



# Road & Bridge Audit



FINAL

August 24, 2015



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Our team wishes to thank the following individuals for touring us through the facilities, sharing pertinent information and for providing general assistance on this project.

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Greg Bollig	Marc Hitchcox

### Ouray County Commissioners

Don Batchelder, District 3, Chair  
Lynn M. Padgett, District 1, Vice-Chair  
Ben Tisdell, District 2, Commissioner Member

### County Peer Group

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## Executive Summary

Ouray County is one of the more scenic counties in all of Colorado and serves as a gateway to two national forests, two wilderness areas, resort communities, mining operations, recreation-based tourism and more. And with the beauty of the San Juans comes the challenges of maintaining and funding the maintenance of high mountain roads. As such Ouray County (OC), through this Road and Bridge (R&B) Department Audit seeks to better understand how it can overcome these challenges.

It seems very clear that maintaining Ouray County’s roads are a high priority for its citizens. However like many rural counties in Western Colorado, OC has been forced to ‘do more with less’ with respect to R&B operations. In many ways it has effectively ‘stretched resources’ more than most. Due to furloughs in previous years, inadequate capital investment and the general difficulties of maintaining roads in a high mountain resort environment, R&B operations are at or beyond capacity. This audit highlights that it is time to shift from ‘stretching resources’ to being more strategic and cost-effective about achieving R&B goals.

### Project Background

As part of this audit, SGM’s team researched R&B management and operations by:

- reviewing key documents such as budgets, previous reports, policies and more;
- interviewing OC staff, commissioners, Road Committee members, neighboring county R&B staff, and the general public; and
- assessing R&B assets including road infrastructure, buildings, fleet vehicles and equipment.

Once the team fully analyzed this information, it developed findings that serve as the basis of what Ouray County and/or the team see as the primary challenges and opportunities to address. It should be noted that the Road Committee completed a similar audit report five years ago and many of the challenges and opportunities it referenced are still relevant today.

### Findings

When comparing OC to the County Peer Group (CPG) counties, there really weren’t any surprises or anomalies. Road infrastructure condition is comparable to similar counties; however fleet and facility infrastructure is more in need of investment due to deferred maintenance. With respect to finances, Ouray County’s revenue portfolio is more diverse and more reliable than its peers; however the amount of funding is inadequate to meet current expectations. For example, although sales tax revenue was intended to bring additional revenue to R&B when it was passed in 2008, due to the decline in property values and a corresponding decrease in mill levy revenue shortly thereafter, sales tax has only backfilled the R&B budget as opposed to add to it in recent years, thus preventing what would have been even larger budget/service reductions. Furthermore it appears that decreased revenue combined with less than optimum communication and transparency has led to a challenging relationship between R&B staff and its citizens.

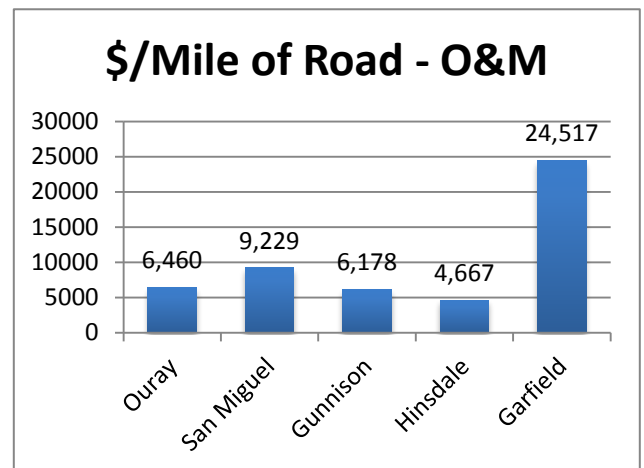


Figure 1 - O&M cost to maintain a mile of road on average

The condition of OC’s road infrastructure is also not too different than its peers; however the Community Satisfaction Survey indicates that gravel road conditions/maintenance is insufficient. County Road 1 (CR 1) was the most mentioned road during SGM’s research and appears to be one of a few high priority roads. It certainly meets much of the criteria used to evaluate whether a gravel road should be paved and it appears that most if not all stakeholders want it to be paved. The only question is how to fund the project. In addition, many other roads are also in need of significant repair due to deferred maintenance.

