or lenders (other than licensed financial institutions) have a direct or indirect interest in any other Colorado liquor license, including loans to or from any licensee or interest in a loan to any licensee? If yes, attach a detailed explanation. Yes [ ] No [ ]

Make check payable to: Colorado Department of Revenue. The State may convert your check to a one-time electronic banking transaction. Your bank account may be debited as early as the same day received by the State. If converted, your check will not be returned. If your check is rejected due to insufficient or uncollected funds, the Department may collect the payment amount directly from your banking account electronically.
Affirmation & Consent
I declare under penalty of perjury in the second degree that this application and all attachments are true, correct and complete to the best of my knowledge.

<table>
<thead>
<tr>
<th>Type or Print Name of Applicant/Authorized Agent of Business</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Signature</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>8/13/20</td>
</tr>
</tbody>
</table>

Report & Approval of City or County Licensing Authority
The foregoing application has been examined and the premises, business conducted and character of the applicant are satisfactory, and we do hereby report that such license, if granted, will comply with the provisions of Title 44, Articles 4 and 3, C.R.S., and Liquor Rules. Therefore this application is approved.

<table>
<thead>
<tr>
<th>Local Licensing Authority For</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<table>
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<tr>
<th>Signature</th>
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<th>Attest</th>
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</tbody>
</table>
To: Mayor Michael Hassig and  
Carbondale Board of Trustee's

From: Gene Schilling  
Chief of Police, Carbondale Police Department

Ref.: Liquor License Renewal Application for The Black Nugget

Date: September 3, 2020

I have completed the requested record checks for the establishment and following individual:

Jan Balas/ Owner /Manager

I have found no liquor violation records that would cause me to recommend denial of this liquor license renewal.
# Retail Liquor or Fermented Malt Beverage License Renewal Application

Please verify & update all information below

<table>
<thead>
<tr>
<th>Licensee Name</th>
<th>Doing Business As Name (DBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legerdeman Inc</td>
<td>BLACK NUGGET</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liquor License #</th>
<th>License Type</th>
<th>Sales Tax License #</th>
<th>Expiration Date</th>
<th>Due Date</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-10747</td>
<td>Tavern (city)</td>
<td>41234936</td>
<td>11/12/2020</td>
<td>09/28/2020</td>
<td>9709634498</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Address</th>
<th>Mailing Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>403 MAIN STREET Carbondale CO 81623</td>
<td>PO BOX 5377 Eagle CO 81631</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating Manager</th>
<th>Date of Birth</th>
<th>Home Address</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan Balas</td>
<td></td>
<td>Carbondale, CO 81623</td>
<td></td>
</tr>
</tbody>
</table>

1. Do you have legal possession of the premises at the street address above? Yes No

2. Are you renewing a storage permit, additional optional premises, sidewalk service area, or related facility? If yes, please see the table in upper right hand corner and include all fees due. Yes No

3a. Since the date of filing of the last application, has the applicant, including its manager, partners, officer, directors, stockholders, members (LLC), managing members (LLC), or any other person with a 10% or greater financial interest in the applicant, been found in final order of a tax agency to be delinquent in the payment of any state or local taxes, penalties, or interest related to a business? Yes No

3b. Since the date of filing of the last application, has the applicant, including its manager, partners, officer, directors, stockholders, members (LLC), managing members (LLC), or any other person with a 10% or greater financial interest in the applicant failed to pay any fees or surcharges imposed pursuant to section 44-3-503, C.R.S.? Yes No

4. Since the date of filing of the last application, has there been any change in financial interest (new notes, loans, owners, etc.) or organizational structure (addition or cessation of officers, directors, managing members or general partners)? If yes, explain in detail and attach a listing of all liquor businesses in which these new lenders, owners (other than licensed financial institutions), officers, directors, managing members, or general partners are materially interested. Yes No

5. Since the date of filing of the last application, has the applicant or any of its agents, owners, managers, partners or lenders (other than licensed financial institutions) been convicted of a crime? If yes, attach a detailed explanation. Yes No

6. Since the date of filing of the last application, has the applicant or any of its agents, owners, managers, partners or lenders (other than licensed financial institutions) been denied an alcohol beverage license, had an alcohol beverage license suspended or revoked, or had interest in any entity that had an alcohol beverage license denied, suspended or revoked? If yes, attach a detailed explanation. Yes No

7. Does the applicant or any of its agents, owners, managers, partners or lenders (other than licensed financial institutions) have a direct or indirect interest in any other Colorado liquor license, including loans to or from any licensee or interest in a loan to any licensee? If yes, attach a detailed explanation. Yes No

---

**Fees Due**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount Due/Paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Permit</td>
<td>$100 X $</td>
</tr>
<tr>
<td>Sidewalk Service Area</td>
<td>$75.00 $</td>
</tr>
<tr>
<td>Additional Optional Premise Hotel &amp; Restaurant</td>
<td>$100 X $</td>
</tr>
<tr>
<td>Related Facility - Campus Liquor Complex</td>
<td>$160.00 per facility</td>
</tr>
</tbody>
</table>

Make check payable to Colorado Department of Revenue. The state may convert your check to a one-time electronic banking transaction. Your bank account may be debited as early as the same day received by the state. If converted, your check will not be returned. If your check is rejected due to insufficient or uncollected funds, the Department may collect the payment amount directly from your banking account electronically.
**Affirmation & Consent**
I declare under penalty of perjury in the second degree that this application and all attachments are true, correct and complete to the best of my knowledge.

<table>
<thead>
<tr>
<th>Type of Print Name of Applicant/Authorized Agent of Business</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan Balas</td>
<td>President</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8/31/2020</td>
</tr>
</tbody>
</table>

**Report & Approval of City or County Licensing Authority**
The foregoing application has been examined and the premises, business conducted and character of the applicant are satisfactory, and we do hereby report that such license, if granted, will comply with the provisions of Title 44, Articles 4 and 3, C.R.S., and Liquor Rules. **Therefore this application is approved.**

<table>
<thead>
<tr>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>Signature</th>
<th>Title</th>
<th>Attest</th>
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</thead>
<tbody>
<tr>
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<td></td>
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</tbody>
</table>
Whereas, a library card is the most essential school supply of all;

Whereas, libraries and librarians play a crucial role in the education and development of children;

Whereas, libraries offer a variety of programs to stimulate an interest in reading and learning;

Whereas, library resources serve students of all ages, from early literacy to STEAM programs to research databases;

Whereas, signing up for a library card is the first step on the path towards academic achievement and lifelong learning;

Whereas, a library card gives students the tools that foster success in the classroom and beyond;

Whereas, librarians create welcoming and inclusive spaces for students of all backgrounds to learn together and engage with one another;

Whereas, a library card empowers all people to pursue their dreams and explore new passions and interests;

Whereas, libraries are constantly transforming and expanding services to meet the evolving needs of their communities;

Therefore, be it resolved that I, Mayor Dan Richardson, proclaim September Library Card Sign-up Month in Carbondale, Colorado and encourage everyone to sign up for their own library card today.
Board of Trustees Agenda Memorandum

Item No: 6
Attachment: D

Meeting Date: September 11, 2020

TITLE: CARES Act Funding – Business Economic Relief Program

SUBMITTING DEPARTMENT: Manager

ATTACHMENTS: COVID CARES ACT, Recovery for Carbondale Businesses Application

BACKGROUND:
The Town Board entered into an agreement with Garfield County which provides $592K of CARES act funding directly to Carbondale. The use of the funds must follow the requirements of the U.S. Treasury and the Town is subject to federal/state audits. The Town Board discussed various option on using CARES act funding to support the community on 7/21. The BOT committed $100K of CARES act funding for mortgage relief through the Aspen Community Foundation on 8/11. The Town anticipates $100k of direct Town expenses. The BOT reviewed the Carbondale Chamber of Commerce business survey and provided input on potential CARES Act business funding for the balance of the funding on 8/25.

DISCUSSION:
The CARES Act funding maybe used for COVID related business expenses and is not designated for revenue replacement. Grants applications of $7,500 or less maybe submitted until all the funding is committed and will be reviewed at the staff level, any appeals will be forwarded to the Revolving Loan Committed (RLF). The application describes the major guidelines for the program such as not using the funds for taxes or overlapping other support programs.

Larger grant applications will have a deadline of 9/30 and will be reviewed in early Oct by the RLF committee. A priority will be put on those businesses/non-profits with the greatest business/operational restrictions as a result of health orders.

RECOMMENDATION:
Town Staff recommends the Town Board approve the COVID CARES ACT, Recovery for Carbondale Businesses Application and associated program.

Prepared By: Jay Harrington

JH
Town Manager
COVID CARES ACT
RECOVERY FOR CARBONDALE BUSINESSES

Purpose of this Funding is to provide fast and direct economic assistance for COVID related expenses for Carbondale businesses.

Please check which amount you are applying for:
___ Up to $7,500
___ Over $7,500

These funds are processed as funding is available. Funds available beginning September 2nd, 2020 until all funds have been exhausted.

Deadline for this option is due September 30th, 2020. These funds will be reviewed by the Revolving Loan Fund Committee and the Town of Carbondale.

- The CARES ACT funding cannot be used in conjunction with other federal or state funding or lost revenues, or for taxes. *(For example, if you are currently utilizing a PPE loan, you cannot use the CARES Act funds for payroll.)*
- Your business must have a physical presence within Carbondale Town Limits.
- All distributed funds must be spent by December 31st, 2020.

Applicant Name: ___________________________ Business/Organization EIN: ___________________________

Business/Organization Name: ___________________________ Phone number: ( ___ ) __________________

Business/Organization Physical Address: ___________________________ City/State: __________ Zip: __________

Business/Organization email: ___________________________ Number of employees: ___

Business/Organization Type: ___ Non-Profit ___ For-Profit ___ LLC ___ Sole Proprietorship

Business/Organization activity: ___________________________

How long has your business or organization been established here in Carbondale? ___________________________

Funding amount request: $ ______________

Description of COVID impacts on business or organization (please attach necessary documents explaining financial impact):
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Desired use of funding if accepted (please attach necessary documents explaining financial impact):
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Have you received any other COVID assistance funding from Federal or State? ___ Yes ___ No

For more information or questions please contact Renae Gustine rgustine@carbondaleco.net or Jay Harrington jharrington@carbondaleco.net

I certify that the information provided in this application and the information that I have provided in all supporting documents and forms is true and accurate. Applicant acknowledges, understands, and agrees that: 1) either Town of Carbondale may require additional information or documentation before the Application can be accepted or processed; 2) the Application may be rejected or denied; 3) even if the Application is approved, the entire amount of funds proceeds requested therein may or may not be funded or otherwise available to Applicant. To the maximum extent possible, Applicant agrees to hold Town of Carbondale harmless with respect to any of the events set forth in this paragraph.

Signature: ___________________________ Date: __________________
TOWN OF CARBONDALE
511 COLORADO AVENUE
CARBONDALE, CO 81623

Board of Trustees Agenda Memorandum

Attachment: H
Meeting Date: 9-8-2020

TITLE: Ordinance No. 12, Series of 2020 – Prohibiting Delivery of Marijuana To Any address located within the Town of Carbondale

SUBMITTING DEPARTMENT: Manager

ATTACHMENTS: Ordinance No. 12, Series of 2020

BACKGROUND: Beginning January 1, 2021, Retail Marijuana Stores who obtain a delivery permit may deliver marijuana and marijuana products to people at their homes. Each municipality can decide if they will allow stores licensed within their municipalities to obtain a delivery permit. However, even if the Town prohibits delivery permits to stores licensed in your municipality (Ordinance No. 4, Series of 2020), stores from other parts of the state who have delivery permits may legally deliver into a municipality unless the Town has an ordinance specifically prohibiting home delivery by anyone.

DISCUSSION: On March 10, 2020 the Board passed an Ordinance prohibiting marijuana stores from delivering marijuana within or outside of the Town’s limits. Staff believes the Board’s intent was to also prohibit stores from other parts of the state, who have delivery permits, to deliver marijuana to Carbondale Town residences. Ordinance No. 12, Series of 2020, would make it unlawful for any marijuana business located outside of the Town’s jurisdictional boundaries to deliver marijuana to any address at any location within the Town.

FISCAL ANALYSIS: None.

RECOMMENDED ACTION: Staff recommends the Board move to approve Ordinance No. 12, Series of 2020.

Prepared By: Cathy Derby

Town Manager
ORDINANCE NO. 12
Series of 2020

AN ORDINANCE OF THE TOWN OF CARBONDALE, COLORADO, REVISING ARTICLES 4 AND 5 OF CHAPTER 6 OF THE MUNICIPAL CODE REGARDING OFF-SITE DELIVERIES FROM LICENSED MEDICAL AND RETAIL MARIJUANA STORES AND TO PROHIBIT DELIVERIES INTO THE TOWN OF CARBONDALE FROM MEDICAL OR RETAIL MARIJUANA FACILITIES LOCATED IN OTHER JURISDICTIONS

WHEREAS, pursuant to Ordinance No. 11 Series of 2013 and Ordinance No. 7 Series of 2014, the Town licenses and regulates retail and medical marijuana establishments; and

WHEREAS, the Board of Trustees seeks to revise Articles 4 and 5 of Chapter 6 of the Town of Carbondale Municipal Code in order to more effectively regulate the licensing of medical and retail marijuana facilities, including to clarify the prohibitions on off-site deliveries from medical and retail marijuana stores within the Town of Carbondale and to prohibit deliveries into the Town of Carbondale from medical and retail marijuana businesses or establishments located in other jurisdictions; and

WHEREAS, the Board of Trustees finds, determines, and declares that it has the power to adopt this Ordinance pursuant to Article XX of the Colorado Constitution concerning municipal police powers and municipal authority to regulate businesses and the Home Rule Charter of the Town of Carbondale; and

WHEREAS, the Board of Trustees finds and determines that it is in the interest of the public health, safety, and welfare to adopt the code amendments set forth herein.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF CARBONDALE, COLORADO that the Town of Carbondale Municipal Code shall be amended as follows:

1. Subsection 6-4-60 of the Town of Carbondale Municipal Code regarding *medical* marijuana licensing requirements shall be amended by adding the language underlined to read as follows:

6-4-60. Unlawful acts.

It is unlawful for any person to:
(4) Deliver medical marijuana or marijuana products from a medical marijuana business located outside of the Town’s jurisdictional boundaries to any address at any location within the Town.

2. Subsection 6-4-90 of the Town of Carbondale Municipal Code regarding medical marijuana licensing requirements shall be amended by adding the language underlined to read as follows:

6-4-90. Medical marijuana center licensing requirements.

(4) Off-site delivery of product by licensee prohibited. All sales and distribution of medical marijuana by a licensed medical marijuana store shall occur only upon the licensed premises, and the licensee shall be strictly prohibited from delivering medical marijuana to any person at any other location within or outside of the Town limits.

3. Sub-section 6-5-80 of the Town of Carbondale Municipal Code regarding retail marijuana licensing requirements shall be amended by adding the language underlined to read as follows:

6-5-80. Unlawful acts.

It is unlawful for any person to:

(5) Deliver retail marijuana or marijuana products from a retail marijuana establishment located outside of the Town’s jurisdictional boundaries to any address at any location within the Town.

4. Sub-section 6-5-120 of the Town of Carbondale Municipal Code regarding retail marijuana licensing requirements shall be amended by adding the language underlined to read as follows:

6-5-120. Retail marijuana store licensing requirements.

(3) Off-site delivery of product by licensee prohibited. All sales and distribution of retail marijuana by a licensed retail marijuana store shall occur only upon the licensed premises, and the licensee shall be strictly prohibited from delivering retail marijuana to any person at any other location within or outside of the Town limits.
5. If any other ordinance or parts of ordinances are in conflict with the standards set forth in this Ordinance, they are hereby repealed to the extent of such conflict only.

6. This Ordinance shall be effective upon posting and publication in accordance with the Carbondale Home Rule Charter.

INTRODUCED, READ AND PASSED THIS ____ day of __________, 2020.

TOWN OF CARBONDALE, COLORADO
a Colorado home rule municipal corporation,

________________________________________
Dan Richardson, Mayor

ATTEST:

________________________
Cathy Derby, Town Clerk
Board of Trustees Agenda Memorandum

**Meeting Date:** September 8, 2020

**TITLE:** Authorize Final Design-Nettle Creek Pump-Back System

**SUBMITTING DEPARTMENT:** Utilities

**ATTACHMENTS:** Feasibility study, alternatives, and cost

**BACKGROUND:**
On February 25, 2020, the Board of Trustees approved an agreement with MPA Consulting Engineers to study the feasibility of installing a pump-back system on the Nettle Creek Pipeline. The purpose of this was to develop a design for installation of pumps along the Nettle Creek Line which would allow for an emergency supply to be available from town to the Nettle Creek treatment plant.

This pump back system was identified early on from the VCAP process to avert water outages to the 46 out-of-town customers that are served along the line, in the case of plant failure or a call on the Crystal River similar to what happened in 2018.

**DISCUSSION:**
Initially, a request for proposal was sent out requesting a study for the feasibility of installing pumps as turbines (PaT) as one alternative to generate power and achieve the needed pressure reductions during normal operations and then being able to be reversed to pump water from town back up the pipeline should the Nettle Creek Plant be out of service for whatever reason. All proposals received stated that this would not be feasible due to the hydraulic gradient between PRV 3 and PRV 1. It was indicated from the proposals that it might be possible to install a hydro facility at or above PRV 3. Based on the feedback, the feasibility study prioritized the pump back system without hydro generation, a secondary option was included for hydro generation with a PaT being incorporated at PRV#3.

Water hammer or pressure surges were of primary concern with the addition of the pump back system. This was identified as a moderately low risk to the integrity of the line due to the relatively low pumping rate selected for the pumps at 150 gallons per minute and the installation of variable frequency drives for the pumps which will dampen the start/stop instantaneous surges when pumping. A more in-depth transient analysis has been identified in the study to inventory existing infrastructure, assess the hydraulic conditions with the pump back system in operation. Additional appurtenances as
deemed necessary will be recommended from this analysis once the pump back system is commissioned.

The feasibility study incorporated the following options to consider (options 2A and 2B have the same equipment configuration, just with different turbines):

- **Option 1.** Pump back only - installing pumps in PRV Vaults 1 and 3, PRV 2 will remain with no changes.
- **Option 2A.** Pump back with power generation at PRV 3 - a pump to be installed in PRV #1 and a PaT installed in PRV#3, PRV #2 remains with no changes. This option includes a KSB hydro turbine installation in PRV #3 which is financially marginal in terms of its turbine hydraulic efficiency and power output.
- **Option 2B.** Pump back with power generation at PRV 3 - a pump to be installed in PRV #1 and a PaT installed in PRV#3, PRV #2 remains with no changes. This option includes a TecnoTurbine hydro turbine installation in PRV #3 which is more efficient with a higher return rate on investment.

Staff recommends the selection of Option 1 or Option 2B.

**FISCAL ANALYSIS:**

The cost estimates for the pump back system include estimated cost of installation and ancillary utility connections with Holy Cross (PRV#3) and Xcel (PRV#1) for power. Each also includes approximately $40,000 for pipeline testing and transient analysis.

<table>
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<th>Option</th>
<th>Cost</th>
<th>Description</th>
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<tr>
<td>Option 1</td>
<td>$332,609</td>
<td>(No hydro generation)</td>
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<tr>
<td>Option 2A</td>
<td>$383,208</td>
<td>(hydro generation with an approximate 16-year payback)</td>
</tr>
<tr>
<td>Option 2B</td>
<td>$398,010</td>
<td>(hydro generation with an approximate 10-year payback)</td>
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Depending on the results of the transient analysis, there may be additional work necessary on the Nettle Creek Line (addition of surge tanks, blow-offs, etc.) If so, these items would be included in future budgetary discussions.

The approved 2020 budget has funds which support this project to be implemented, however, due to timing, funds will also be included in the 2021 proposed budget as the project is likely to span both years before completion.

**RECOMMENDATION**

Staff recommends the Board of Trustees to discuss the preferred alternatives of option 1 and option 2B for implementation, then authorize for the final design and installation of the preferred option for a pump back system on the Nettle Creek Pipeline as outlined in the attached feasibility study by MPA Consulting Engineers.

Prepared By: Mark O'Meara, Utility Director/Kevin Schorzman, Public Works Director
A feasibility study was performed by MPA Consulting Engineers of Glenwood Springs for the Town of Carbondale, for the installation of a pump-back system on the Nettle Creek pipeline which provides the normal water supply to town from the treatment plant which is approximately 6.5 miles to the south. Refer to report No. G20030-5-5003. With increasingly dry conditions, there is greater potential for more senior water rights on the Nettle Creek water supply to the treatment plant to be called, thereby threatening the water supply to the approximately 50 water customers tapped into the pipeline. Also, the water flow down the pipeline could be jeopardized at times of major maintenance to the treatment plant.

The proposed pump-back system will pump water back up the pipeline from the town water supply to the clear well storage at the treatment plant. The clear well has approximately 30,000 gallons usable storage.

There are currently two pressure reducing vaults along the line, one at vault #3, almost 1 mile and 360 vertical ft below the treatment plant and the other approximately 3 miles further downstream, alongside Thomas Road. Vault #1, another approximately 3 miles downstream and located to the north of the Prince Creek Road intersection, is 605 vertical feet below the treatment plant. It controls the flow of the water into the town system. The 2,000,000 gallon White Hill reservoir maintains the head pressure on the town system and buffer storage.

The pipeline will carry flows of up to 1,200 gpm, however, the flow down the pipeline generally varies between 300 and 600 gpm through the year. The total demand of the customers along the line is generally around 30 - 40 gpm, with maximum usage sometimes up towards 80 - 90 gpm.

The pump-back system was selected to provide a flowrate of up to 150 gpm.

The study also considered recovery of some of the energy from the normal down flowing water into town and concluded that it could be considered economical to provide a pump in vault #3 which acts as a turbine-generator during downflow, with the sale of the generated electricity to the Holy Cross Electric Association.

While the study found that the existing pipeline was capable of sustaining the higher pressures at vault #1 if the pressure reducing vaults were bypassed, it was considered prudent to retain the vaults #3 and #2 in service.

Three options were developed:

- **Option 1** – Pump-back with simple pumps only, one in vault #1 and one in vault #3. Vault #2 is bypassed during pump-back but remains in service for normal water supply to town. Total estimated project cost is $332,609. (This price includes $40,000 for further pipeline integrity verification and transient pressure monitoring and preparatory modeling.)

- **Option 2A** – Pump-back with a simple pump in vault #1, and a pump in vault #3 which also acts as a turbine (PaT) for power recovery during normal water supply to town. The PaT is supplied by KSB, a German company with good representation in the US. It runs at a fixed speed during
turbine operation and due to its low fixed speed efficiency generates only approximately 3.5 to 4 kW. Vault #2 is bypassed during pump-back but remains in service for normal water supply to town. Total estimated cost is $383,208. (This price includes $40,000 for further pipeline integrity verification, and transient pressure monitoring and preparatory modeling.) The simple payback period for the additional project cost over Option 1 from the power sold to Holy Cross Electric is 16.3 years.

- **Option 2B** – Pump-back with a simple pump in vault #1, and a pump in vault #3 which also acts as a turbine (PaT) for power recovery during normal water supply to town. The PaT is supplied by TecnoTurbine of Spain, with representatives in Golden, Colorado, and includes a control package which provides variable speed operation to improve efficiency, with generation of approximately 7.5 kW. Vault #2 is bypassed during pump-back but remains in service for normal water supply to town. Total estimated project cost is $398,010. (This price includes $40,000 for further pipeline integrity verification, and transient pressure monitoring and preparatory modeling.) The simple payback period for the additional project cost over Option 1 from the power sold to Holy Cross Electric (HCE) is 10.4 years.

Option 2B is considered superior to 2A, not only because of the better return on investment but also because of better control features.

Bypassing vault #2 during the proposed pump-back provides a simpler system with better control and avoids the need for a power supply there.

Vault #3 requires the supply of power from the nearby HCE powerline and will have control communications directly with the existing central control at the wastewater treatment plant.

The equipment delivery time for the Option 2B would permit installation after January, 2021.

The modifications for all the options fit within the existing vaults, while still permitting acceptable maintenance access. The modifications include reducing the size of the pressure reducing and flow control valves to a smaller size which provides better control and reasonable working space, while still being able to service maximum flowrates. The design of the modifications minimizes the downtime for the pipeline.

Two major issues became evident during the study and required considerable additional work. The first was the susceptibility of the cast iron pipeline to water hammer (pressure surge) failure. The new system design is unlikely to increase the risk of such failures and commission tests are planned to confirm this. An additional report has been provided, No. G20030-5-5004, recommending further action to analyze and moderate the risk of pressure surge failures. A preliminary, low cost transient pressure analysis is planned as part of this project. A detailed transient analysis will be proposed as part of a project separate to the current project.

While the use of cast iron piping, which is more susceptible to brittle failure was generally discontinued throughout municipalities shortly after the installation of the 10” pipeline in the 1960’s, the integrity of the
pipeline itself appears good and close to original condition. Some final inspections are planned to confirm this.

The second issue was the earlier limitation of the operating pressure in the pipeline by use of the pressure reducing stations. Extensive analyses and inspection have indicated that there is no pipeline strength basis for limiting the pressure and that the pipe construction information used in the original analyses was not correct. Pressure rating in accordance with the appropriate standards has determined rated pressures above the maximum possible static pressure at vault #1 with the PRV’s bypassed. The new pump-back system would increase the pressure at vault #1 by 20% above current operating pressures and is well within the design capability of the pipeline. (The pressures that cause the line to fracture are many times higher than the operating pressure and not related significantly to the normal operating pressures and will be the subject of the abovementioned transient pressure analyses.)
Town of Carbondale

NETTLE CREEK PUMP-BACK SYSTEM

FEASIBILITY STUDY

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CLIENT: Town of Carbondale

Date: Aug 17, 2020

Subject: Nettle Creek Pipeline Pump-Back Feasibility Study

Report No.: G20030-5-5003 Rev. 1
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1.0 PURPOSE

To provide a feasibility study, including a cost analysis, for installing a pump-back pumping system on the water line from the Nettle Creek water treatment plant to the Town of Carbondale to ensure that the water supply is maintained to the residences which are tapped into the pipeline during times when the water supply to or from the treatment plant is shutdown. The feasibility study would also evaluate the merits of hydro power recovery during water delivery to town as part of the pump-back system.

2.0 INTRODUCTION

The Nettle Creek water treatment plant, which is the main water supply for the Town of Carbondale, is located on the base of Mt Sopris, approximately 6.5 miles south of the pipeline connection point into the Towns’ water system at vault #1. The vertical fall is approximately 600 ft. The water line is a buried 10” cast iron line, installed in the 1960’s, and designed for a maximum flowrate of 2,000,000 gallons per day, or 1,400 gpm. Along the pipeline there are approximately 50 residences tapped into the line.

A history of the pipeline is provided in section 5 of this report.

The treatment plant is supplied by spring fed Nettle Creek. In 2018, during drought conditions, a more senior water right was called, shutting down the water supply to the treatment plant. This left the residences along the pipeline at risk of not having their water supply being provided by the town. In order to ensure an uninterrupted supply of water to these residences during drought times and at times of maintenance shutdown of the water treatment plant, it is planned to install a pump-back system which draws water from the town system.

During times when the Nettle Creek supply to the town is shutdown, water for the town is obtained from wells drawing from the Crystal River and the Roaring Fork River. A 2,000,000 gallon reservoir approximately 100 ft above the town on White Hill, maintains the town pressure at approximately 50 psig.

Along the pipeline is a series of vaults. Vault #3 is almost 1 mile and 358 ft below the treatment plant and houses a pressure reducing station with a downstream pressure of approximately 50 to 60 psi. Vault #2 is approximately 3 miles further downstream, 145 ft below vault #3 and also houses a pressure reducing station with a downstream pressure of approximately 60 psi. Vault #1 is almost another 3 miles downstream, 102 ft below vault #2 and it houses a flow meter and a flow control valve which controls the flowrate into town based on the level in the clear well at the treatment plant. The flow rate into the treatment plant is a manual set point which is only occasionally adjusted. The pressure reducing and flow control stations were installed in 2000 / 2001. The flow from the treatment plant clear well generally varies over the year, from approximately just over 300 gpm to approximately 600 gpm and is also monitored by a flow meter.

Residences and agricultural customers are tapped into all three sections of the pipeline and their combined usage typically varies from approximately 30 gpm to less than 100 gpm, although unusual usages above 100 gpm have occurred. The Sewell sub-division of residences is located almost a mile downstream of vault #3, with the elevation of its highest service approximately 45 ft above vault #3, and is a critical minimum pressure point which influences the performance of the pumps and turbines.
There are two fire hydrants along the pipeline, one above vault #2 and the other below. These are primarily intended to be used for flushing and air removal. They are not intended to be for fire duty, however, they are available for bulk water supply in case of an emergency and a flow rate from either hydrant of 500 gpm is considered adequate.

Refer to the pipeline route and hydraulic study in appendix D.

The cast iron pipeline has suffered numerous fracture failures. Most have been transverse type, which is believed to be caused by differential ground settlement. It is understood that the original trenching/pipe bedding work quality may not have been good. Some of the fractures have been longitudinal splits, considered to be due to pressure surges, aka “water hammer”, or transient pressure behavior. Such “water hammer” failures, as well as the “ground settlement” failures have continued to occur after the installation of the pressure reducing stations.

The Nettle Creek treatment plant and vault #1 flow control are monitored and controlled via a SCADA system that communicates with the central control computer at the waste water treatment plant on the north side of town. The signals to/from the treatment plant travel via transceivers at the White Hill tank, whereas the signals to/from vault #1 are direct to the central computer.

### 3.0 SUMMARY / SCOPE OF WORK

While the base scope of work to develop and cost a basic pump-back system appears simple, it was undertaken with the aim of not making changes which would worsen the water hammer situation. Additionally, it quickly became apparent that it was desirable to bypass the vault #2 pressure reducing station and therefore a careful understanding of all the features and conditions applicable to the operation and stability of the system was critical. A major effort has been required to understand the history and operation of the line and in evaluating the pipe’s characteristics. Some information has not been able to be located and further searching is recommended for the next phase of work which would include transient analysis.

After detailed evaluation of the system, it was concluded that the addition of the pumping system as outlined in this study, with proper control, and its low pumping rate, is unlikely to add any further risk to the operation of the pipeline from a transient pressure point of view.

Review of past documentation and information provided indicates that the entire length of pipeline is 10” cast iron, installed in the 1960’s, although one report says that some sections were ductile iron. We have assumed that the entire length is 10” cast iron. Review of past reports from different locations along the line and examination of one sample that became available during the conducting of this study indicates no significant corrosion and good condition of the pipe. On this basis, and using rating and calculation procedures of the day, the pressure rating of the line is determined to be between 278 psig and 384 psig (close to 384 psig with no corrosion).

With the proposed pump-back system in an active state of operation, steady state pressures are increased in the line section between vaults #1 and #2, from current conditions of approximately 105 psig up to 186 psig. The pipeline currently sees a maximum pressure of 155 psig upstream of vault #3.

Hydrotesting of the line to full static head, (262 psig), from the treatment plant is recommended as good engineering practice.
The size of the control valves in vaults #1 and #3 has been reduced from 8” to 6” which provides more space in the vaults and is a desirable improvement in the system control since the existing control valves are oversized by a large margin.

The risk of “water hammer” pipeline rupture after the alterations essentially remains the same as before. From preliminary transient analyses, and accounting for potential poor pipe bedding conditions, it is difficult to explain how the high pressures needed to rupture the line are attained. It may be due to a combination of issues related to air release valve, pressure reducing and relief valve operation, including dynamic interaction, which requires a sophisticated transient “surge” analysis and investigation of all the components along the line and significant items downstream of vault #1. Such work is beyond the scope of the pump-back system feasibility study and its subsequent design. Transient analysis of the piping system is recommended. It is planned to provide a separate brief report recommending further pipeline definition and expert study. Methods for eliminating or reducing the risk of pressure surge induced failure of the line are available.

A low pump-back flowrate of a maximum of 150 gpm was established with a pump to be installed in vault #1 and vault #3. From a control and simplicity point of view, a two-pump system was considered simpler and more reliable than a three-pump system and would avoid the installation of a pump in vault #2 and associated supply of power and communications.

It was decided, however, that it was prudent to continue the pressure reducing operation of vault #2 for flow to town operation, at least until the water hammer failure situation is better understood.

Power to vault #3 is available from a nearby 3-phase Holy Cross Electric Association (HCE) power line. For monitoring and control at vault #3, it was established that there was viable SCADA communication direct to the central control system at the waste water treatment plant.

Additionally, the installation of a “PaT (pump-as-turbine) at vault #3 was considered for recovering pressure energy from the 358 ft elevation difference between the treatment plant and vault #3 that would otherwise be dissipated across the pressure reducing valve. The PaT needed to satisfy the pumping duty as well as providing reasonable power recovery when the water is flowing to town. It was determined that there were at least two potential pumps on the market that were also rated as PaT’s that could satisfy both duty requirements.

Analysis of flow data since 2016 has indicated a reliable minimum flow of 300 gpm for the PaT.

Both of the pumps/PaT’s are manufactured in Europe where the technology is more widely applied than in the US, one in Germany and the other in Spain. The first to be considered was the German PaT. It is financially marginal in terms of its turbine hydraulic efficiency and power output. The Spanish PaT is much more efficient and only recently became available after an extended factory shutdown.

Analysis of the capital cost differential for the installation of a the Spanish pump/PaT in Vault #3, as opposed to solely a pump, has indicated a potentially favorable financial payback.

An attractive power purchase rate by Holy Cross Electric has been established using “net metering” in conjunction with the previously planned hydro-power plant above the Nettle Creek treatment plant.

Estimated project costs of the alternatives were determined after producing preliminary designs for the new arrangements within vaults 1 and 3 and establishing the control scheme and SCADA communications.
pump/PaT parameters were established by hydraulic analysis after first validating the hydraulic model against the previous study by Schmueser Gordon Meyer, Inc (SGM). Preliminary P&ID’s with control descriptions were generated and preliminary piping and equipment layouts within the existing vaults were produced. Budget equipment, piping, electrical costs were obtained from vendors and contractors provided budget installation costs. Estimated engineering costs were determined.

Inspection of the full pipeline is not in the scope of this report. This report does not address the function or condition of the manual valves, control valves, air release valves and other appurtenances in the pipeline between the vaults.

4.0 CONCLUSIONS

4.1 For Option 1, a viable pump-back-only system with a design flow up to 150 gpm has been developed using two identical pumps, one in vault #1 and one in vault #3. The estimated total capital cost for the project is $292,649 and is detailed in Appendix H.

4.2 Option 2A has a pump/PaT in vault #3, a KSB 65x50 end suction centrifugal pump whose motor operates as an induction generator when operated in reverse at fixed speed. The estimated total capital cost for the project is $343,248 and is detailed in Appendix H.

4.3 Option 2B has a pump/PaT in vault #3, a TecnoTurbine 65x40 end suction centrifugal pump whose motor operates as an induction generator when operated in reverse as a turbine but has a control package with variable speed operation which provides higher efficiency than for the Option 2A PaT. The estimated total capital cost for the project is $358,050 and is detailed in Appendix H.

4.4 The Option 2A KSB 65x50 turbine hydraulic efficiency for the site duty point is low at approximately 36%. The power generated is approximately 3.7 kWe at approximately 260 gpm through the PaT. Using the expected rate from HCE of $0.09958 per kWh (Appendix I), the simple payback period for the estimated capital cost differential of $50,600 between the pump-back-only Option 1 and this Option 2A is 16.3 years. Details of the turbine-generator performance and on-line factors, etc are given in Appendix G.

4.5 The Option 2B variable speed operation of the PaT achieves a much higher hydraulic efficiency of around 70%. The turbine can also operate at a slightly higher flow rate of approximately 300 gpm before the parallel PRV opens to maintain acceptable downstream pressures. The combination of these two factors results in an improved power generation of approximately 7.6 kWe. Using the expected rate from HCE of $0.09958 per kWh, the simple payback period for the estimated capital cost differential of $65,400 between the pump-back-only Option 1 and this Option 2B is 10.4 years. Details of the turbine-generator performance and on-line factors, etc are given in Appendix G.

4.6 Alterations to the system for all options can be accommodated within the existing vaults. The new pipework would be connected into existing flange or Victaulic joints without the need for cutting or welding on the existing 10” pipe or 8” stubs.

4.7 The new work can be done with minimal interruption to the water supply. The new piping would be prefabricated with appropriate spools having field-fit allowances.
4.8 The vault #2 pressure reducing valves would be bypassed during pump-back but retained for normal down flow to town.

4.9 The control of the new design can be readily integrated into the existing SCADA control system.

4.10 Inspection of a sample of the pipeline pipe during the current study and many prior reports indicate that the pipe is in good condition with no significant corrosion.

4.11 Per original calculation procedures, using zero corrosion condition, but with the traditional nominal allowance for water hammer and allowance for poor bedding, the original pressure rating for the pipeline is 384 psig (278 psig with 0.08” corrosion allowance). See reference 11 in Appendix A. The approximate burst pressure for the pipeline is calculated to be 1,260 psig for the non-corroded pipe, with provision for poor quality bedding per the design standard.

4.12 Options #1 and #2 have maximum static pump-back pump discharge pressures at vault #1 of 156 and 166 psig respectively. The Option 2B TecnoTurbine when operating as a pump in vault #3, delivers a lower head which requires a higher head pump in vault #1 and an increase in the pipeline pressure at vault #1 to 186 psig. The current pipeline operating pressure at vault #1 is approximately 104 psig (before deducting friction loss), not including any pressure transients. The current maximum pipeline pressure is 155 psig, above vault #3.