Fleet maintenance is clearly suffering from being under-staffed and it lacks adequate fleet maintenance facilities and equipment which has compromised fleet maintenance and as a result general R&B operational efficiencies. In addition, there are three potential compliance issues that are in need of immediate attention including mag chloride and fuel storage, and the lack of vehicle wash facilities.



The Community Satisfaction Survey was officially closed on June 8 of this year and had 329 respondents, or roughly 7% of the county’s population which is a commendable response. In general there is a high opinion of R&B with respect to most functions including customer service, snow removal and the condition of paved roads. However for the highest priority topic of non-winter maintenance and gravel road surface conditions, there is significant dissatisfaction. Regarding funding R&B operations, 57% of respondents are at least somewhat willing to *maintain* the current level of service even if it means raising either sales or property taxes. This percentage increases to nearly 80% when it comes to *improving* the current level of service.

## Recommendations

Several tables were created in order to clearly articulate the recommendations and prioritize them so that OC can effectively move forward, despite limited funding. The tables and some additional resources include the following:

- Community Peer Group Survey Responses
- County Peer Group Comparison Table
- Community Satisfaction Survey Responses
- Road Improvement Table
- Vehicle Data Table
- Vehicle Acquisition Table
- Capital Equipment Replacement Fund
- Outsourcing Evaluation Table
- Asset Management Plan – Sample
- Staffing Analysis Table
- Recommended Budget Table
- And other supplemental information listed in the Appendix

The recommendations are comprehensive and will likely need to be phased over several years. As they are implemented, the following three core strategies are intended to guide implementation:

- **Optimize the current systems** – Virtually any system has room to improve efficiency and OC R&B is no exception. It is true that R&B would benefit from more road capital funding and additional operators to perform road maintenance; however before those investments are made, the focus should be on optimizing the efficiency of fleet maintenance, improve budgetary planning and reporting, and develop stronger communication with R&B stakeholders.
- **Be proactive rather than reactive** – Deferred maintenance/investment for roads, vehicles/equipment and facilities has resulted in the County being reactive to emergency repairs which is exhausting on staff, not to mention expensive. Getting ahead of the curve at this point will require significant capital investment but should reduce lifecycle costs over time – which is the best value for citizens.
- **Re-build the R&B foundation** –The first two strategies are clearly the most difficult. But once day to day operations are running efficiently and the County can provide maintenance on its own terms, rather than

the terms of failing infrastructure, then it can begin re-building roads and facilities, perhaps with additional support from its citizens.

The recommendations are provided by responding to 13 key questions that emerged from our research and subsequent findings. These questions address the following issues:

1. Immediate recommendations
2. Organizational structure
3. Financial structure
4. R&B operations
5. Outsourcing
6. Inter-agency cooperation
7. Road maintenance
8. Snow removal
9. Vehicle/equipment maintenance
10. Vehicle/equipment fleet
11. Facility upgrades
12. Facility maintenance
13. County Road 1

Because the County is prohibited by law to fund R&B from the General Fund, many if not most of the recommendations in this report will require additional funding, particularly in the short term. If Ouray County is to optimize R&B operations and meet citizen expectations in the future, it is essential that Ouray County increase its voter-approved revenue.