4.13 The SGM study listed in Reference No.1 intentionally provided lower pressures in the pipeline, with their maximum static pressure at 155 psig. While SGM referred to “recommended” and “acceptable” pressures, these were not provided nor justified in their report and it is evident from the investigations in this report that SGM did not use data specific to the 10” cast iron pipe in the pipeline and that the static pressures that MPA is proposing are well within the capabilities of the pipeline.

4.14 It is therefore concluded that with good operating practices, the pumping back at the higher pressure of 186 psig is appropriate to the piping specifications and current condition and will not increase the operating risk to the pipeline.

4.15 Water hammer pressure surges are basically proportional to the change in the water velocity. When pumping at 150 gpm, the velocity in the pipeline is only 0.6 fps and the corresponding simple maximum, “Joukowski”, surge pressure is 31 psig, given proper check valve operation.

4.16 A full pressure hydrotest of the pipeline above vault #1, with vault #2 and vault #3 bypassed is recommended. The resultant hydrotest pressure of 262 psig is well within the static pressure capability of the pipeline.

4.17 The pipeline has been and continues to be subject to fractures due to ground settlement and pressure surges.

4.18 The design alterations proposed will not further reduce the integrity of the pipeline operation, subject to final confirmation in a pressure transient analysis in order to be prudent.

4.19 An investigation of the causes of the transient pressure surges experienced in the pipeline and possible improvements is critical to the goal of improving the pipeline reliability.
4.20 The pipeline needs to be verified as being constructed from 10” cast iron along its full length. (One report, reference No. 15, states that sections of the pipeline are from ductile iron.)

4.21 Additional pipeline thickness tests are recommended, although it is fully expected that no significant wall thickness loss due to corrosion will be found.

4.22 The SGM pipeline design rate of 1,200 to 1,400 gpm is much higher than occurs in current times. The typical annual maximum treatment plant effluent flowrate since 2016 is approximately 600 gpm.

4.23 Typical flowrates from the water treatment plant clear well are between 350 to 450 gpm with seasonal highs up to 500 or 600 gpm, based on data from 2016 to the present, as shown in Appendix C.

4.24 Water usage by the customers along the pipeline is approximately 30 to 50 gpm, with occasional demands up to 100 gpm. Unusual demand above 100 gpm has been experienced.

4.25 At vault #3, operable pump/PaT arrangements have been developed with an operating flowrate of around 300 gpm. Flows higher than 300 gpm will bypass around the PaT through the parallel PRV. The parallel PRV is reduced from the existing 8” to 6”. The 6” full port PRV is capable of passing flowrates of up to 1,800 gpm.

4.26 The Option 2B advanced control package for the TecnoTurbine PaT provides for a simpler control system for startup and shutdown and enhanced water hammer protection over the Option 2A simple PaT by controlling the speed and PaT shutdown in the event of grid power outage.

4.27 The required minimum supply pressure of 30 psig for the highest residence in the Sewell subdivision downstream of Vault #3 can be maintained at up to 600 gpm by setting the vault #3 PRV at 53 psig.

4.28 The existing system and all of the new pump-back options can readily supply the minimum emergency bulk water supply requirement of 500 gpm from the two fire hydrants installed above and below vault #2.

4.29 There is adequate SCADA signal communication between vault #3 and the central control computer at the waste water treatment plant in Carbondale.

4.30 The pump and its VFD in vault #1 can adequately operate with the single phase electrical supply from the adjacent Xcel Energy pole. The utility pole transformer and wire size needs to be upgraded. The vault #1 VFD for the new pump is single phase input/3-phase output.

4.31 The vault #3 pump/PaT will operate efficiently using 3-phase power supply from the nearby HCE power line, with HCE providing 3 pole-mounted transformers.

4.32 A small sump pump is required in vault #3. It will be installed in the existing floor drain.

4.33 The 6” valve sizing for the main pressure reducing valve in vault #3 and the flow control valve in Vault #1 is adequate for all flows and is a potential improvement of the system controllability/stability.
over the existing oversized 8” valves. The PRV will likely be fitted with a low flow trim and both valves may benefit by being reduced port. These features would be considered in the detail design phase.

4.34 The set pressures for the existing 2” pressure reducing valves in vaults #2 and #3 need further consideration in the detail design phase.

4.35 The customers tapped into the pipeline should be advised that there will be changes to the pressure in the pipeline and it is their responsibility to verify the proper functioning and setting of their pressure reducing valves on their individual lines.

5.0 COMMENTARY ON PIPELINE HISTORY & PRIOR REPORTS

An extract from the report done in 1999 by Schmueser Gordon Myer (SGM) titled “Nettle Creek Transmission Line Hydraulic Analysis” is attached in Appendix J. This report is also named as reference No.1 and the line survey and hydraulic drawings from that report are also presented in Appendix D.

A history of the line from the first woodstave pipeline in 1910 through to the installation of the existing 10” cast iron line in 1963 and 1965 is provided. As noted elsewhere in our report, another subsequent report by SGM in 2009, reference No. 15, states that sections of the new line were from ductile iron. We have assumed that all the line is 10” cast iron, which needs to be confirmed.

The new 2.0 MGD treatment plant at Nettle Creek was installed in 1997.

Prior to the installation of these “PRV” stations, there were pressure relief valves along the line discharging into the Crystal River and the level in the White Tank 2.0 MG reservoir in town was maintained full by continual overflow. The water was chlorinated and such discharges into the environment was no longer permitted.

There were two pressure sustaining valves along the line which had been previously installed to ensure water supply to the customers tapped into the line above these locations. At some time, it appears that the upper pressure sustaining valve was replaced with another valve which was operated to provide a degree of seasonal flow control into the White Hill tank. In any case, the subject alterations of the 1999 report resulted in the removal of the pressure sustaining valves and, by inference, the removal of some of the relief valves and elimination of the seasonal manual flow control valve.

A major feature of the new system was the introduction of continuous control of the flow through the pipeline, based on the output from the new treatment plant and elimination of overflow of the White Tank. (A note of clarification – the flowrate through the treatment plant is a manual operator set point, based on the town needs and the level in the White Tank.)
(We surmise that much of the variable flow availability and pressure variations to customers along the line, particularly prior to the installation of the pressure sustaining valves, was due to the unimpeded discharge of the line into the White Tank at a rate higher than often could be supplied by the Nettle Creek springs, resulting in open channel water flow down line and major air entrainment. The situation was also compounded by excessive, uncontrolled water use by some of the customers.)

Another concern had been the potential high pressures to the customers along the line. This has been addressed by requiring the customers along the line to have pressure reducing valves on the supply into their properties.

In addition to the issue of high pressures to the residential customers, the 1999 report was concerned with high pressures in the pipeline due to the static head. It was stated that pressures within the main would exceed “recommended levels”. Later in the report the stated aim was to install pressure reducing valve pits “located so that zones of acceptable pressure, say 120 psi upstream and 50 psi downstream, are maintained.” (The final installation resulted in PRV #3 having static pressures of 155 psig upstream, PRV # 2 having approximately 125 psig upstream and PRV #1 having approximately 105 psig upstream.)

Nowhere in the report was there any definition of nor justification of the “acceptable” or “recommended” pressures for the main.

(It is apparent that SGM did not know the detailed specifications of the line. They were unaware that the pipe is cement lined. The also did not present any information on the class or the cross-sectional dimensions of the pipe and apparently did not know the wall thickness of the pipe and thus its pressure rating. Amongst their tabular data report on the page titled “Scenario: NCMAIN – 1400 gpm, Steady State Analysis, Pipe Report”, back calculation reveals that SGM used a pipe internal diameter of 10.00”. Measurements taken by MPA, and discussed elsewhere in this report, find an internal diameter of the cement lining of 10.12” and an ID of the metal pipe of near to 10.27”. Anyone preforming a hydraulic analysis of long pipelines knows the criticality of using a precise internal diameter since the pressure losses are proportional to diameter to the 5th power.)

It is speculated that in the past, pressures of approximately 250 psig have occurred in the line, eg potentially during times of shut-in of the lower pressure sustaining valve for maintenance, although this cannot be confirmed and the functioning of the upstream pressure relief valves at that time is unknown.

It has been reported by current operating personnel that pressures in the vicinity of 300 psig have been observed in the pipeline at PRV #1 during a valve line up or operation mal-function. This did not result in any failure of the pipeline.

Inspection of the pipeline and its valves was documented in the 2009 SGM report, reference No. 15. The condition and suitability of various of the valves could not be verified at that time. The 2009 report also briefly presents a log of pipeline fractures that have occurred at various locations along the pipeline from the 1990’s through 2008.

6.0 DISCUSSION

The references for the material presented in this feasibility study are listed in Appendix 1.

Three options have been considered:
- “Option 1”, provides a pump and associated piping in the existing vault #1 and a pump and associated piping in vault #3. Both pumps are the same. The pressure reducing station in vault #2 is bypassed.
- “Option 2A” provides the same pump as in Option 1 in vault #1 and a pump that can also operate as a turbine, “PaT”, in vault #3, again with the vault #2 pressure reducing station bypassed. The PaT permits power recovery from some of the flow during normal water supply to town. The turbine power generation is at fixed speed.
- “Option 2B” again has a pump in vault #1 and a pump/PaT in vault #3 and the vault #2 PRV is again bypassed. The PaT for this option has a variable speed control and much higher hydraulic efficiency. When operated as a pump it produces a lower head than for the vault #3 pump/PaT in Option 2A and therefore a higher head pump is required in vault #1.

Piping and Instrumentation drawings (P&ID’s) and piping and pump general arrangement drawings, one for vault #1 and one for vault #3, were prepared and are presented in Appendix 2. There is one P&ID for each of the three options. The vault #1 piping drawing applies to all three options. The pump for Option 2B in vault #1 is a little taller than for Options 1 and 2A since it has 5 stages rather than 4. The Option 1 piping arrangement in vault #3 is similar to vault #1 except for the PRV in vault #3 instead of the FCV, there is no 3” mag flow meter in the pump circuit, some other small instrumentation differences and the existing 8” tie-in connections are grooved (Victaulic) coupling rather than flanged. The vault #3 piping drawing is for Option 2A, with the KSB pump/PaT. The arrangement for Option 2B is similar except that the TecnoTurbine pump/PaT is smaller and the 4” HIC valve in the PaT leg for Option 2A is replaced with a 4” pressure reducing valve. Additionally, a strainer is required upstream of the 4” pressure reducing valve.

The new piping for the pump-back duty is sized at 3” for the 150 gpm flowrate. The new piping for the circuit through the PaT is sized at 4” for the 300 gpm flowrate. There is a 3” mag flow meter in the vault #1 pump-back circuit which measures the flow from the town system back to the treatment plant clear well. The existing flow meter at the clear well outlet will not measure the pump-back flow as the flow direction is reversed.

A separate main flow meter is not required in vault #1 as the new 6” Cla-Val flow control valve is fitted with the option of differential pressure measurement and plug position transducer and a computation package which uses this information and the known valve flow coefficient as a function of position and calculates and reports the flow. The stated accuracy of this system is 2%.

If the Option 2A or 2B is adopted and expedited operation of the pump-back system is required, some additional minor piping changes can be made to accommodate the temporary installation of a pump the same as in Vault #1 which has a short lead time.

Water flow rates from the treatment plant and the net usage between the treatment plant and vault #1 are given in Appendix C.

Appendix D contains a Google Earth image showing the pipeline routing and the location of the vaults. The 1999 hydraulic study by SGM is also included. Detailed topographic and survey information is included, along with the different flow rates and pressures for different PRV pressures.

Further details of the customer residences and elevations were provided by the Carbondale water department and the Pitkin County GIS system.

The pipeline construction and condition was evaluated as part of this study in order to gain a better basis to evaluate the reported water hammer failures and also to determine its rated pressure relative to current operating pressures and
those associated with the pump-back alterations. No records were available for the pipe specifications, dimensions or lining.

A sample of line became available after a failure of the line March. This was examined and reported in Appendix A of Reference No. 11. Per the metallurgical analysis in Reference No.2, the pipe material was gray cast iron, had uni-axial tensile test stresses of slightly above 30,000 psi, and did not show any indication of fatigue. It was concluded that the pipe was a 10” Class 22, centrifugally cast, cast iron pipe, as listed in the ASA standard A21.1 – 1956 (AWWA C101-56). For the cast iron pipe referenced in ASA A21.1 – 1956, the pipe would likely be centrifugally cast, cast iron, with a bursting stress, “S”, of 18,000 psi (which corresponds to a uni-axial tensile strength of 30,000 psi, from other literature of the day), and a modulus of rupture, “R”, of 40,000 psi. The thicknesses measurements of 0.405” ave, correspond to a standard thickness Class 22 for centrifugally cast pipe per the above standard.

The sample that was examined showed no significant corrosion. Another sample from another failed section in general examination did not exhibit any corrosion. Samples shown in Reference No.2 did not show any corrosion. Observations from various failures from the 1990’s to 2008 in the table on page 44 of Reference No. 15 stated no corrosion, good condition. In the summary section of Reference No. 5, it is stated based on a referenced document that the expected life span for cast iron pipe is approximately 100 years. It is thus concluded for this report that the pipeline is likely to be in good condition throughout its length, with no significant corrosion. (Note, however, that since there are other accessible points along the line, such as at the exposed Potato Bill Creek crossing, and in the various air release vent manholes, it would be prudent to do simple confirmatory thickness measurements at these locations using an ultrasonic thickness meter during the next phase of the project. (The MPA UT meter has been shown to successfully measure the metal thicknesses of the March failure sample.)

The history provided in Reference No.1 established that the pipeline is 10” cast iron for its full length. Reference No. 15 briefly states that some sections of the line were ductile iron. For the purposes of this report the pipeline is assumed to be 10” cast iron with Class 22 dimensions, for its full length. This should be confirmed.

Using the methods of the ASA A21.1 standard, bursting pressures of 1,300 psig with no corrosion or 1,050 with the 0.08” corrosion allowance are calculated in Reference No.11. Using the safety factor of 2.5 and deducting the recommended nominal allowance for water hammer of 120 psig, and allowing for poor bedding in the trench, the calculated rated maximum working pressures are 384 psig with no corrosion and 278 psig with the 0.08” corrosion allowance.

In reference to the calculation summary table for pump-back option 2B, the maximum static pressure at treatment plant side of vault #1 is increased from the current approximate 105 psig to 186 psig. This increase is well within the above calculated pressure rating. Additionally, in the past, when there was a pressure sustaining valve installed near the Fish Hatchery, it is likely that at times of maintenance shut in, the line could have seen pressures of approximately 250 psig. Also, it has been reported that pressures of approximately 300 psig have been seen in the pipeline on the treatment plant side of vault #1 during conditions of failed or abnormal operation of valves.

In the pipe sample examined, there was a centrifugally cast, cement lining. 0.075” thick, in good condition, with good surface roughness characteristics. A low friction, but conservative surface roughness of 0.005” was used in the hydraulic calculations. (SGM used a poorer surface roughness as they were not aware and did not discover that the pipe was cement lined.) Using the average pipe thickness dimension above and average O.D. of 11.08” and the cement lining thickness, an average I.D. of 10.12” was established for the hydraulic calculations. (SGM used 10.00”). This results in a friction head loss error of 6% since long line head losses are proportional to diameter to the 5th power.)
It is good engineering practice to hydrotest piping to 1.5 times the operating pressure. The maximum operating pressure of the piping near vault #1 is 186 psig. 1.5 times this pressure is 279 psig. A pressure of 262 psig can be achieved from the static head of the treatment plant clear well down to vault #1. This pressure is within the rated pressure and capabilities of the current line, as determined in this report, and is less than the pressure rating of the 150# flanges in the vaults and it is therefore recommended that this test pressure be applied to the line by temporarily bypassing PRV #2 and PRV#3 for the hydrotest. Pressure settings of relief valves along the line will need to be verified and addressed appropriately.

The dimensions of the pumps and pumps-as-turbines used are presented in Appendix E.

For Option 1, the pump is a multi-stage, vertical, in-line centrifugal pump manufactured by Grundfos and is typically used on municipal potable water duty. Grundfos is a reputable manufacturer with good sales and service representation by Denver Industrial Pumps.

The pumps have the potential to cause pressure surging in the system in the event of a grid power failure. The water velocity in the 10” line at 150 gpm is only 0.6 ft/s, which has an associated simple Joukowski maximum “water hammer” pressure of 31 psig, given proper functioning of the check valves. Therefore, it is concluded that it is unlikely that a grid power loss induced pressure surge while pumping back could contribute to a rupture of the line. However, the transient behavior should be studied as part of the recommended transient analysis.

The pumps/PaT’s used in Options 2A and 2B are simple end suction, single stage centrifugal pumps. Both are KSB, cast iron pumps. The use of pumps with cast iron casing and impellers on drinking water service has been cleared with the Colorado Department of Public Health and Environment, Water Division. KSB has sales and service locations in the US, however, servicing could be readily provided by Denver Industrial Pumps. The pump/PaT in Option 2B is supplied by TecnoTurbines as part of a package which has VFD speed control capabilities for the pump operation and speed control and AC-DC-AC power generation control for export to the grid when operating as a turbine generator. The motor/generator on both options is a squirrel cage induction motor/generator.

The particular value from TecnoTurbines is that when operating as a turbine, the speed is controlled between 1,000 and 3,600 rpm, based on the water flowrate, in order to achieve much higher efficiencies than for the fixed speed generation, (approximately 1,830 rpm, as determined by grid lock-in), for the KSB pump.

Another good feature of the TecnoTurbine package is that in the event of grid power outage, it is set up to divert the power generation to a resistor bank, thereby avoiding potential over-speeding or hydraulic transient pressures and permitting a controlled shutdown of the turbine using a controlled gradual closure of the 4” pressure reducing valve.

While the KSB pump in Option 2A would not experience a severe overspeed in the event of disconnection from the grid, it would be subject to approximately a 400 rpm sudden speed increase and some pressure transients. For the KSB pump/PaT 4” piping circuit, the 4” PRV is replaced with a remote operated stroke positioning control valve, “HIC valve”, which is used for pressure reducing operations during low flow through the turbine and is also used for control in conjunction with speed monitoring of the turbine for closing the electrical contactors to the grid when the appropriate speed a little above 1,800 rpm is reached.

Appendix F presents the selected key data from the hydraulic calculations for the pumping case for the three options, along with the pump HQ performance curves with the 100 and 150 gpm duty points marked. Given that the maximum flow demand for the customers along the line should be around 50 gpm and not exceed 100 gpm, the maximum pumping rate of 150 gpm was selected. This rate will result in reasonably long cycle times. The treatment plant clear
well has a storage volume of 22,400 gallons between the 5.0 ft low water level and the 8.0 ft high water level. For a fill rate of 150 gpm, with a demand of 50 gpm, the calculated pump cycle time is 11.1 hours. The pumps have variable frequency drive which permit the fill rate to be reduced if desired, although the prime purpose of the VFD is to permit a soft start of the system to minimize pressure surges.

Appendix G presents the key hydraulic data for the flow to town for the three options, along with an additional analysis demonstrating ample flow to the fire hydrants above and below vault #2.

For Option 1, the pressure reducing valve in vault #3 and the flow control valve in vault #1 have both been reduced from 8” to 6”. This is a general improvement in controllability since 8” is grossly oversized. The standard 6” valves are still adequate for the original design flow rate of 1,400 gpm and consideration should be given in the final design phase to using reduced port trim in the 6” valves which is suitable up to approximately 900 gpm. Low flow trim should also be considered to enhance control during the starting of flow through the valves. The new control valves are Cla-Val valves, as per the current valves. The reduced 6” size also provides better space in the existing vaults for the additional pumps and piping.

For Options 2A and 2B, the pressure reducing valve in vault #3 and the flow control valve in vault #1 have again been reduced in size to 6”. The power recovery turbine (pumps-as-turbine, PaT) in vault #3 operates in parallel with the new 6” pressure reducing valve. The flow is initially solely through the turbine until the increasing pressure drop through the turbine reduces the vault downstream pressure to the minimum required to provide 30 psig to the highest elevation downstream customer in the Sewell subdivision, at which time, the 6” PRV comes into operation to maintain the minimum pressure. The 6” PRV is sized to provide the total flow to the town when the PaT is not operating. Refer to the turbine performance curves. The much more efficient operation of the TecnoTurbine PaT under variable speed operation between 1,000 rpm and 3,600 rpm is seen. Additionally, more power extraction from the TecnoTurbine is possible due to it not reaching the pressure drop that will cause the bypass 6” PRV to open until approximately 300 gpm, compared to approximately 260 gpm for the KSB PaT.

The detailed cost estimates for the three options are presented in Appendix H. Budget quotations were obtained for the pumps and pump/Pat’s and the TecnoTurbine control system. Budget pricing was obtained for the Cla-Val control valves and other piping components and instrumentation and for prefabrication of the pipe spools. Budget pricing was also obtained for the mechanical site installation. Cost estimates were obtained for the single phase to 3 phase variable frequency drive at Vault #1 and for a simple VFD for Option 1 at Vault #3 and for a special regenerative variable frequency drive at Vault #3 for Option 2A. HCE provided cost estimates for the three pole-mounted 480 volt 3 phase transformers at Vault #3 and the power metering. Xcel Energy provided an estimate for upgrading the pole transformer for vault #1 electrical service. A cost estimate was obtained from Timberline for the detail design and programming of the additions and alterations to the SCADA system. Estimates were obtained from Big Country Electrical & Controls Inc. for vault #1 electrical service upgrades and vault #3 new service and wiring. Some adjustments were made to the pricing where it was felt that the contractors had not made sufficient allowance.

Detailed engineering cost estimates are provided separately as well as being included in the main option estimates. Allowances have been made for construction inspection services but not full construction contract administration which is better handled by the town of Carbondale. Additionally, allowance has been made for engineering assistance during commissioning. While obtaining of quotes and their evaluation and inclusion in purchasing specifications is included in the engineering estimates, the procurement and contracting would be by Carbondale.

Estimated costs totaling $40,000 for each option have been added for: further inspection of the pipeline; for high rate pressure monitoring; for revising MPA’s hydraulic model to include the newly logged valves, pressure release valves
and air release valves between vault #1 and the clear well and for the piping between vault #1 and the White Tank; and for review of further information in regard to the pipeline.

Appendix I summarizes the tentative agreement with HCE for the payment for the generated power, being the outcome of discussions between HCE, Carbondale and MPA.
APPENDIX A

REFERENCES

3. MPA Calculation G20030-2-1002 Flow to Town – Current Design
4. MPA Calculation G20030-2-1003 Flow to Town – Option 2A – KSB PaT in Vault 3
5. MPA Calculation G20030-2-1005 Flow to Town – Option 2B – TecnoTurbine PaT in Vault 3
8. MPA Calculation G20030-2-1010 Pump-Back – Option 2B – Grundfos 32-5 Pump in Vault 1, TecnoTurbine 65x40 Pump/PaT in Vault 3
9. MPA Calculation G20030-2-1011 - Validation of Hydraulic Calculation against SGM 1999 Hydraulic Analysis
10. MPA Calculation G20030-2-1012 - Option 2B Fire Water Supply to Thomas Rd, Upstream of Vault 2
11. MPA Calculation G20030-2-5001 – Pipeline Pipe Data & Bursting and Rated Pressures
12. MPA Calculation G20030-2-5002 –Selection of TecnoTurbines 65x40 End Suction Centrifugal Unit (their option 1)
13. MPA Calculation G20030-2-5003 – Pipe Data for Hydraulic Calculations
14. MPA Report G20030-5-5004 – Nettle Creek Pipeline Integrity and Recommendations for Evaluation/Improvement
APPENDIX B

DRAWINGS

G20030-1-1001 - Piping and Instrumentation Diagram – Option 1 - Pump-Back Only

G20030-1-1002 - Piping and Instrumentation Diagram – Option 2A - Pump-Back with KSB Pump-as-Turbine in Vault #3

G20030-1-1002 - Piping and Instrumentation Diagram – Option 2B - Pump-Back with TecnoTurbine Pump-as-Turbine in Vault #3

G20030-1-4001 - Piping and Equipment Layout – Vault #1 – Options 1, 2A, 2B

G20030-1-4003 – Piping and Equipment Layout – Vault #3 – Option 2A – with KSB PaT
APPENDIX C

WATER FLOWRATES
NETTLE CREEK TREATMENT PLANT TO TOWN

One Flow meter is installed at the Nettle Creek measuring the plant effluent flowrate from the Clear Well.

Another flow meter is installed in the Vault #1, where the pipeline ties into the town system.

There are approximately 50 users along the pipeline between the treatment plant and the Vault #1.

The following graphs are taken from historical data from January 1, 2016 through April 10, 2020.

The sampling period for the data in the following graphs approximately once every two hours.

| Fig C-1 | Nettle Creek Treatment Plant Effluent Flowrate – January 1, 2016 to April 10, 2020 |
| Fig C-2 | Treatment Plant Effluent Flowrate – January 1, 2019 to October 31, 2019 |
| Fig C-3 | Treatment Plant Effluent Flowrate – January 1, 2020 to April 10, 2020 |
| Fig C-4 | Treatment Plant Effluent Flowrate – April, 2019 |
| Fig C-5 | Flowrate Difference – Treatment Plant Effluent Minus Vault #1 Flow – April, 2019 |
Fig C-3. Treatment Plant Effluent Flowrate (gpm) - January 1, 2020 to April 10, 2020
Fig C-4 Treatment Plant Effluent Flowrate (gpm) - April, 2019
Fig C-5  Flowrate Difference - Treatment Plant Effluent minus Vault #1 Flow (gpm) - April, 2019
APPENDIX D

GOOGLE EARTH VIEW OF PROJECT AREA & SGM HYDRAULIC STUDY DRAWINGS

- Google Earth Image Showing Treatment Plant & Vault Locations (incl. White Hill reservoir in town)

- Nettle Creek Main Hydraulic Analysis Drawings – by SGM  1999 - 4 Sheets (Body of Report attached in Appendix J)
CLIENT: Town of Carbondale

Date: Aug 17, 2020

Subject: Nettle Creek Pipeline Pump-Back Feasibility Study

Report No.: G20030-5-5003 Rev. 1

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APPENDIX E

PUMP and PUMP-as-TURBINE DIMENSIONS
Installation plan

Customer item no.: Communication dated: 14/02/2020
Doc. no.: Quick quote
Quantity: 1

ETN 065-050-315 GGSA11GD302204B
Low-pressure centrifugal pump Elanorm

Number: ES 80002238103
Item no.: 100
Date: 19/02/2020
Page: 4 / 10
Version no.: 2

Motor
Motor manufacturer: Siemens
Motor size: 109L
Motor power: 29.50 HP
Number of poles: 4
Speed of rotation: 1784 rpm
Position of terminal box: 0°706° (top)
Viewed towards the suction nozzle

Baseplate
Design: U beam / folded plate
Size: 8A
Material: Steel STR
Leakage drain baseplate (BR): Rp1, Without
Foundation bolts: M16x250 (required but not scope of supply)

Connections:
- Suction nominal size DN1: DN 50 / EN10222-2
- Discharge nominal size DN2: PN 16
- Nominal pressure suck: PN 16
- Rated pressure disch.

Coupling
- Coupling manufacturer: Flender
- Coupling type: Eupec NH
- Coupling size: 125
- Spacer: 3.84 in

Weight net
- Pump: 192 lbm
- Baseplate: 231 lbm
- Coupling: 18 lbm
- Coupling guard: 4 lbm
- Motor: 375 lbm
- Total: 820 lbm

For auxiliary connections see separate drawing.
ATTACHMENT I

CLIENT: Town of Carbondale
Date: Aug 17, 2020

Subject: Nettle Creek Pipeline Pump-Back Feasibility Study
Report No.: G20030-5-5003 Rev. 1

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APPENDIX F

PUMP-BACK PERFORMANCE DATA

- Option 1 – Pump in Vault #1, Grundfos 32-4; Pump-only in Vault #3, Grundfos 32-4
- Option 2A – Pump in Vault #1, Grundfos 32-4; Pump/Pump-as-Turbine in Vault #3, KSB 065-050-315
- Option 2B – Pump in Vault #1, Grundfos 32-5; Pump/Pump-as-Turbine in Vault #3, TecnoTurbine ETB 65-40 B
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**OPTION 1  VAULT No.1 & VAULT No.3 PUMP**
## Pump-Back - Option 2A

### Table: Pump in Vault #1 - Grundfos 3-4, Pump/PoT in Vault #3 - KSB 065-050-315, Bypass Vault #2

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<th>Flowrate (gpm)</th>
<th>Town Pressure (psig)</th>
<th>Pump TDH (ft)</th>
<th>Pump speed (rpm/hr)</th>
<th>Pump Shaft Power (bhp)</th>
<th>Pressure Treatment Plant Side (psig)</th>
<th>Pump TDH (ft)</th>
<th>Pump speed (rpm/hr)</th>
<th>Pump Shaft Power (bhp)</th>
<th>Pressure Treatment Town Side (psig)</th>
<th>Pressure Treatment Plant Side (psig)</th>
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<td>272</td>
<td>3160/55</td>
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<td>225</td>
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<td>14.5</td>
<td>58.7</td>
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**Company name:** Denver Industrial Pumps

**Created by:**

**Phone:**

**Date:** 7/2/2020

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**CLIENT:** Town of Carbondale  
**Subject:** Nettle Creek Pipeline Pump-Back Feasibility Study  
**Date:** Aug 17, 2020  
**Report No.:** G20030-5-5003 Rev. 1
OPTION 2A VAULT No.3 PUMP

Performance curve

Customer item no.: ETN 065-050-315 GGSAA11GD302204B
Communication dated: 14/02/2020
Doc. no.: Quick quote
Quantity: 1

Low-pressure centrifugal pump Etanorm

Etaparameters:

- Speed of rotation: 2115 rpm
- Fluid density: 62.30 lb/ft³
- Viscosity: 0.0015 ft²/s
- NPSH: 150.00 US GPM
- Flow rate: 150.00 US GPM
- Total developed head: 257.60 ft
- Requested developed head: 257.00 ft
- Efficiency: 51.9 %
- Power absorbed: 18.77 HP
- NPSH required: 6.69 ft
- Curve number: K1311-464/34
- Effective impeller diameter: 12.72 in

Number: ES 8000238103
Item no.: 100
Date: 19/02/2020
Page: 3 / 10
Version no.: 2
### Pump-Back - Option 2B

**Pump in Vault #1 - Grundfos 32-5, Pump/PST in Vault #3 - TecnoTurbine ETB 65-40 B, Bypass Vault #2**

Ref: Calc. G20030-2-1010

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**Company name:** Denver Industrial Pumps  
**Created by:**  
**Phone:**  
**Date:** 7/2/2020  
**56419555 CR32-5-2 A-G-A-E-HQQE 60 Hz -54°F**

\[ Q = 153 \text{ US gpm} \]
\[ H = 303.2 \text{ ft} \]
\[ \text{Pumped liquid} = \text{Water} \]
\[ \text{Liquid temperature during operation} = 68 \text{ °F} \]
\[ \text{Density} = 62.29 \text{ lb/ft}^3 \]

**Eff pump = 74.7%**
APPENDIX G

FLOW TO TOWN PERFORMANCE DATA & CONTROL

- EXISTING SYSTEM
  - OPTION 1 – Pump in Vault #1, Grundfos 32-4; Pump-only in Vault #3, Grundfos 32-4
  - OPTION 2A – Pump in Vault #1, Grundfos 32-4; Pump/Pump-as-Turbine in Vault #3, KSB_065-050-315
  - OPTION 2B – Pump in Vault #1, Grundfos 32-5; Pump/Pump-as-Turbine in Vault #3, TecnoTurbine ETB 65-40 B

- FIRE FLOW
EXISTING SYSTEM

Reference Calculation G20030-2-1002.

Reference SGM 1999 Hydraulic Study in Appendix D.

The AFT Fathom 11 Hydraulic model of the existing system was used to validate MPA’s model and the SGM results presented on their drawings attached in Appendix D. At the time of this study it is unknown if there are significant components in the pipeline between the vaults and the top vault and the treatment plant. However, it is expected that the influence of any such items will not be major.

Matched SGM parameters: Vault #3 8” PRV set at 70 psig; Vault #2 PRV set at 81 psig; Town pressure downstream of Vault #1 set at 52 psig. Vault #1 FCV set at full open. Used an absolute surface roughness for uncoated cast iron of 0.009” or 0.008’ (AARH), per long established Hydraulic Institute standards. (In our other calculations we have used 0.004”. Our research has concluded that the surface roughness of centrifugally cast cement lining to be even better than this (reference calculation G20030-2-5003), but this information is not commonly known and thus for this SGM check calculation we have used the 0.009” which is the more likely value used by SGM.)

Maximum flow per SGM: 1,200 gpm
Maximum Flow per our AFT model: 1,226 gpm (good agreement)
(Maximum flow if MPA surface roughness of 0.004” used: 1,306 gpm)

OPTION 1 – Pump in Vault #1, Grundfos 32-4; Pump-only in Vault #3, Grundfos 32-4

New pumps bypassed.

Flow to Town Via: the new 6” Pressure Reducing Valve (PRV) in Vault #3; the existing 8” PRV in Vault #2; and the new 6” Flow Control Valve (FCV) in Vault #1.

Town pressure at 50 psig, Vault #3 PRV set at 60 psig, Vault #2 PRV set at 60 psig.

At 600 gpm:
Pressure at highest house in Sewell sub-division = 37.3 psig
Pressure upstream of Vault #3 = 150.4 psig
Pressure upstream of Vault #2 = 109.0 psig
Pressure upstream of Vault #1 = 90.8 psig
OPTION 2A – Pump in Vault #1, Grundfos 32-4; Pump/Pump-as-Turbine in Vault #3, KSB 065-050-315


Pump in Vault #1 bypassed.

Flow to Town Via: the new KSB PaT in Vault #3 and at flows above ~280 gpm, xcess flow via the parallel 6” PRV in Vault #3; via the existing 8” PRV in Vault #2; and via the new 6” FCV in Vault #1.

Pressure at the highest residence (el. 6514’) in the Sewell subdivision, downstream of the Vault #3 (el. 6470’) to be 30 psig minimum. Aim to satisfy this requirement at 600 gpm. (Pressure drop across local ¾” prv not accounted for.)

<table>
<thead>
<tr>
<th>6” PRV Set Press. (psig)</th>
<th>Flow Rate thru Vault #3 (gpm)</th>
<th>Static Pressure at Sewell Subdivision, 331 Seven Oaks Road (psig) (Note A)</th>
<th>Flow Rate thru Vault #3 PaT (gpm)</th>
<th>OP across Vault #3 PaT (psi)</th>
<th>PaT Efficiency (%)</th>
<th>PaT Generator Export Power (kW) (Note B)</th>
<th>20 Year Income from PaT ($) (Note C)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>50</td>
<td></td>
<td>180</td>
<td>52.7</td>
<td>280</td>
<td>80.9</td>
<td>22.0</td>
<td>0.64</td>
<td>$10,959</td>
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<tr>
<td>200</td>
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<td>200</td>
<td>49.0</td>
<td>200</td>
<td>80.9</td>
<td>22.0</td>
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<tr>
<td>250</td>
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<td>250</td>
<td>53.8</td>
<td>250</td>
<td>93.9</td>
<td>20.0</td>
<td>2.84</td>
<td>$63,653</td>
</tr>
<tr>
<td>275</td>
<td></td>
<td>275</td>
<td>60.0</td>
<td>259</td>
<td>96.8</td>
<td>20.0</td>
<td>4.10</td>
<td>$67,981</td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>300</td>
<td>64.4</td>
<td>258</td>
<td>96.7</td>
<td>20.0</td>
<td>5.98</td>
<td>$65,957</td>
</tr>
<tr>
<td>310</td>
<td></td>
<td>310</td>
<td>69.4</td>
<td>258</td>
<td>96.7</td>
<td>20.0</td>
<td>6.82</td>
<td>$65,289</td>
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<tr>
<td>300</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>300</td>
<td></td>
<td>300</td>
<td>64.4</td>
<td>258</td>
<td>96.7</td>
<td>20.0</td>
<td>5.98</td>
<td>$65,957</td>
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<tr>
<td>310</td>
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<td>$65,289</td>
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<tr>
<td>300</td>
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<td>300</td>
<td>64.4</td>
<td>258</td>
<td>96.7</td>
<td>20.0</td>
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<td>$65,957</td>
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<td>300</td>
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</tbody>
</table>

Notes: 1. Export power assumes 94% overall electrical efficiency for motor/generator, local wiring and transformers.
2. Generator income assumes 9.95% per kWh (Ref. App. I) and 95% on-line factor.
3. Town pressure at 50 psig.
4. Residence Elevation 6514’.

KSB PaT performance curve below.
### Load Curve – When Generator on-line at fixed speed.

![Graph showing load curve]

- Generator contactors closed on-line as speed is increased with increasing manual flow control (HIC valve), at just above 1,800 rpm.

### No Load Curve – free wheeling.

![Graph showing no load curve]

- Load curve: 
  - Capacity: 980 L/min
  - Head: 160 m
  - Efficiency: 74.2%

- No-load curve: 
  - Capacity: 980 L/min
  - Head: 160 m
  - Efficiency: 74.2%

---

**CLIENT: Town of Carbondale**

**Subject: Nettle Creek Pipeline Pump-Back Feasibility Study**

**Date: Aug 17, 2020**

**Report No.: G20030-5-5003 Rev. 1**
OPTION 2B – Pump in Vault #1, Grundfos 32-5; Pump/Pump-as-Turbine in Vault #3, TecnoTurbine ETB 65-40 B

Reference Calculation G20030-2-1005.

Pump in Vault #1 bypassed.

Flow to Town Via: the new TecnoTurbine PaT in Vault #3 and at flows above ~300 gpm, excess flow via the parallel 6” PRV in Vault #3; via the existing 8” PRV in Vault #2; and via the new 6” FCV in Vault #1.