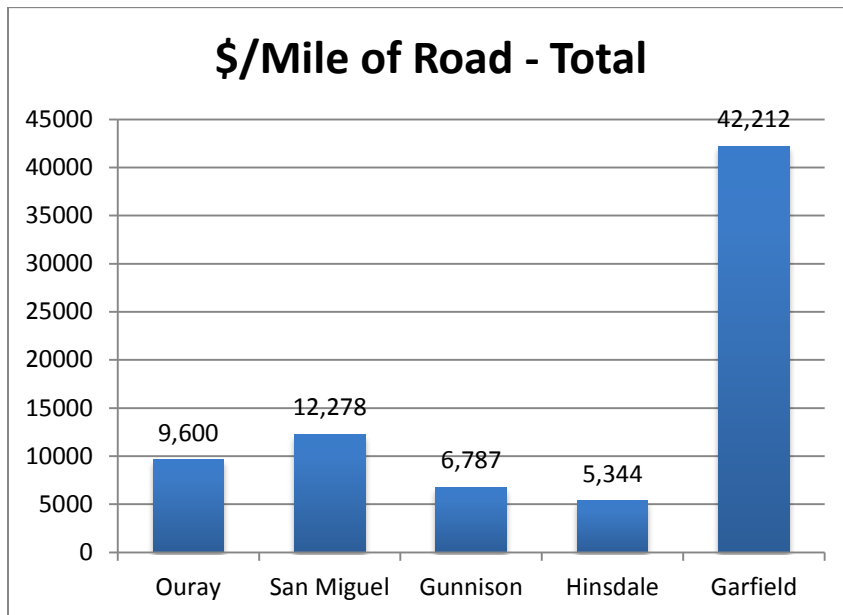


Figure 2 - O&M + capital cost to maintain a mile of road on average

## Project Background

SGM was selected through a competitive process to conduct an audit of Ouray County's (OC) Road and Bridge (R&B) Department. The scope of work requested in the RFP addressed 7 elements including:

1. Organizational and Management Structure
2. Departmental Administration
3. Department Inventory (Roads, Equipment, Facilities)
4. Community Relations and Customer Service
5. Best Management Practices
6. Other
7. Recommendations



Specifically, Ouray County (BOCC, staff and the Road Committee) wanted to better understand how the R&B Department was doing – not only according to SGM's assessment team but the community at large as well. All parties wanted to know if it could improve and if so, how? Is its current funding adequate, too high or too low?

To answer these, and other questions, SGM's assessment team created and delivered the following specific scope of services:

1. SGM will organize and conduct a kick-off meeting with Ouray County to confirm project goals, scope, budget and deliverables.
2. SGM will review industry standards as they relate to Ouray County operations.
3. SGM will conduct staff, Road Committee, and Commissioner interviews and access all applicable information on management approach and systems, funding sources and budgets, organizational structure, workflows, technology, asset inventories, current outsourcing and potential opportunities, etc.
4. SGM will conduct interviews with appropriate staff at comparable counties to better understand their operations, best practices and other conditions.
5. SGM will conduct field observations of prioritized assets, including roads, bridges, vehicles/equipment, facilities and/or other assets.
6. SGM will draft, submit, and compile results for community satisfaction survey.
7. SGM will create a departmental profile based on all data/information gathered and review with County staff to confirm accuracy.
8. SGM will assess and analyze profile information, comparing to industry best practices, comparable County Peer Group (CPG) best practices, and the decades of combined hands-on experience of SGM's audit team.
9. SGM will develop preliminary recommendations and review with staff. ← **We are here.**
10. SGM will finalize recommendations and present to Ouray County.



## Summary of Findings

Before SGM’s assessment team began analyzing information and developing recommendations, a comprehensive list of findings were created for each category. The team used these findings to not only confer what was heard and understood, but also as the foundation upon which to develop specific recommendations. These findings are a collection of observations that the assessment team ascertained about R&B management, operations, assets, etc. The findings were shared with OC staff to confirm that there were not any errors or misunderstandings. Many of the findings are also referenced in applicable recommendations for reference.

Specific sources of findings are listed in each category below; however in general the assessment team reviewed pertinent information including the current budget, organizational chart, staffing level information, job descriptions, salary information, the 2010 Road Committee Report, etc. The team interviewed R&B staff, the county administrator, CPG staff, Board of County Commissioners (BOCC), and the Road Committee. Site observations were made for all R&B facilities. Lastly, the team reviewed the results of the Community Satisfaction Survey in order to assess leadership and management capabilities.

### County Peer Group (CPG) Comparison

In an effort to compare Ouray County with its peers, a survey was created by SGM and completed by Road and Bridge staff from the following counties: Ouray County, San Miguel County, Gunnison County, and Garfield County. General information was also acquired and included in the CPG Profile from Hinsdale County. Personal or phone interviews were conducted with San Miguel County and Gunnison County.