Pressure at the highest residence (el. 6514’) in the Sewell subdivision, downstream of the Vault #3 (el. 6470’) to be 30 psig minimum. Aim to satisfy this requirement at 600 gpm. (Pressure drop across local ¾” prv not accounted for.)

<table>
<thead>
<tr>
<th>6” PRV Set Press. (psig)</th>
<th>4” PaT PRV Set Press (psig)</th>
<th>Flow Rate thru Vault #3 (gpm)</th>
<th>Static Pressure at Sewell Subdivision #1 Sevaar Oaks Flow (psig) (Note 1)</th>
<th>Flow Rate thru Vault #3 PaT (gpm)</th>
<th>DP (stagnation) across Vault #3 PaT (psig)</th>
<th>PaT Efficiency (%)</th>
<th>PaT Generator Export Power (kWe)</th>
<th>20 Year Income from PaT ($) (Note 2)</th>
<th>Comments</th>
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<tbody>
<tr>
<td>110</td>
<td>35.8</td>
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<tr>
<td>380</td>
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<td>380</td>
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<td>$19,922</td>
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<tr>
<td>260</td>
<td>35.4</td>
<td>260</td>
<td>36.4</td>
<td>55</td>
<td>1.74</td>
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<tr>
<td>250</td>
<td>35.3</td>
<td>250</td>
<td>63.1</td>
<td>65</td>
<td>4.44</td>
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<tr>
<td>275</td>
<td>44.9</td>
<td>275</td>
<td>75.5</td>
<td>67</td>
<td>6.08</td>
<td>$100,692</td>
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</tr>
<tr>
<td>500</td>
<td>32.7</td>
<td>500</td>
<td>88.8</td>
<td>66</td>
<td>7.60</td>
<td>$155,919</td>
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<tr>
<td>460</td>
<td>32.3</td>
<td>460</td>
<td>87.9</td>
<td>66</td>
<td>7.47</td>
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<tr>
<td>600</td>
<td>30</td>
<td>600</td>
<td>85.7</td>
<td>66</td>
<td>7.18</td>
<td>$19,076</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1. Combined hydraulic and electrical efficiency.
2. Generator income uses 9.9% per kWh (Ref. App. I) and 95% on-line factor.
3. Town pressure at 50 psig.
4. Residence elevation 6514’

TecnoTurbine PaT performance curve below.
Turbine-Generator is variable speed with control package – shown below

At Speed = 1 K to 3.6K RPM

300 gpm (18.9 l/s)
EMERGENCY BULK WATER SUPPLY VIA HYDRANTS

Reference Calculation G20030-2-1012.

The specified requirement is to be able to deliver a minimum of 500 gpm from the fire hydrants above and below vault #2.

Vault #3 6” PRV set at 53 psig, vault #2 PRV set at 60 psig

Hydrant ~1,000 ft above vault #2:
Flowrate out of hydrant with 50 psig back pressure, with no flow down to town: 870gpm.
Flowrate out of hydrant with 50 psig back pressure, with 400 gpm flow continuing to town: 685gpm

Hydrant ~3,000 ft above vault #1:
Flowrate out of hydrant with 50 psig back pressure, with no flow down to town: 735 gpm.
Flowrate out of hydrant with 50 psig back pressure, with 400 gpm flow continuing to town: 570 gpm
APPENDIX H

COST ESTIMATES

Project Cost Estimates

- **OPTION 1** – Pump in Vault #1, Grundfos 32-4; Pump-only in Vault #3, Grundfos 32-4

- **OPTION 2A** – Pump in Vault #1, Grundfos 32-4; Pump/Pump-as-Turbine in Vault #3, KSB_065-050-315

- **OPTION 2B** – Pump in Vault #1, Grundfos 32-5; Pump/Pump-as-Turbine in Vault #3, TecnoTurbine ETB 65-40 B

Additional costs to the capital costs have been included for further inspection of the pipeline; for high rate pressure monitoring; for revising MPA’s hydraulic model to include the newly logged valves, pressure release valves and air release valves between vault #1 and the clear well and for the piping between vault #1 and the White Tank; and for review of further information in regard to the pipeline

**Engineering Cost Estimates – Included in the above**

- **OPTION 1** – Pump in Vault #1, Grundfos 32-4; Pump-only in Vault #3, Grundfos 32-4

- **OPTION 2A** – Pump in Vault #1, Grundfos 32-4; Pump/Pump-as-Turbine in Vault #3, KSB_065-050-315

- **OPTION 2B** – Pump in Vault #1, Grundfos 32-5; Pump/Pump-as-Turbine in Vault #3, TecnoTurbine ETB 65-40 B

No allowance has been included for preparation of detailed operating procedures since there are unknowns at this stage: Whether wanted by Carbondale; extent of instructions needed; instructions would be influenced by results of transient analysis; amount of detail available from vendors, especially PaT and VFD suppliers which will become clear when quotes received.

Except for the electrical contractor, competitive bidding is not included in the scope since vendors unique to the requirements have been selected.

The engineering estimates are based on the condition that any further necessary information is readily available.

Further verification of the piping materials and components along the pipeline and inspection and measurement of the pipe is additional to the scope.
## PROJECT COST ESTIMATES

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
<th>Shipping</th>
<th>Total</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vault No. 1 Pump</td>
<td>Grundfos 32-4, Denver Industrial Pumps budget quote.</td>
<td>$5,987</td>
<td>$500</td>
<td>$6,487</td>
<td></td>
</tr>
<tr>
<td>VFD</td>
<td>20 hp Single Phase in, 3 phase out. Eaton VFD. DG1-32143-PN-C21C</td>
<td>$7,000</td>
<td>$200</td>
<td>$7,200</td>
<td></td>
</tr>
<tr>
<td>Vault #1 Piping/Valves</td>
<td>Pre-fabricated spools with field fit flanges. Includes manual valves, flow control and metering valve, 3&quot; mag/floater, pressure transmittes, strainer, gasketing, bolting. Pipestone Equipment Estimate (Add $2,000 hydrotest.) ($1,000 freight included).</td>
<td>$50,500</td>
<td></td>
<td>$50,500</td>
<td></td>
</tr>
<tr>
<td>Vault #1 Pump, Piping, Valves Installation</td>
<td>FEMCO, Rifle estimate. Adjusted. (Rev.B - add $3,500 for Confined Space Entry labor)</td>
<td>$13,000</td>
<td></td>
<td>$13,000</td>
<td></td>
</tr>
<tr>
<td>Excel Energy</td>
<td>Upgrade pole transformer</td>
<td>$5,000</td>
<td></td>
<td>$5,000</td>
<td></td>
</tr>
<tr>
<td>Electrical Installation - both Vaults</td>
<td>Raceway, trenching, wiring, grounding, panels. (BigCountry Electrical and Controls Inc. estimate.)</td>
<td>$27,000</td>
<td></td>
<td>$27,000</td>
<td></td>
</tr>
<tr>
<td>SCADA Programming</td>
<td>TLECC quote for both Vaults with additional allowance</td>
<td>$6,000</td>
<td></td>
<td>$6,000</td>
<td></td>
</tr>
<tr>
<td>Vault No. 3 Pump</td>
<td>Grundfos 32-4, Denver Industrial Pumps budget quote.</td>
<td>$5,987</td>
<td>$500</td>
<td>$6,487</td>
<td></td>
</tr>
<tr>
<td>VFD</td>
<td>20 hp, 2 phase. (Allan Bradley / Yaskawa quote)</td>
<td>$2,800</td>
<td>$200</td>
<td>$3,000</td>
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<tr>
<td>Vault #5 Piping/Valves</td>
<td>Pre-fabricated spools with field fit flanges. Includes manual valves, flow control and metering valve, pressure transmittes, strainer, gasketing, bolting. Pipestone Equipment estimate. (Add $2,000 hydrotest.) ($1,000 freight included)</td>
<td>$48,000</td>
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<td>$48,000</td>
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<tr>
<td>Vault #5 Pump, Piping, Valves Installation</td>
<td>FEMCO, Rifle estimate. Add $1,000 for sump pump, adjusted. (Rev.B - add $4,500 for Confined Space Entry labor)</td>
<td>$17,500</td>
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<td>$17,500</td>
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</tr>
<tr>
<td>Holy Cross Electric Pole Transformers</td>
<td>Trenching and cable to Vault not included. Meter included.</td>
<td>$9,000</td>
<td></td>
<td>$9,000</td>
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</tr>
<tr>
<td>Engineering Design</td>
<td>Refer to Engineering Cost Estimate 5004 Rev.B. (Cost listed to the right does not include the highlighted items.)</td>
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<td>$34,300</td>
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<tr>
<td>Engineering Site Inspection</td>
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<td></td>
<td></td>
<td>$6,500</td>
<td></td>
</tr>
<tr>
<td>High Rate Pressure Monitoring Equipment</td>
<td>Instrumentation for two locations - Purchase $14,900 (Can rent at $4,900 per month plus ~ $1,000 for solar power pack)</td>
<td>$14,900</td>
<td>100</td>
<td>$15,000</td>
<td></td>
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<tr>
<td>Additional Items Engineering Cost</td>
<td>Refer to Engineering Cost Estimate 5004 Rev.B</td>
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<td>$18,300</td>
<td></td>
</tr>
<tr>
<td>Commissioning Assistance</td>
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<td></td>
<td></td>
<td>$4,000</td>
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<td>Contingency (20%)</td>
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<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$332,609</strong></td>
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</tr>
</tbody>
</table>

Notes: 1. Permitting and owner liaison, not included.
2. Preliminary Transient analysis by Pipestone Equip only included.
3. Purchase orders and construction contracts by Town of Carbondale.
4. Construction administration and supervision by Town of Carbondale.
## OPTION 2A – Pump in Vault #1, Grundfos 32-4; Pump/Pump-as-Turbine in Vault #3, KSB_065-050-31

### Additional Rev C Work Items Highlighted below

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
<th>Shipping</th>
<th>Total</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vault No. 1 Pump</strong></td>
<td>Grundfos 32-4. Denver Industrial Pumps budget quote.</td>
<td>$5,937</td>
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<td>$6,437</td>
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<tr>
<td><strong>VFD</strong></td>
<td>20 hp Single Phase in, 3 phase out. Eaton VFD. DGL-32143FN-C21C</td>
<td></td>
<td></td>
<td>$7,200</td>
<td></td>
</tr>
<tr>
<td><strong>Vault #1 Piping/Valves</strong></td>
<td>Valves, flow control and metering valve, 3” mag flow meter, pressure transmitters, strainer, gasketing, bolting. Pipestone Eqpt estimate (Add $2,000 hydrotest.) ($1,000 freight included).</td>
<td>$50,500</td>
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<td>$50,500</td>
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</tr>
<tr>
<td><strong>Vault #3 Pump, Piping, Valves Installation</strong></td>
<td>FEMCO, Rifle estimate. Adjusted (Rev B - add $3,500 for Confined Space Entry labor)</td>
<td>$13,000</td>
<td></td>
<td>$13,000</td>
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<tr>
<td><strong>Xcel Energy</strong></td>
<td>Upgrade Pole Transformer</td>
<td>$5,000</td>
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<td>$5,000</td>
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</tr>
<tr>
<td><strong>Electrical Installation - both Vaults</strong></td>
<td>Raceway, trenching, wiring, grounding, panels. (Big Country Electrical and Controls Inc. estimate. Adjusted.)</td>
<td>$32,000</td>
<td></td>
<td>$32,000</td>
<td></td>
</tr>
<tr>
<td><strong>SCADA Programming</strong></td>
<td>TLECC quote for both Vaults with additional allowance</td>
<td>$8,000</td>
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<tr>
<td><strong>Vault No. 3 PaF</strong></td>
<td>KSB ETN 65-30-315 Pump / PaT</td>
<td>$12,500</td>
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<tr>
<td><strong>VFD/Control Package</strong></td>
<td>25 hp, 3 phase. Yaskawa U100 regenerative drive, includes reverse power relay and overcurrent protection</td>
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<tr>
<td><strong>Vault #3 Piping/Valves</strong></td>
<td>Pre-fabricated spools with field fit flanges. Includes manual valves, flow control and metering valve, pressure transmitters, strainer, gasketing, bolting. Pipestone Eqpt estimate. (Add $2,000 hydrotest.) ($1,000 freight included). Add $900 for 4” high performance butterfly valve with gear actuator (missed by Pipestone.) Add $5,600 for 4” Sharktooth VIC valve with actuator.</td>
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<td><strong>Vault #3 Pump, Piping, Valves Installation</strong></td>
<td>FEMCO, Rifle estimate. Add $1,000 for sump pump. (Rev B - add $4,500 for Confined Space Entry labor)</td>
<td>$20,100</td>
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<tr>
<td><strong>Holy Cross Electric Pole Transformers</strong></td>
<td>3 Transformers. Trenching and cable to Vault not included. Meter included. HCE estimate, adjusted.</td>
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<tr>
<td><strong>Engineering Design</strong></td>
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<td><strong>Engineering Site Inspection</strong></td>
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<td>$6,500</td>
<td></td>
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<tr>
<td><strong>High Rate Pressure Monitoring Equipment</strong></td>
<td>Instrumentation for two locations - Purchase $14,900 (Can rent at $4,900 per month plus “1,000 for solar power pack).</td>
<td>$14,900</td>
<td>100</td>
<td>$15,000</td>
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<td><strong>Additional Items</strong></td>
<td>Refer to Engineering Cost Estimate 5004 Rev B</td>
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<td>$18,300</td>
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<tr>
<td><strong>Contingency (20%)</strong></td>
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<td></td>
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<td>$63,868</td>
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<td><strong>Total</strong></td>
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<td><strong>$383,208</strong></td>
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**Notes:**
1. Permitting, land owner liaison, not included.
2. Preliminary Transient analysis by Pipestone Eqpt only included.
3. Purchase orders and construction contracts by Town of Carbondale.
4. Construction administration and supervision by Town of Carbondale.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
<th>Shipping</th>
<th>Total</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vault No. 1 Pump</td>
<td>Grundfos 32-5. Denver Industrial Pumps budget quote.</td>
<td>$7,085</td>
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<td>VFD</td>
<td>20 hp Single Phase in, 3 phase out. Eaton VFD. DG1-32/143FN-C21C</td>
<td>$7,000</td>
<td>$200</td>
<td>$7,200</td>
<td></td>
</tr>
<tr>
<td>Vault #1 Piping/Valves</td>
<td>Valves, flow control and metering valve, 3” mag flow meter, pressure transmitters, strainer, gasketing, bolting. Pipestone Eqpt estimate (Add $2,000 hydrotest.) ($1,000 freight included).</td>
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<td>Raceway, trenching, wiring, grounding, panels. (Big Country Electrical and Controls Inc. estimate. Adjusted)</td>
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<td>Vault No. 3 PaT</td>
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Notes:
1. Permitting, land owner liaison, not included.
2. Preliminary Transient analysis by Pipestone Eqpt only included.
3. Purchase orders and construction contracts by Town of Carbondale.
4. Construction administration and supervision by Town of Carbondale.
**ENGINEERING COST ESTIMATES**

**Town of Carbondale**

**Nettle Creek Pipeline - Pump-Back Feasibility Study**

**OPTION 1 – Pump in Vault #1, Grundfos 32-4; Pump-only in Vault #3, Grundfos 32-4**

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**Notes:**
1. **G20030-10-5004 Rev.B**
2. Assumes no site grading and drainage, soil, and pavement.
3. **Construction overlap with other utilities available for inspection of work in progress.
4. Assumes leaking piping and control valve are replaced with new pipe and valves.
5. Assumes that the work is performed by the Town of Carbondale.
6. Assumes that the work is performed by the Town of Carbondale.

**SUBTOTALS:**

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<th>Item</th>
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# ATTACHMENT I

## Town of Carbondale

### Nettle Creek Pipeline - Pump-Back Feasibility Study

#### OPTION 2A – Pump in Vault #1, Grundfos 32-4, Pump/Pump as-Turbine in Vault #3, KSB 065-050-315

### ENGINEERING COST ESTIMATE

Additional Rev 0 Work Items highlighted below

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### ATTACHMENT I

#### 1.0 Introduction

1.1 Background

#### 2.0 Site Investigation

2.1 Site Investigation Report

#### 3.0 Site Description and Reference Drawings

3.1 Site Description

#### 4.0 Design and Evaluation

4.1 Design of Pumping Station

#### 5.0 Construction

5.1 Construction Drawings

#### 6.0 Cost Estimate

6.1 Cost Estimate Summary

#### 7.0 Summary

7.1 Summary Table

#### 8.0 References

8.1 References

---

**Notes:**
1. Refer to Report G20030-5-5003 Rev. 0 for further details.
2. Geotechnical and engineering investigations are required.
3. Proceeding to the next phase is contingent on the completion of the current phase.
4. All design and construction-related activities are subject to regulatory approval.
5. Assumes pump and control system provided by Grundfos, with modifications to meet site-specific requirements.
6. Assumes pump and control system provided by Grundfos, with modifications to meet site-specific requirements.
7. Assumes pump and control system provided by Grundfos, with modifications to meet site-specific requirements.
8. Assumes pump and control system provided by Grundfos, with modifications to meet site-specific requirements.
9. Assumes pump and control system provided by Grundos, with modifications to meet site-specific requirements.
## Nettle Creek Pipeline - Pump-Back Feasibility Study

### OPTION 2B – Pump In Vault #1, Grundfors 32-5, Pump/Pump as Turbine in Vault #3, TeconTurbine ETB 65-40 B

#### ENGINEERING COST ESTIMATE

**Additional Rev. B Work Items highlighted below**

**G20030-10-5006 Rev. B**

**R006/17/2020**

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### CLIENT: Town of Carbondale

**Date: Aug 17, 2020**

**Subject: Nettle Creek Pipeline Pump-Back Feasibility Study**

**Report No.: G20030-5-5003 Rev. 1**

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#### Table: Functional/Operational

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<th>Cost Item</th>
<th>Estimated Cost</th>
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**GRAND TOTAL: $63,425**

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**Notes:**

1. Refer to Report G20030-5-5003 for further details.
2. Assume no site grading and drainage plan required.
3. Permitting and engineering work will be required.
4. Assumes Pump and control valves by Grundfors Pumps, SCADA programming by ELEC.
5. Assumes VA pump design is similar to that in the Feasibility Study.
6. Assumes construction/contractors by Town of Carbondale.
7. Any further work or design work is additional and subject to mutual agreement.
8. Assumes information regarding and quotes for the pipe and valves and the pump and control valve, and the cost for the welded steel pipe used and other costs are included in the estimate.

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**Sub-Consultants and Sub-Contractors:**

- **Engineering:** $6,425
- **Survey:** $5
- **Traffic:** $5

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**SUMMARY:**

- **Estimated Cost:** $63,425
- **Included Cost Adjusted:** $63,425

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**PAGE 60 of 75**
APPENDIX I

ELECTRICAL POWER SALES RATE

Preliminary agreement with Holy Cross Electric Association is for the sale of the power generation from the Vault #3 PaT generation at a rate of 9.958 cents per kWh. This rate will be escalated at 2% per year for an agreement period of 20 years.

The generation is limited to 8 kW and is part of the total 45 kW allocation for both the Turgo Turbine power generation from the planned Nettle Creek hydro power generation above the water treatment plant and the Vault #3 power generation.
APPENDIX J

EXTRACT FROM SGM HYDRAULIC ANALYSIS REPORT
June, 1999 / March 2000

(The drawings presented in Appendix D were part of this report)
NETTLE CREEK TRANSMISSION MAIN
HYDRAULIC ANALYSIS

TOWN OF CARBONDALE

JUNE 1999
(UPDATED MARCH 2000)

Prepared For
Town of Carbondale
511 Colorado Avenue
Carbondale CO 81623

Prepared By
Schmueser Gordon Meyer, Inc.
118 West 6th Street, Suite 200
Glenwood Springs CO 81601
970-945-1004
NETTLE CREEK TRANSMISSION MAIN
HYDRAULIC ANALYSIS

EXECUTIVE SUMMARY

The Nettle Creek Main was analyzed to determine appropriate modifications. Existing control appurtenances along the main should be removed and replaced with three separate pressure reducing valve stations as described in this report. These stations will allow the main to function automatically to provide needed flows to the Town at acceptable pressures along the entire length of the main.

INTRODUCTION

The purpose of this report was to determine appropriate modifications and improvements to the Nettle Creek Transmission Main. This line is currently the main source of finished water to the Town of Carbondale, providing up to 2 MGD from the Nettle Creek water treatment plant. Additionally, approximately 60 to 65 taps are in place at varying locations along the main above Carbondale. The existing main has several outdated appurtenances, including an old chlorination station with a pressure relief valve and bypass piping, pressure relief manholes and air release installations which do not function properly. The complexities of the main and dual function (both transmission and distribution) have caused both low and high pressure complaints, fluctuating flows and pressures, and problems with air in the lines. The goal of this study is to provide a practical solution to these problems.

DATA COLLECTION

The following documents provide background information on the Nettle Creek main:

• E.D.A. Project No. 05-19-01605(b) Drawing No. 1, 2, A1 by Wright McLaughlin Engineers, March 1976.

• Water transmission line "As-built Drawings", Sheets No. 1 thru 6 by Wright McLaughlin Engineers, October 1965.

The following text is an excerpt from the Water System Master Plan which provides an in-depth description of the history, physical components and considerations associated with the Nettle Creek main prior to construction of the Nettle Creek water treatment plant.

7.2 Nettle Creek Transmission Line

The Nettle Creek transmission line (the main) supplies water from the Nettle Creek spring supply to the town's distribution system. Map 4 shows location of the main, Nettle Creek and the White Hill tanks. The Nettle Creek main extends approximately 7.5 miles from the intersection of Highway 133 and Meadowood Drive south along the east side of the Crystal River to the confluence of Nettle Creek and the Crystal River, and east up the Nettle Creek drainage. The line is generally located in the old railroad right-of-way.

The main was initially installed in 1909 and 1910, consisting of a six-inch wood stave pipeline that collected water directly from the lower part of Nettle Creek and connected directly into a distribution system which consisted of wood stave pipe installed in the Town streets. Around 1920, an eight-inch wood stave pipeline was extended from the end of the six-inch pipeline up Nettle Creek to the point where south Nettle Creek goes underground. This was necessary to prevent the collection of muddy water during spring runoff.

The wood pipelines were maintained and kept operable until 1935 when the entire distribution pipe system was replaced as a PWA project with cast-iron pipe, and the first three miles at the Town end of the transmission line was replaced with an eight-inch steel line. Later, the remainder of the transmission line was replaced in segments with eight-inch steel pipe. Deterioration of the steel transmission line became apparent in the 1960's and in 1963 the upper half...
of the line was replaced with a 10" cast-iron line. At the same time, a chlorination building was added as a requirement of the CDPHE. This project included approximately 17,000 feet of pipeline beginning at the chlorination building and extending up the headwall on the south fork of Nettle Creek picking up two spring boxes. The lower half of the transmission line was replaced in 1965. There were approximately 23,000 feet of 10" cast-iron pipe installed with this project, extending from the intersection of Third and Sopris Streets to the chlorination building. At that time, the pump operating the chlorinator was replaced with a pressure reducing valve, eliminating earlier chlorinator problems.

At the present time water from the Nettle Creek Springs is piped to the obsolete 0.4 MGD water treatment plant to a below grade clearwell. The clearwell then supplies water to the transmission main. During normal operation water flows continuously through the transmission main and spills out at the White Hill tank. The flow to the main can be slightly regulated for seasonal demand in town, however is unregulated for daily fluctuations in demand and thus the need to spill out of the White Hill tank.

One problem associated with the replacement project in the 1960's was that formal easement agreements were not negotiated with private property owners for a pipeline right-of-way. Some property owners questioned the Town’s easement and were able to informally agree to exchange the easement for perpetual free water. In June of 1994 this exchange accounted for 603,500 gallons at a value of $718.00.

Currently there are 62 customer taps connected to the transmission main. Use is either residential homes typical to the Crystal Valley or large ranching operations. In June of 1994 total water consumption for these customers was 2.15 MG which was 5.05 percent of the total metered water on the system. The Town has a moratorium on approval of out-of-town taps along this main.

As more people tapped into the main and as demand increased in town resulting in higher flows in the main, low pressure problems plagued many of the
residences along the main. In order to compensate for the low pressures, two pressure sustaining valves were installed, one approximately 15,720 feet north of Nettle Creek and the other approximately 32,310 feet north of Nettle Creek. At the present time the valves are set to maintain an upstream pressure of 75 psi at the valve vault. In order to maintain this pressure the valve is actually throttled down to decrease the flow into town, thus limiting the flow capacity of the main. In addition, the main contains several blow-off valves which are designed to relieve or lower the pressure in the main to pressures that will not damage the pipe for any residential customers. The valves will open to spill water to the Crystal River when pressures at the valves exceed 85 psi. Because of the highly variable flows and pressures, the Town should not allow additional taps along this main in the future.

The elevation difference between the Nettle Creek Treatment Plant and pressure sustaining valve No. 2 is 560 feet and will result in static pressures of 243 psi. The combination of the long transmission line, variable flows, pressure sustaining valves, blow-off valves and residential customers results in fluctuating pressures and varying hydraulic conditions, will have to be considered when locating a new water treatment plant anywhere near the main.

Based upon the elevation of the clearwell in the Nettle Creek WTP and the White Hill water storage tanks, the Nettle Creek Transmission Main could fill the tanks at a theoretical maximum rate of approximately 1463 GPM (2.1 MGD). This assumes no use elsewhere in the system. If the new WTP elevation changes, the hydraulic grade line elevation will change and thus change the capacity of the main. Likewise if the Nettle Creek main were to feed an upper pressure zone, i.e.: the Gray Ranch, it would do so at a lesser rate due to the reduced pressure differential.

If higher flows are needed from Nettle Creek, there are options available to increase the capacity of the main. Sections could be replaced with a larger diameter pipe or preferably segments of new waterline could be installed in parallel with the existing line. Because the capacity of the water treatment plant at Nettle Creek will be limited to 2 MGD, increased capacity may not be necessary.
E.D.A. Project No. 05-19-01605(b) contained plans for the chlorination station, various pressure relief and air relief manhole installations, and plans for White Hill tank and pump control modifications. These plans utilized USGS 1" = 2000' quadrangle maps for base information.

The general location of the main was shown from Carbondale to the Nettle Creek water treatment facility. The water transmission line "As-built Drawings", October 1965, showed an as-built alignment including bearings and distances for the lower half of the line from Carbondale to Station 237+18 (just downstream of the confluence of Thompson Creek and the Crystal River). These plans also contained profiles which indicated that the main was installed with a minimum cover of five feet.

SURVEY AND MAPPING

For this study, it was important to develop a complete and detailed base map over the entire length of the main. Because of the lack of as-built drawing information on the southern half of the main, a detailed survey of the main was conducted to define the horizontal location and elevations of the main at various points of concern. A computerized version of the USGS quadrangle mapping was chosen as a background to provide base information. Control points were set along the Highway 133 corridor and GPS equipment was utilized to locate the main wherever possible. Some areas of the project required field survey because Mt. Sopris shielded communication between the GPS equipment and the satellites. The Town of Carbondale Public Works Department used their locating equipment to mark the positions of the main where surface features, such as meter pits, valves and air release manholes, did not indicate the location of the main.

The October 1965, as-built alignment was adjusted to coincide with the field survey points. The end result of these efforts is a project base map shown on the attached Drawings I thru 4 entitled, "Nettle Creek Main Hydraulic Analysis". This computerized version enables X, Y and Z coordinates to be developed for various points along the main. The relationship of the main to the USGS base mapping is however approximate. The base mapping was stretched and rotated to provide the best fit possible to existing survey points along the highway and transmission main corridors.
ANALYSIS OF EXISTING MAIN

Through discussions with the Carbondale Water Department Supervisor, Ron Higuera, it became apparent that the functioning of the main needed to be simplified and many of the existing pressure relief/sustaining/control stations needed to be eliminated. Several of the pressure relief valves functioned by discharging the chlorinated water to the Crystal River, which is illegal under today’s regulations. The old chlorination station served as a point of regulating flow by means of throttling valves in the main line and bypass lines. Additionally, several of the air relief valves are inoperative and need to be replaced.

For purposes of this study, it was decided to consider the existing control features along the line to be abandoned and to determine the optimum configuration and locations of new control features. The proposed modifications should enable the line to automatically function to provide required flows at acceptable pressures under varying demand conditions (static to the 2 MGD capacity). The features should also be compatible with operation of the Nettle Creek water treatment plant, White Hill tanks, Crystal Wells, future Roaring Fork Wells and the SCADA system.

A major design concern along the main is that of high pressures that would result under static conditions due to the large difference in elevation between the Nettle Creek plant clearwell and various points of use along the main. The Town of Carbondale has previously notified each user along the main that pressure reducing valves must be installed on each service line at the homeowner’s expense. These service PRVs would protect the downstream service line and the in-house piping from the effects of high pressure. However, pressures within the Nettle Creek main would still exceed recommended levels.

The proposed conceptual solution consists of installing main-line pressure reducing valve pits where needed along the main. These installations would function automatically to reduce pressures to acceptable levels over varying flow conditions. The installations would have to be located so that zones of acceptable pressure, say 120 psi upstream and 50 psi downstream, are maintained. The number of PRV installations necessary and their locations, settings, etc., were analyzed and optimized using computer hydraulic modeling as described in the next section.
COMPUTER MODELING

The CYBERNET computer model was used to evaluate the performance of the Nettle Creek transmission main under varying demand conditions. The model calculates pipe flow rates, line velocities and pressures losses in each segment of pipe and reports pressures at points of interest throughout the system.

Computer models require the user to define the distribution network geometry (pipe segments numbered between intersections which are described as junction nodes) and provide values of the various input parameters associated with each network component. Major system components and input parameters are listed below:

1. **Pipe**: Connecting node #’s, length, diameter, Hazen-Williams roughness coefficient, minor loss coefficient.
2. **Junction Node**: Demand, elevation, connecting pipe numbers.
3. **Tank**: Connecting pipe number, starting/max/min elevations, diameter, external inflow.
4. **Pump**: Pipe number, upstream node, downstream node, speed ratio, useful power or head/discharge curve.
5. **Pressure reducing valve**: Junction node, downstream pipe, grade maintained.

The original Town of Carbondale water distribution model was developed as part of the Water System Master Plan. The model has been continually updated to include new developments such as Hendrick Ranch and River Valley Ranch. The current model consists of 298 pipes and 217 junction nodes. Junction Notes J-1 thru J-17 were inserted into the model to identify various points of concern along the Nettle Creek main. These points are indicated on the project base map (Drawings 1-4). The Nettle Creek water plant clearwell is denoted by “Tank-3” in the model.
An important parameter in the calibration of water models is the Hazen-Williams Coefficient C which corresponds to the interior roughness of the water main. Typically, the roughness of PVC pipe and cement-lined ductile iron pipe tends to remain constant over time. The Nettle Creek main is made out of cast iron which tends to become rougher over time due to mineral deposits and tuberculation. However, the Nettle Creek main has not exhibited signs of either of these characteristics; the interior has appeared smooth when pipe segments have been dismantled. Consequently, a Hazen-Williams roughness coefficient of C = 130 corresponding to new cast iron was chosen to represent the main’s roughness in the computer model.

Preliminary modeling results indicated that three PRV stations would be needed along the main. The optimized locations of PRV-1, PRV-2 and PRV-3 are shown on the project plans. A detail of the recommended pressure reducing valve pit is shown on Sheet 4 of 4. A dual combination of a 6" PRVs will provide satisfactory operation at low and high flows. One 6" valve alone is capable of 1400 gpm (= 2 MGD) at acceptable velocities.

These locations and pressure settings were determined by extensive preliminary trial and error modeling runs with different PRV locations and pressures settings (which are not included in this report). Accessibility was also a factor. To ensure that the chosen configuration of PRVs and settings was acceptable, several different modeling runs and flows ranging from 0 gpm thru 1400 gpm were conducted. The 1400 gpm figure roughly equates to the 2 MGD capacity of the Nettle Creek water treatment plant. These flows were analyzed by isolating the main from the remainder of the Carbondale water system and withdrawing the flow at J-1310 located on the main near the fire station and Meadowood Drive.

The results are summarized on the attached plan sheets. A table is included at each junction node location that shows the corresponding pressure under each demand condition. At the PRV installations, both upstream pressure and downstream pressures are shown. Complete modeling results for each demand scenario are included in the Appendix.

The modeling results indicate that the proposed configuration of PRVs will result in acceptable pressures along the main under flow conditions varying from 0 to 1200 gpm. At the...
1400 gpm flow rate, pressures in the lower portion of the main (PRV-1, J-1 thru J-4) fell to 32 psi and below. This indicates that the maximum satisfactory supply rate to the Town is somewhere between 1200 and 1400 gpm. The exact figure will be dependent upon water use by upstream taps, use in town and the White Hill tank level. Additionally, the future status of the Crystal wells and the Roaring Fork wells could factor into this calculation.

An additional modeling run with no demand on the system indicated that the White Hill tanks would fill at a rate of 1222 gpm. Another run with maximum day demands distributed throughout Carbondale and along the main showed that the Nettle Creek main would flow at a rate of about 1300 gpm at the upper end, with the White Hill tanks providing about 500 gpm.

As a separate note, Junction Node J-12 was inserted into the model to represent possible users at an elevation high above the main. The survey indicated that there were meter pits in the area of these homes and it was unclear exactly which houses were connected to the main. The computer modeling revealed that pressures would be unacceptably low at J-12 if these homes were connected to the main under the proposed PRV scenario. Subsequent consultation with the Water Department indicated that these homes are not connected to the Nettle Creek main. The optimization process assumed these homes were not connected. If these homes are connected, the downstream pressures setting at PRV #3 will have to be increased to provide acceptable house pressures at the expense of higher than desired main line pressures.

SCADA CONSIDERATIONS

The Town of Carbondale has instituted a SCADA system which will allow automated control of water system operations and allow the system to be monitored from remote locations. The upstream and downstream pressures in each PRV installation can be reported back to the SCADA system via radio telemetry. Solar power could be utilized if electric is not available nearby.
FLOW CONTROL AT PRV NO. 1

Under the proposed conditions with only the PRVs in place, the Nettle Creek main will want to flow continuously to meet demands within Town and to fill the White Hill tanks. This flow would be unregulated and would cause the White Hill tanks to overflow during low demand periods. One possible solution would be to install a solenoid-operated valve on PRV-1, which could be controlled by the SCADA system. The water level sensors in the White Hill tanks would send a signal to close PRV-1 when tank levels became full. When the desired amount of drawdown in the tanks had occurred, another signal would be sent to PRV-1 to automatically resume the function. Under this scenario, the Nettle Creek Main would flow at a variable rate corresponding to the actual demand on the system. The additional modeling runs in Appendix A entitled, "Tank Fill Rate" and "Max Day" indicate that the main would flow somewhere between 1200 and 1300 gpm. Adjusting the downstream pressure setting on PRV-1 could slightly vary these flow rates.

The above operating scenario is undesirable because the main would operate at virtually no flow while PRV-1 is closed, and at a very high flow when it is open. The Nettle Creek water treatment plant is designed to operate at a continuous flow rate and should not be turned on and off. To allow the Nettle Creek to operate, a lesser and gradually varied flow rate, a rate of flow control valve could be placed in PRV-1. Depending upon the valve chosen, it could work in conjunction with, or replace, the pressure reducing valve.

The flow control valve can be set to provide an appropriate seasonal flow rate which will allow the plant to operate at a fairly steady rate. Changes in this flow rate can be set manually at the valve or remotely using in the SCADA system. The Crystal Wells or future Roaring Fork Wells can be set to cycle on and off as needed to make up for variations in system demand.

RECOMMENDATIONS

1. The Town should install the three PRV stations as described in this report. The ultimate location of each station should be field-determined. Each location should be within a few
hundred feet of the schematic location shown on the drawings and should be roughly at
the same elevation. Any special requirements associated with the construction of the
vault in each location should be defined prior to bid.

2. Prior to construction, the Town should develop a preferred method of operating the entire
Town water system. All telemetry/control issues should be identified. Components to
consider include the Nettle Creek water treatment plant, Nettle Creek main flow control
valve, Crystal Wells, future Roaring Fork Wells, White Hill tanks and the possible need
for an altitude valve, future River Valley Ranch pump station and upper zone tank, and
future upper pressure zones on the East Mesa.