It is important to recognize that all counties are different and therefore comparisons were used to compare scale and general indicators, not to rate

or quantify performance. A summary of findings from interviews, surveys and annual budgets are listed below. Please refer to the CPG surveys and CPG Profile (CPG table) for specific data and information.

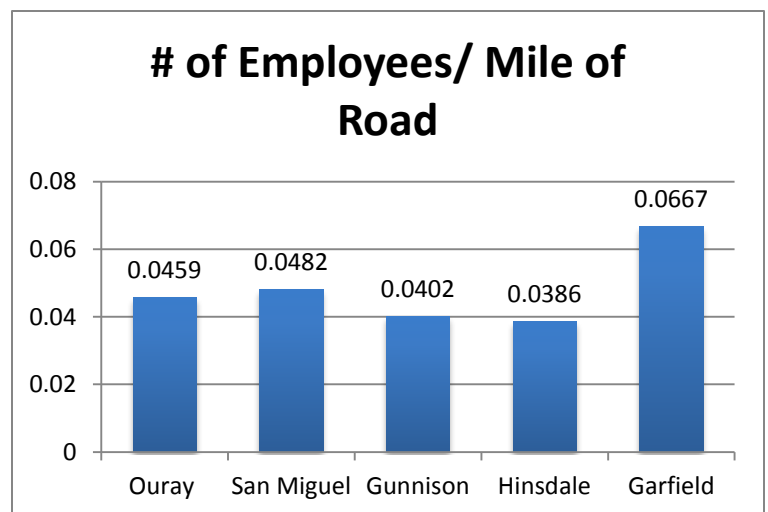


Figure 3 - Number of R&B employees per mile of road

- Gunnison County (GC) R&B, which has approximately 196% more centerline miles than OC, spends less than OC R&B per capita, per lane mile of road and per square mile of land area. GC also has fewer R&B employees per capita, per lane mile of road and per square mile of land area.
- San Miguel County (SMC) R&B, which has approximately 38% more centerline miles than OC, spends more than OC R&B per capita and per lane mile of road, but less per square mile of land area. SMC also has fewer R&B employees per capita and per square mile of land area, but more per lane mile of road.
- Hinsdale County (HC) R&B, which has approximately 15% fewer centerline miles than OC, spends more than OC R&B per capita, but less per lane mile of road and per square mile of land area. HC also has more R&B employees per capita, but less per square mile of land area and per lane mile of road.
- Compared to OC’s budgeted 5.5% COLA wage increase in 2015, plus a potential 1% merit wage increase, GC budgeted for a 2% COLA wage increase (no merit), and Hinsdale budgeted for wages to remain flat.

- Compared to OC’s R&B fund balance as a percentage of annual expenses (23% projected at year end), GC is projected to have 8% and HC is projected to have 23%.
- OC has a dedicated 1.5 mill for R&B plus the equivalent of 1 mill committed from PILT. SMC had a 2014 total county valuation that is over 4.5 times as high as OC and a dedicated 1.9 mill levy. GC had a 2014 total county valuation that is 3.5 times as high as OC, but no R&B dedicated property tax funding. HC had a 2014 total county valuation that is less than half as high as OC and a .336 mill levy that is discretionary by the BOCC.