3. The Town should re-issue the notice about the in-house PRV requirements to all water
users on the Nettle Creek Main.

4. The Water Department should test all the air release installations and install new air
valves where required.

5. The chlorination station should be completely abandoned. The building could be
removed (as requested by the landowner) and the piping reduced to just a straight
segment of 10’ DIP with a 10” gate valve. The same applies to all other existing control
vaults, pressure sustaining valves, blowoffs, etc.
TOWN MANAGER PERFORMANCE REVIEW WORKSHEET

Name: Jay Harrington  
Job Title: Town Manager

Department: Admin  
Anniversary Date: 8/19/2020

Date:  
Period Covered by this Review: Sep. 2019 – Aug. 2020

STRENGTHS

1. Jay makes the mayor and trustee’s jobs easy by keeping us well-informed and anticipating challenges and opportunities.
2. Jay supports his staff very well and has empowered them to be more self-sufficient and leaders in the organization.
3. Jay’s connections and strong relationships have allowed the town to benefit from partnerships, advance information and less conflict.
4. Does not bring homelife challenges into the workplace
5. Maintains a steady professional temperament
6. Exceeds the expertise required by the job
7. Excellent in navigating problems with the public and staff.
8. Willingness to take on issues and find solutions.
9. Keeps up with town projects old, current and projected.
10. Ability to keep track of everything going on in all the Town Departments, from small details to large projects.
11. Good judgment and advice on how to handle sticky situations.
12. Remains high energy in sheparding staff to make sure projects get done.
13. Ability to prepare for worst while looking for best scenarios
14. People skills
15. Ability to inter-face effectively with many different organizations

AREAS FOR IMPROVEMENT

<table>
<thead>
<tr>
<th>Things to do more of</th>
<th>Things to do less of</th>
<th>Things to avoid</th>
<th>Feedback from Bot and/or Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td>X</td>
<td>Encourage himself and staff to challenge assumptions with the goal of either confirming approach, or developing new ones.</td>
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<tr>
<td>X</td>
<td></td>
<td></td>
<td>Being defensive against well-intended challenges to his or his staff’s practices and procedures.</td>
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<td>X</td>
<td></td>
<td></td>
<td>Publicly tie potentially controversial issues back to the Town’s MVV</td>
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<td></td>
<td></td>
<td>X</td>
<td>Not taking personal time for R&amp;R</td>
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<tr>
<td>X</td>
<td></td>
<td></td>
<td>This has been a very challenging year for all and Jay has managed to keep staff focused and on board with Town work.</td>
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<tr>
<td>X</td>
<td></td>
<td></td>
<td>Excellent input for overall picture of budget for the Town.</td>
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<tr>
<td>X</td>
<td>Good sounding board for different projects that may or may not work.</td>
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<tr>
<td>X</td>
<td>Always proactive in solutions that work for Carbondale.</td>
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<tr>
<td>X</td>
<td>While this is a 24/7 job, disconnect from Town Hall once in a while.</td>
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<tr>
<td>X</td>
<td>If something really ticks him off, stop, take a deep breath, make sure all sides of the story are understood, then react.</td>
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<tr>
<td></td>
<td>Continue to interface with many different organizations that enables Carbondale to develop strategic alliances for everyone’s benefit</td>
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<tr>
<td>x</td>
<td>Stress, we have a good team of staff and elected officials</td>
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<tr>
<td></td>
<td>Leave Carbondale</td>
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**DEVELOPMENT RECOMMENDATIONS**

1. I see challenging his own assumptions as a growth opportunity for Jay. Examples include the town’s approach to communicating with the public.
2. Become comfortable taking a leadership stance among Garfield County municipalities. Judge people more holistically, not just on alma mater and/or education. Education and intelligence are important but so are other things like kindness, empathy and common sense.
3. Continue work on backfilling future vacancies
4. Moderate growth

**GOALS FOR 2020**

1. Continue to motivate key personnel and support staff to grow with you.
2. Start exploring new ways to communicate with community members outside of the traditional means, i.e., social media, while maintaining the traditional methods. If this is done, make sure the guidance and protocol is in place to make sure it stays professional and consistent.
3. Continue to do the good work that you have done in these past years as Town Manager. A number of great projects have been done under your watch.
4. Stabilize financial situation with Renae so we continue to walk a line of fiscal responsibility
5. Look for additional revenue sources, capital tax proposal, bonds since interest rate is so low

**OVERALL PERFORMANCE**

Exceeds Expectations   ✔
Adequately Meets Expectations  □
Barely Meets Expectations  □
Does Not Meet Expectation  □

*Jay’s 2018 goals: (I don’t have a record of any 2019 goals.)*
1) **Goal:** Continue to improve hiring systems to hire and retain the best candidates for the Town.
   **Measurable Actions:** Evaluate new hires.
   **Evaluation:**

2) **Goal:** Continue to prioritize high service levels with limited resources.
   **Measurable Actions:** Feedback from public and the BOT.
   **Evaluation:** Achieved

3) **Goal:** Continue to explore how to make the organization transparent and communicate well with the public.
   **Measurable Actions:** Finalize and utilize the new communication plan and website (just went live).
   **Evaluation:** The CETF allowed greater communication with the public and Jay clearly saw this need and facilitated it. I look forward to seeing us bring this and even greater communication capabilities in-house in 2021.

What else can the Board of Trustees do to better support you next year (2020/21)?

Jay:

**Evaluation:**

Jay's 2020/21 goals:

1) **Goal:**

   **Measurable Actions:**

2) **Goal:**

   **Measurable Actions:**

3) **Goal:**

   **Measurable Actions:**

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**Mayor Signature:** Daniel J. Richardson

**Human Resources:**

**Employee:**

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MINUTES
CARBONDALE PLANNING AND ZONING COMMISSION
Thursday July 16, 2020

Commissioners Present:
Michael Durant, Chair
Ken Harrington, Vice-Chair
Jay Engstrom
Nicholas DiFrank (1st Alternate)
Erica Stahl Golden (2nd Alternate)

Staff Present:
Janet Buck, Planning Director
John Leybourne, Planner
Mary Sikes, Planning Assistant

Commissioners Absent:
Jeff Davlyn
Jade Wimberley
Marina Skiles
Nick Miscione

Other Persons Present Virtually
Bryan Welker
Mark Chain

The meeting was called to order at 7:00 p.m. by Michael Durant.

June 25, 2020 Minutes:
Ken made a motion to approve the June 25, 2020 minutes. Nicholas seconded the motion and they were approved unanimously.

Public Comment – Persons Present Not on the Agenda
There were no persons present to speak on a non-agenda item.

Resolution 7, Series of 2020 – Subdivision Exemption – 156/160 12th Street

Ken made a motion to approve Resolution 7, Series of 2020, approving the Subdivision Exemption at 156/160 12th Street. Nicholas seconded the motion and it was approved unanimously.

VIRTUAL HEARING – Rezoning
Location: 35 N. Seventh Street
Applicant: Bryan & Jennifer Welker

Janet said that this is an application for the rezoning of a parcel from the 711 Main Street Planned Unit Development (PUD) zone district to the Commercial/Transitional (C/T) zone district. She stated that the Planning Commission is required to hold a public hearing and recommend approval or recommend denial. She said that the Commission may also continue the public hearing.
Janet stated that the parcel is 3,750 sq. ft. She said that there is an existing single-family house on the lot. She stated that this property is one of two lots located within the 711 Main Street PUD. She said that the other property in the PUD is 711 the lot directly to the south of this lot – Amore Realty.

Janet said that these two lots were originally one 7,500 sq. ft. parcel under common ownership. She stated that the parcel had been zoned C/T.

Janet explained that in 2006, the property owner of that parcel was planning to demolish the historic structure at 711 Main Street. She said that Town Staff encouraged the property owner to retain and restore the historic building. She said that in return, the Town rezoned the parcel to the 711 Main Street PUD, allowed the parcel to be split into two lots, and allowed a single-family home to be constructed at 35 N. 7th Street. She said that the Town also waived building permit fees. She stated that in return, the property owner signed an agreement stating that if the historic house was demolished within 20 years, that the fees would be refunded to the Town.

Janet said that this request for rezoning to C/T is for the 35 N. 7th Street property only. She stated that the historic house at 711 Main Street would remain within the 711 Main Street PUD. She said that there are no changes proposed to either property with this rezoning.

Janet stated that the lot is in compliance with the zoning parameters except for the Minimum Lot Depth and the Rear Yard Setback. She said that the Town Attorney has weighed in on whether variances would be needed for those two items. She said that his interpretation was that if the rezoning is approved, those would become legal nonconforming site conditions and can legally remain in place. She stated that any new development on the site would need to be in compliance with the development standards. She said that the ordinance of approval would acknowledge the legal nonconforming nature of the lot and building.

Janet said that overall, the rezoning appears to be appropriate. She stated that the uses in the C/T zone district will allow uses that would accommodate the uses that meet the “Downtown” designation in the Comprehensive Plan. She said that the property has C/T on two sides. She stated that the C/T area would provide a buffer to transition from Main Street to the residential neighborhoods to the north.

Ken asked how the non-conforming would impact future renovations or expansions.

Janet read from the Code the section for maintenance of non-conformities; Unified Development Code, Section 7.2.5 discusses maintenance and minor repair, minor repairs and maintenance of non-conformities are permitted and encouraged, provided that the minor repairs and maintenance do not increase the extent of the non-conformity. She said that you could not increase the square footage within the back-yard setback. She said that this will be a non-conforming lot and a non-conforming structure. She said that it can be built on or developed as long as the owner meets all
development criteria. She said that they could do an addition if it meets setbacks and building heights.

Michael asked what would happen with Lynn’s property and does it stay in the PUD.

Janet said that it stays in the PUD and that there are two property owners who signed letters that they were fine with amending the PUD.

Jay asked why the C/T zone district has a twenty-foot setback for the rear.

Janet said that she didn’t see any good reason for it and when we go through the next round of amendments, we need to look at that.

Mark Chain on behalf of Bryan and Jennifer Welker introduced himself. He said that Janet did a good job of summarizing the history. He said that he is glad that the house at 711 Main was preserved for a twenty-year time period. He said that this was zoned Commercial Transitional (C/T) before and taken out to form the PUD. He said that it meets all of the Comprehensive Plan criteria as well as the zoning criteria.

Mark shared his screen to give a bird’s eye view of the site and surrounding properties. He said that he recommends that the rear setback go back to five feet unless there is a real reason when it is reviewed. He said that there are two non-conformities, the lot depth and the rear yard setback. He said that if a future owner wanted to build in the rear setback that they would need to apply for a variance and justify it or wait until the zoning is changed.

Mark outlined comparisons in the Comp Plan to the development itself. He said that the utilities are adequate and that the parking works. He said that the parking is where it should be, off to the side, around the back and on the alley.

Mark said that Bryan and Jennifer have reviewed the Staff report and we all concur with the recommendations and we hope that you will approve this rezoning.

Ken asked why the owners were rezoning.

Mark said that the future owners wanted to use it in conformance with the C/T zone district.

Janet said that the PUD limits Lot A to one- or two-family dwelling units and that commercial uses are not allowed.

There were no members of the public present.

**Motion to close the comment portion of the public hearing**

Ken made the motion to close the comment portion of the public hearing. Nicholas seconded the motion and it was approved unanimously.
Jay said that he is in favor and that eliminating half of the PUD is benefiting the Town.

Erica said that she agrees, and that the presentation was thoughtful.

Nicholas said that he agrees.

Michael stated that if is pretty straight forward and that legal non-conforming is really not that big of a deal. He said that it the simplest way to go.

Motion

Ken made a motion to recommend approval of the rezoning of 35 N. Seventh Street from PUD to C/T zone district with the conditions and findings in the Staff report. Jay seconded the motion and it was approved unanimously.

Staff Update

Janet said at the Board meeting on Tuesday night the parking amendment was approved for the self-storage facilities exactly as the Commission had recommended.

Janet said that the rezoning for the Sopris Shopping Center/Carbondale Center Place was continued as the Board had some concerns.

Janet said that the City Market Fueling Station is open, and that the grocery store might be open by the end of August.

Mary said that the plans and permits keep on coming.

Janet said that there were not any applications for the July 30th meeting and that the P&Z appointments can be on the agenda for the August 13th meeting.

The Commission agreed on canceling the July 30, 2020 meeting.

Janet said that both the August 13 and 26 meetings will be the Eastwood self-storage application of Annexation, Rezoning, Major Site Plan Review and Conditional Use Permit.

Commissioner Comments

There were no Commissioner comments.

Motion to Adjourn

A motion was made by Nicholas to adjourn and the meeting was adjourned at 7:40 p.m.
MINUTES
CARBONDALE PLANNING AND ZONING COMMISSION
Thursday August 13, 2020

Commissioners Present:
Nick Miscione
Jeff Davlyn
Marina Skiles
Jade Wimberley

Commissioners Absent:
Ken Harrington, Vice-Chair
Michael Durant Chair
Jay Engstrom
Nicholas DiFrank (1st Alternate)
Erica Stahl Golden (2nd Alternate)

Other Persons Present Virtually
Rob Cairncross
Jordan Sarick
Doug Pratte
Mavis Fitzgerald
Yancy Nichol, Engineer
Andrea Korber, Architect, 57 Village Lane
Colby Christoff
Ben Genshaft

The meeting was called to order at 7:10 p.m. by Nick Miscione.

July 16, 2020 Minutes:
The minutes were tabled, all the Commissioners present were not at the 7-16-2020 meeting.

Public Comment – Persons Present Not on the Agenda
There were no persons present to speak on a non-agenda item.

VIRTUAL HEARING – Annexation, Rezoning, Major Site Plan Review, Conditional Use Permit and Vested Rights
Location: 0430 Highway 133
Applicant: Eastwood 133, LLC

Janet said that this is a public hearing to consider an application for Annexation, Rezoning, Major Site Plan Review, Conditional Use Permit, and Vested Rights. She said that the Commission is required to hold a public hearing and recommend approval.
of the application or recommend denial or the Planning Commission may also continue
the public hearing.

Janet said that since this is a complex project, she suggested that the Commission split
the review into two hearings. She said that this is the first hearing tonight.

Janet said that she will touch on annexation and rezoning issues first. She said then the
applicant can present the project and the P&Z can ask questions of the applicant.

Janet said then the public hearing should be opened for public comment. She said then
the Commission would then continue the public hearing to August 27, 2020. She said
that at that meeting she will go over the zoning and development standards in the UDC.

Janet said that tonight is the big picture overview to take a look at the development to
see what it looks like. She said at the end if you have questions or need additional
information it would be a good opportunity to let the applicants and Staff know. She said
that the applicants are going to explain the details of the application.

Janet said that the property is the 2 acre parcel just north of the substation on Highway
133 across from Alpine Bank. She said that the property is currently zoned Commercial
General in Garfield County.

Janet stated that the applicants would like to annex the property into the Town and
rezone the parcel to the Commercial/Retail/Wholesale (CRW) zone district. She said
that the applicant then proposes to develop a self-storage facility with one residential
unit. She stated that the self-storage facility would include a small office for an on-site
manager. She said that there would also be retail sales to include sale of packing
materials.

Janet stated that the 2013 Comprehensive Plan shows that the parcel is located in the
Phase 1 Potential Annexation Infill area. She said that the Town has two phases, she
said that this is Phase 1. She said that Phase 1 are the areas immediately adjacent to
the Town. She said that the intent of those areas is to promote infill and development of
areas that already function as part of the Town. She said that it goes on to say that
these are the most logical areas for annexation because infill would maintain the Town’s
compact footprint. She said if remember in the Comp Plan that the intent is not to sprawl
but to develop inward.

Janet said that the Comp Plan talks about some of the opportunities in the Phase 1
areas and this location.

Janet said that this location is identified as being a gateway to the Town. She said that
you will see in the application that landscape, artwork and trails are proposed as part of
this application.

Janet stated that the Comp Plan also notes that this parcel is a logical infill location for
annexation. She said that if you look on the Zoning Map that it is contiguous with the
Town. She said that the properties north of that like Red Rock Diner and the tire store it will look like they are part of Town, but they are not. She said that it provides a logical path for future annexations with the thought that those areas are ripe for redevelopment. She said that if they were to redevelop that we would rather have them develop under the Town’s standards rather than the County’s standards.

Janet stated that the Comp Plan includes the following Annexation Criteria.

1. Annexation should be reviewed concurrently with development proposals.

Janet said that this has been done with this application.

2. Annexation/development should promote multi-modal transportation systems.

Janet said that they are proposing a trail extending along Highway 133 from the RFTA park-and-ride to the Cowen Center crosswalk is proposed. She said what this will is add to the length of continuous trail along the west side of Highway 133 from the north side of Town and extending south by RVR. In addition, a public trail is proposed along the north side of the property from Highway 133 to the mobile home park property.

3. Annexation should not adversely affect the Town’s fiscal conditions.

Janet said that they submitted a Fiscal Impact Report that was submitted with the application, which is required by State statue. She said that the report finds that the proposed development will be “fiscal-positive” with a new annual surplus of $23,180. She stated that in addition, a monthly rental fee for the storage units is proposed in order to generate additional revenue for the Town. She said that this percentage has not been figured out yet but that it will be worked through as we move to the Board because the Board is more the numbers group.

4. Annexation should not degrade public infrastructure or level of service.

Janet said that any required infrastructure to serve the development will be the responsibility of the developer. She said that in addition, either water rights or fees in lieu of water rights will be required.

5. Annexation/development should include at least one of these assets:

a. Public trails, priority public open space, or public parks, all exceeding the minimum requirements of the code.

b. Affordable housing exceeding the minimum requirements of the code.

c. Agricultural land conservation

Janet said that construction of two public trails is proposed as part of the application.
6. Development should avoid geologic hazards.

Janet said that there are no geologic hazards associated with the property.

She said that the Future Land Use map designates the property as Auto-Urban. The elements of Auto-Urban are:

- Auto oriented but pedestrian/bike friendly.
- That buildings set back, emphasizing landscaping and parking in the front.
- Buildings can be up to 3 stories tall.
- Interesting varied façade.
- Building facades and roofline should be broken up to avoid monotony and box-like structures. Facades should have three-dimensional architectural elements.
- Flexible mix of commercial uses that may include residential upstairs.

Janet said that during the development of the 2013 Comprehensive Plan, it had always been envisioned that the CRW zone district would be the most appropriate zoning for the Auto Urban area.

Janet said that she touched on some of the annexation issues in the Staff report including the need for a traffic impact study, potential need for improvements to the highway, Access Control Plan, Fiscal Impact Report and Water Rights. She said that these are a work in progress and that she will flesh those out as we proceed in this process.

Janet said that some of the points of discussion for this meeting may include the following:

- Is it appropriate to annex this property into the Town?
- Is the CRW zone district appropriate?
- What additional considerations need to be included to ensure the development meets the annexation criteria in the 2013 Comprehensive Plan?

Janet said that it is kind of over-arching and that she is not going into the nitty gritty of the setbacks, the building height, how many street trees there are. She said that she was thinking tonight of basically taking it out of the box and having the applicants present it to see what’s on the table and then move into the details at the next meeting.

Marina thanked Janet for her Staff report and said that it was very helpful. She asked for clarification of the reason for annexation.
Janet said that they get utilities. She said that the County knows that this is in our annexation areas so when property owners that are within our Phase 1 areas go to the County to develop, the County encourages them to contact the Town. She said that the County zoning is Commercial General. She said it would be interesting to see what they could do under the County zoning verses the Town zoning of CRW. She said that she doubts that the County has the development standards that we do in our UDC.

Doug Pratte introduced himself and said that he is the Planner working on the application with Rob Cairncross and Jordan Sarick.

Doug began with his presentation showing the street view and he introduced the owners.

Rob Cairncross, one of the owners, gave his history in the valley. He said that we feel we have come up with a creative solution for this parcel. He introduced the team.

- Architect, Andi Korber/Land+Shelter
- Engineers, Yancy Nichol and Colby Christoff/Sopris Engineering, LLC
- Public Outreach, Mavis Fitzgerald/Project Resource Studio

Mavis gave an overview of the public outreach including the noticing in both English and Spanish.

Doug outlined the following in his presentation.

- Community meetings and outreach.
- Eastwood 133 Self-Storage Site on the Zoning Map.
- Annexation Plat.
- Zoning Map showing surrounding parcels with labeling.
- State Highway 133 Access Control Plan showing the shared access with the property to the north.
- Town of Carbondale Bike and Pedestrian Corridors, highlighting the connections.
- Site Plan showing paths along the highway and on the north side to the mobile home park and the shared access, explaining the right in and right out and a low traffic generator.

Andi outlined her architectural presentation.

- Drivers experience from the highway both north and south.
- Site plan showing three buildings and their heights.
- Highway view with art walk paths, art walk mural, one story building and two story building.
- Screening wall at east and south.
- Integrated Art with murals and sculptures with locations of bump outs.
- Overall public art in Carbondale and how it fits in.
- The view at night of the entrance to Carbondale, lighting the murals.
• Pedestrian experience east/west and north/south.
• Storefront entrance with parking.
• Northwest corner location of apartment.
• Storage areas with entrance and exit.
• Elevations with durable materials.
• Energy program and solar array.
• Elevations compliance showing articulation, glazing, scale and mass.

Doug gave an overview and next steps of the project.

**Commissioner Comments**

Marina commended the team for their time and efforts to the entrance to the Town with the focus on art. She asked what the free standing walls were made of.

Andi explained that it is a retaining wall to keep the storage yard flat made of block at the base of the art walls. She explained that the art would be facing the highway and that the wall would wrap around toward the substation.

Marina asked about the sculptures and if they would be part of all the Carbondale sculptures.

Andi explained that these sculptures might lend themselves to a permanent location on this site but that it hasn’t been decided. She said that they do have a commitment that Carbondale Arts would like to manage it and that we have created a source for funding for both installation and maintenance.

Jeff agreed with Marina and said that it was a very impressive effort. He said that he appreciates all the outreach that has been done. He asked about the shared access and will it be modified in there is a redevelopment.

Yancy Nichol explained that the site plan has been laid out so that the development could work with the access to the highway. He said that they will obtain the access permit as this project moves forward.

Jeff said that he is curious about the trail development on the Highway 133 easement and the timeline of its completion.

Yancy said that we will obtain a special use permit from CDOT for the trail and landscaping to be done in one phase. He said that they will give an extension of time for a project of this size. He said that the trail will probably be deeded over to the Town so the Town will actually be the one that obtains the permit, which will allow the Town to own and maintain the trail.

Nick asked for clarification of the standards for the trail.

Doug explained that we will be working through this with next steps forward and that we have designed the trail to meet the standards of the Town.
Jeff said that there have been transportation improvement fees required for other annexations in the past and how would that work with this project.

Janet said that she wanted to put this on the table and that typically we get a traffic impact study that lets us know if any highway improvements are required. She said it would include traffic counts, which could trigger improvements to the highway. She said that the future round-about will be discussed and if there will be costs required to help pay for it. She said that its not a set formula for every development. She said that it is an unknown right now. She said that with Thompson Park that highway improvements were required, which the developer paid for.

Janet asked who will be responsible for painting and maintaining the murals?

Doug explained that what has been discussed is some sort of rental fee as a funding source and a portion of that to be used for maintaining the murals as well as painting. He said that we have not identified how much that fee is that we anticipate that with the Town and the Arts District that there is an opportunity to work in that regard to have some funding for maintenance.

Marina asked if the fee would be added on to the monthly rental of each storage unit.

Doug said that it could be a portion of that fee. He said that we haven’t established how much that fee is.

Marina asked if would be for the sculptures too.

Doug replied yes.

Janet asked Andi who maintains the De Rail Park.

Marina said that it is volunteer based because she weeds it regularly. She said that Carbondale Arts maintains it.

Marina said that she doesn’t want a town full of self-storage units. She asked if this is going to take the place of units being demoed on Colorado Avenue.

Janet said the other application is still in the rezoning process at the Board level.

Marina said this could be in addition to the other storage units.

Janet replied yes.

Marina asked the Commission if this was worth discussing?

Janet said that at the last Board meeting on Tuesday night that they have been working through some of the design and some of the issues with the Mixed-Use zone district. She said that they directed Staff to create an Ordinance of approval to rezone the property to Mixed-Use and C/T. She said that if it gets approved the project would go back through a Major Site Plan Review.

Nick asked if the Board approved the zone split.

Janet said that they are not quite done with it and that there is an Ordinance going before them on August 25th. She said that they would then go back and work on the Major Site Plan Review for the mixed-use building up in front and the storage building.
Nick asked about the path of travel on the north side of the lot and that it does pass through the mobile home park. He asked if that was for vehicular access, pedestrians, or bicycles.

Doug said that it would be gated emergency access so if for some reason vehicles needed to get out of this parcel that they have an alternative way out. He said that it won’t become a thoroughfare. He said that the mobile home park would be granted use for an emergency as well. He said that it would not be used as traffic flow through by the public or the users of this facility.

Rob stated that the mobile home park did change owners recently and that they have been working to get in touch with the representative at this corporation in Irvine, California to explain what we are proposing.

Nick asked how the access would be controlled?

Doug said that it would have a gate with a knox box or control mechanism.

Public Comments

There were no members of the public to comment.

The public comment portion of the meeting was left open for the next meeting.

Janet asked the Commission if there was anything else that they needed to make their decision. She said that it was a thorough application.

Marina said that Janet and the applicant went above and beyond with the packet.

Motion

Marina made a motion to continue the public hearing to August 27, 2020. Jeff seconded the motion and it was approved unanimously.

Marina applauded the applicants to contributing to the vision of Carbondale.

Re-appointments for Planning Commission

Marina made a motion to reappoint Michael Durant and Jay Engstrom as regular voting members of the Planning and Zoning Commission. Jeff seconded the motion and they were recommended unanimously.

Janet said that it was nice to have Jade back after her summer of study.

Staff Update

Janet said that she got to go in the new City Market and that it is beautiful inside. She said that it looks better than everything that was shown at the public hearings. She said that they are already stocking shelves. She said that this store will be the district headquarters for the valley. She said that hopefully people will shop here instead of going to El Jebel and therefore eliminated the sales tax leakage in town.

There was discussion about traffic flow around City Market and the fueling station exit.

Janet said that City Market is shooting for opening at the end of August.

Janet said that building plans are still coming in and it isn’t slowing down.
Further discussion ensued about the real estate market in the valley.

John shared his screen showing the fire map and explained the location of the fires. He explained how to sign up for the reverse 911.

John commended Nick for his job chairing the CHPC hearing regarding the demoing of the telegraph building at 234 Main Street.

There was further discussion regarding the CHPC hearing and other historic properties throughout Carbondale and their success stories.

**Commissioner Comments**

Marina commended Nick for his volunteering on two commissions.

Jeff said that this was his daughter Mala’s second P&Z meeting and the first one was four years ago when she was an infant in Town Hall.

**Motion to Adjourn**

A motion was made by Jeff to adjourn. Marina seconded the motion and the meeting was adjourned at 9:04 p.m.
CALL TO ORDER
Dan Bullock called the meeting to order at 6:00 pm on July 16, 2020 at the North Face Park/Pickleball Courts.

ROLL CALL
The following members were present for roll call:

<table>
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<tr>
<th>Members Present:</th>
<th>Dan Bullock, Chairperson</th>
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<tr>
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<td>Kim Bock, Member</td>
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<td>Joanne Teeple, Member</td>
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<th>Town Staff Present:</th>
<th>Mike Callas, Town Liaison</th>
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<td>Marty Silverstein, Trustee Liaison</td>
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<td>Kae McDonald, Boards and Commissions Clerk</td>
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| Guests & Observers:       | None Present             |

CONSENT AGENDA
Motion Passed: Joanne moved to approve the June 2020 Tree Board minutes. Dan seconded the motion, and it was unanimously approved.

PERSONS PRESENT NOT ON THE AGENDA
Mike announced that Sarah Kemme resigned from the Tree Board effective July 1, 2020.

ARBOR DAY PROJECT AT NORTH FACE PARK PICKLEBALL COURTS AND BASEBALL FIELD: TREE PLANTINGS
Mike is coordinating with Eric on the planned bleacher placement and based on the current plan he pointed out the anticipated location of the six trees around the pickleball courts.

He also pointed out the six trees dead trees between the pickleball courts and ball field that will be replaced, as well. This area will have a dedicated irrigation source, so the trees will have a better chance of survival.

New irrigation has been installed in the right-of-way between the pickleball courts and the streets, and the trees in this zone are doing well.

RE-REVIEW OF RED HILL LOFTS PUD TREE PLACEMENT
Dan has been communicating with John Leybourne in trying to understand why 60 trees are being required for the Red Hill Lofts PUD. His points to John were:

- The proposed tree placement will require the removal of currently landscaped areas that are thriving;
- It will also require the installation of sod in other areas that are now covered with cobbles;
- The proposed tree placement is too cramped;
- Why an additional 29 trees are being required off-site in addition to the 31 trees placed within the proposed development;
- Is this going to be too big of a burden on the current business owners to adequately irrigate the trees;
- What guarantees are there that the trees will remain in place if those properties are sold?

Dan also expressed the concern that the Planning and Zoning Commission is setting requirements without consulting the Tree Board.
Mike added that he had worked with Janet and John during the UDC update, but the requirements for this PUD don’t follow the code as established in the current UDC.

**SOPRIS PARK TREE ID PLAQUES AND WEB SITE PAGE**
Mike has provided Colin Quinn with information on 10 different types of trees in Sopris Park. Colin is working with a GIS consultant to create an on-line story map. The trees will also have physical labels.

**DESIGNATION OF A TOWN TREE**
Dan has been contacted by Patrick Hunter on designating a town tree. More research will be required to determine the most appropriate type of tree for nomination.

**MICHAEL’S TREE REPORT/DESIGN REVIEW**
Dan asked about the status of irrigation at Nuche Park—there were several Kay Brunnier trees planted there, but RVR has not maintained the system and the trees have died. He hoped that an irrigation system was being included with the plans for the Crystal River Restoration Project. Mike replied that he has a list of the trees that died and will explore what can be replaced.

**ADJOURNMENT**
The July 16, 2020, regular meeting adjourned at 6:30 p.m. The next regular meeting is scheduled on August 20, 2020 at 6:00 pm.

Respectfully submitted,
Kae McDonald
CALL TO ORDER
Colin Quinn called the virtual meeting to order at 5:30 pm on July 27, 2020.

ROLL CALL
The following members were present for roll call:

E-board Members: Colin Quinn, Chairperson
Sandy Marlin, Member
Summer Scott, Member
Scott Mills, Member
Frosty Merriott, Member
Pat Hunter, Alternate

Town Staff Present: Mark O’Meara, Staff Liaison
Kae McDonald, Boards and Commissions Clerk

Guests: Katharine Rushton, CLEER Representative
Stefan Johnson, CLEER Representative
Tamara Haynes-Norton, Guest

CONSENT AGENDA
Motion Passed: Pat moved to approve E-board meeting minutes from June 2020. Colin seconded the motion, and it was unanimously approved.

PERSONS PRESENT NOT ON THE AGENDA
Stefan Johnson, the Transportation Program Manager at CLEER, presented the GoEV City Campaign for the EBoard’s consideration and support when the resolution is presented to the BOT. Because the petroleum-fueled transportation sector is now the largest source of greenhouse gas emissions in the nation and is a contributing factor to air pollution and climate change, the GoEV City Campaign is a way to set bold commitments to help the transition to electric vehicles. The program is modeled after “Ready for 100,” and CLEER is coordinating with CoPIRG, SWEEP, the Sierra Club, and Conservation Colorado to:
1) Challenge municipalities and counties to transition fleets to zero emission vehicles;
2) Challenge municipalities to work with local transit agencies and school districts to transition to zero emission buses;
3) Challenge municipalities to work with taxies and vehicles for hire to transition to zero emission vehicles;
4) Challenge municipalities to promote the transition of all the community’s vehicles to zero emission vehicles.
The program is a way to set bold commitments to help with the transition to electric vehicles, and to date the City of Denver and Boulder County have passed resolutions; another 12 communities around the state are currently considering resolutions. Stefan indicated that he is promoting the program to various groups for support, with the goal of presenting a Resolution for the BOT’s consideration at the end of September.

Motion Passed: Colin moved to support the GoEV City initiative with the E-Board’s input when the resolution is presented to the BOT. Sandy seconded the motion, and it was unanimously approved.

Sandy let the EBoard members know that she has been actively pursuing information about whether the new City Market is following through on their environmental initiatives. Through that effort she has procured their Carbondale Vision Book from 2016 and reached out to the architect and project manager, both of whom confirmed that 98% of those initiatives have been incorporated. She will send out the Vision Book and the architect/project manager’s responses to her questions. If the EBoard members are interested, both are willing to make a more detailed presentation at a meeting.

GREEN AWARD
Pat summarized the effort that he and Sandy have put into this idea. Pat indicated that he didn’t want this to be a complicated process—it was more about acknowledging the small things local businesses were doing to become more environmentally friendly. He would like to utilize space in the Sopris Sun to highlight a business on a monthly basis; he is willing to take that project on. However, if it grows into something more complicated, he is unwilling to participate.

Sandy followed up with agreeing to disagree about how the process for the Green Award should be handled. She is willing to let Pat take the project on but doesn’t feel like it will be as effective if businesses don’t have to put some effort into being acknowledged.

Questions/Comments:
Frosty was okay with allowing Pat to take this project on but doesn’t have time to help.

Colin is also supportive, but also doesn’t have time to help.

UPDATE ON EBOARD’S ROLE IN DEVELOPMENT
Colin opened the conversation on this topic by pointing out that there are four development applications along Highway 133 that have been submitted to P & Z including the Lumber Yard, condominiums at the intersection of Main Street and Highway 133, condominiums/retail/storage just north of Colorado along Highway 133, and storage units north of the RFTA Park-n-Ride on the west side of Highway 133. He wondered how much public input has been sought on these projects, and
he feels like the EBoard should have a bigger role. To that end, he spoke with Janet Buck about the public process, and found out that there is a 400+ email list that receives notice about upcoming applications. Janet also informed Colin that the Comprehensive Plan and the Unified Development Code are binding agreements and all development applications must follow these guidelines for approval. She suggested that the EBoard get involved in the upcoming 2021 Comprehensive Plan process, and possibly reach out to P & Z for further conversations.

Colin also spoke with Heather, who suggested that if the EBoard would like more input on projects before they are presented to P & Z, it may require a modification to the EBoard’s Resolution. She suggested coming before the BOT with any requested changes for their consideration.

Colin also spoke with Dan Richardson and Michael Durant (Chair of P & Z), who also echoed Janet’s comments. Dan also suggested that there might be greater potential for influence for any developments that might apply for annexation into the town. He went on to say that he has heard from other community members that there is a need for more public input on these projects, especially with regards to controlling the amount of traffic generated.

Colin would like to explore the option for the EBoard to be able to comment on development applications before they are presented at P & Z.

Questions/Comments:
Scott pointed out that the EBoard needs to stand behind the Climate Action plan and the Environmental Bill of Rights, and make sure that these documents are provided to developers before their projects are presented at P & Z. He also suggested making a big effort to work with CLEER and CORE on alterations on the 2021 Comprehensive Plan, as well as modifying the EBoard’s resolution to allow the group the ability to comment on upcoming development projects.

Frosty echoes Scott’s comments, and suggested that a proposal for targeted moratorium on development along Highway 133 be presented to the BOT and that it remain in place until the BOT sets CAP goals—after all, how can the Town ask developers to achieve these goals when there isn’t a plan in place for the Town to do so as well?

Kathryn also agreed with Scott and suggested finding ways to push developers to innovate beyond the UDC. She pointed out that there are numerous avenues to reach CAP goals, although some are more successful than others. She also pushed for making the UDC stronger in terms of energy savings and underlined the fact that incentivizing upgrades to existing buildings translates into much greater energy savings.

Pat reminded the EBoard members that he had sent everyone information on the TOC Home Rule procedures as it applies to referendums. He went on to say that
the current process doesn’t focus on the EBoard’s goals, and that while there are a lot of buildings that the community would like to see many of those buildings are not up to current CAP standards.

Summer would like to see more accountability from the Town departments and the BOT and would like to submit a statement from the EBoard reflecting that sentiment.

Colin indicated that he would prefer to have a conversation about the issues with members of the BOT and Town departments and then decide how to move forward based upon their response. He is really concerned about the lack of community input and would like to find ways to improve it.

Sandy agreed with Scott and Kathryn and would like to be involved in the 2021 code revisions. She also agreed with Kathryn in that it will take a multi-faceted approach to reach CAP goals. She wants to make sure the BOT understands the EBoard’s concerns and would like to get on an upcoming agenda to begin the conversation.

Scott wants to contact Janet and make sure the EBoard members are on the P & Z contact list.

Mark reminded the EBoard members that many of these projects have been discussed for quite some time and trying to stop projects once they have followed the required process could be viewed as adversarial. He also reminded the board members that all current land use applications are posted on the TOC website under the Planning menu.

**EBOARD’S ITEMS TO PRIORITIZE**

This topic was tabled until August’s meeting.

**EBOARD ORGANIZATION**

Summer opened this topic by pointing out that while he feels like the mission and intent of the EBoard is good, over the last few months of his EBoard meeting attendance, he has seen the board struggle with organization and accountability. He pointed out that maintaining a spreadsheet that identifies each topic the EBoard is pursuing along with estimates of the time, money, and resources needed to accomplish that task might be a helpful way to keep members on track.

Pat asked for an example, and Summer pointed to the discussion about an electric vehicle circulator bus. He suggested that everyone thinks you just need to get the vehicle and the problem is solved, but he thinks it needs more research and a proper assessment prior to obtaining said vehicle.

Pat then asked who would maintain the spreadsheet and the allocations. He then gave examples of current allocations: Natalie is following through on Dandelion Days, and the BOT hired consultants for both the single-user trash option and the
plastics reduction study because it became apparent the EBoard lacked both the time and expertise to get complete those tasks.

Colin voiced support for a spreadsheet to chart progress on all the projects the EBoard has taken on.

Sandy was also supportive of Summer’s observations for certain projects and went on to say that if the EBoard expects to have input on the CAP and modifications to the 2021 Code there is an urgent need to get a handle on the big picture. She would like to form subcommittees or working groups to address projects the EBoard is interested in. But she also pointed out the current Covid protocols make it harder for people to be efficient in accomplishing goals.

Colin suggested deciding on a few projects, then ask for volunteers for subcommittees. He went on to say that everyone has topics that interest them, and he wants to empower people to pursue their passions except how it is messaged through the EBoard. He wants people to look forward to meetings and working on projects, not just as if it were another job. He also pointed out that the EBoard does have a budget that needs to be utilized.

Summer added that all he is asking for is that moving forward the group pay attention to how goals are achieved as an organization.

Scott pointed out that some projects take a lot of time and it is hard to predict how much time to devote at the outset. He is planning on working on the 2021 code revisions.

Colin wrapped up the discussion by saying the EBoard’s project organization can use some improvement without being unduly burdensome in recordkeeping.

**ADJOURNMENT**

The July 27, 2020, regular meeting adjourned at 7:05 p.m. The next regular meeting is scheduled for August 24, 2020 at 6:00 pm.

Respectfully submitted,
Kae McDonald