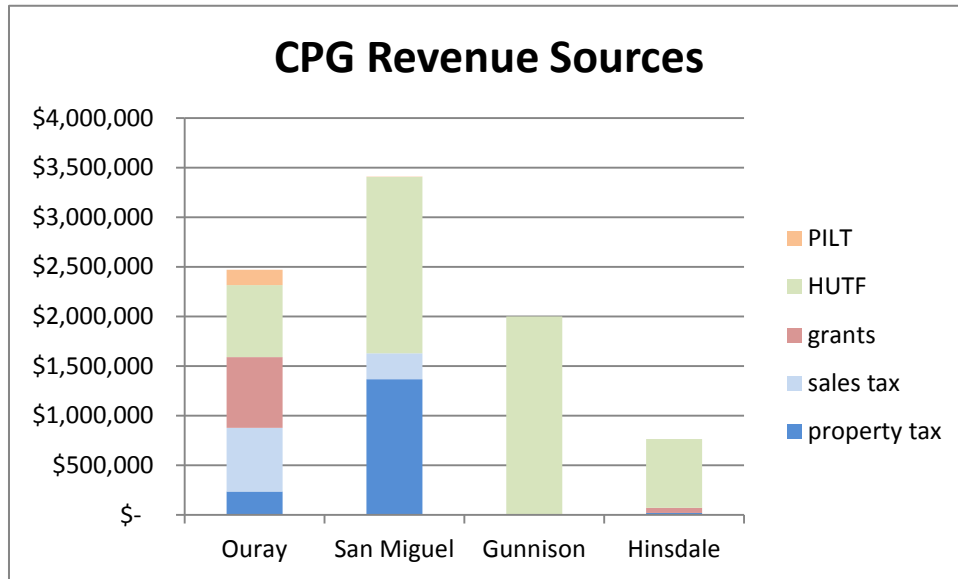


Figure 4 - CPG Revenue Sources by category. Note that Gunnison County revenue other than HUTF was not reported

- Ouray County has a dedicated 1% sales tax for R&B. SMC, GC, nor HC have dedicated R&B sales tax revenue. SMC R&B does receive transfers from the general county ‘Capital Fund’ which is funded through sales tax.
- It is worth noting that the County asked the voters in 2013 to consider a .75% sales tax. If approved, such funding was to have been deposited to a Public Health and Safety Operations Fund with proceeds used specifically for public health and safety. The amount estimated to be received in 2014 was \$386,625; however the voters voted this down.

### Organizational and Management Structure

In order to assess R&B’s organizational and management structure, the assessment team reviewed pertinent information stated above. A summary of findings from the collected information are listed below.

- Ouray County has a Road Committee that serves in an advisory capacity to and whose members are appointed by the Board of County Commissioners (BOCC).
- The Road Committee completed a very thorough analysis in 2010 that included many observations and recommendations that are still very relevant and applicable.
- There appears to be detailed fund accounting within Road and Bridge (R&B).
- OC does not have a capital improvement plan (CIP) for any department.
- OC R&B was furloughed to 36 hours a week like the rest of the county in 2014. The 2015 budget allowed R&B to return to a 40 hour work week.

- Although sales tax revenue was intended to bring additional revenue to R&B, due to the decline in property values and a corresponding decrease in mill levy revenue, sales tax has only backfilled the R&B budget in recent years, thus preventing even larger budget/service reductions.
- Most OC R&B salaries are reportedly on the low end of the job-specific ranges. The County has hired a consultant to do a classification and compensation study and the study should determine where OC R&B position compensation ranges should be in relation to its neighboring counties, its region and economy.
- The recent re-opening of the Fortune Revenue Mine has made hiring technical R&B staff more challenging because the mine reportedly has higher wages.
- A third-party contractor determined what R&B should reimburse the General Fund for general services; however only approximately half of this amount is billed to R&B. The general fund absorbs the remainder.
- OC uses PubWorks software for R&B cost tracking. Gunnison County uses PubWorks as well. San Miguel County (SMC) uses R+B tracking software however the software it uses has less capability than PubWorks.
- OC uses esri software for GIS, similar to other CPG counties.
- OC administrative staff spends a great deal of time writing grants.
- OC works with cities/towns and adjoining counties frequently to maintain roads, dredge river, etc. OC assists the City of Ouray to dredge the river once a year in exchange for inexpensive road base material.
- OC benefits from bulk purchase fuel pricing, even though it does not purchase enough to qualify for this type of pricing.
- OC has an active Road Committee charged with ensuring good roads throughout Ouray County.
- Citizen complaints about road conditions are frequent and often harsh.

### Road Operations

- In general R&B staff focuses 'all hands on deck' for dedicated tasks throughout the year. The focus is on snow plowing in the winter, repairing drainage/culverts in early spring, applying gravel in April, applying mag chloride through July, miscellaneous projects in late summer, and snow removal prep in the fall.
- OC currently does not have a Roads foreman which compromises efficiency. This position is budgeted to be filled in 2015.
- OC R&B outsources very little due to limited funding. OC does outsource all paving, engineering, gravel crushing, and mag chloride hauling. Some engine overhauls are outsourced.
- Currently there is no formal process for road assessments, work orders, vehicle replacements, etc. as OC does not have a capital improvement plan (CIP).
- Currently OC has access to free bottom ash (aka 'cinders') and therefore only pays to haul the material to Ouray County. This supply is expected to be exhausted within 2-5 years at which time OC must have an alternative solution ready to go. *(Also refer to 'Road & Bridge Committee Observations/Recommendations' dated August 19, 2010.)*
- Applying gravel to roads is currently limited by several factors including but not limited to:
  - inadequate funding for crushing gravel at the Colona Gravel Pit (staff estimates that funding only allows for approximately 5 miles worth of gravel per year);
  - limited equipment for hauling gravel from the pits (belly dumps); and
  - limited operators.
- Snow removal operations are reportedly limited by an inability to store plow vehicles at the Colona Shop.
- OC utilizes approximately 9 Department of Correction workers for manual labor almost every day. This assistance is very cost-effective and critical to R&B tasks.

- Mag chloride application practices continue to be adjusted for budget constraints. Current practice is to apply ½ gallon per square foot once a year. Staff is currently testing the viability to an alternative to mag chloride but the cost is more than 10x.
- Snow Removal Plan is not published, but the opening of jeep roads are.

### Road Conditions

- Some paved roads are in need of a chip seal to improve their useful life.
- The asphalt has failed on several segments of the paved roads and is in need of repair.
- Structurally some county roads, including County Roads 5 and 5A, are in good shape, but drainage needs to be improved.
- Although some roads have good drainage, a majority of the roads traveled, including County Roads 23, 24 and 361, need to have the drainage improved. Common drainage problems include: shallow ditches, shoulders are higher than road causing standing water on the road, or private properties have eliminated the ditches.
- Some roads, like County Road 23, have sufficient ROW width to make the necessary drainage improvements while some roads, like #17, have narrow ROW widths making it difficult to make drainage improvements.
- A lot of private property fences encroach on the road ROW's.
- Some subdivision roads, similar to Whispering Pines Drive, have no ditches. Private property owners have encroached on the ROW making it difficult to plow in the winter and maintain in the summer.

### Equipment

- Mechanic operations are currently limited by several factors including but not limited to:
  - only having one full-time mechanic for a workload well exceeding 40 hours per week (makes vacation and sick time, not to mention training for staff on new equipment very challenging);
  - inadequate shop facilities including limited indoor vehicle storage, no fresh air ventilation, a lack of tools and diagnostic equipment to safely and efficiently operate what usually is a 'one-man shop', and no fluid dispensing system for lubricants, requiring more staff time and higher costs for purchasing fluids.
- OC R&B only maintains R&B vehicles. All other OC vehicles (approximately 30 vehicles) are maintained by private mechanics. When R&B attempted to service ambulance vehicles, mechanics were unable to meet tight schedule requirements.
- Equipment in general is old with high mileage / hours, thus requiring excessive maintenance. Excessive maintenance then compromises road maintenance efficiency because there isn't enough equipment to maintain steady progress, such as grading.
- Staff has begun streamlining parts and equipment storage in an effort to minimize storage space needs; however multiple vehicle types limit this effort.

### Facilities

- Many mag chloride storage tanks (Ridgway and Colona) do not currently comply with State and Federal standards due to regular leaks. In order to minimize environmental damage and a waste of resources, R&B staff spends a significant amount of time repairing tanks before winter. Leaking tanks will need replaced in order to be brought into compliance. *(Also refer to 'Road & Bridge Committee Observations/Recommendations' dated August 19, 2010.)*
- The fuel storage and dispensing system at the Ridgway Shop currently does not comply with State and Federal standards and will require significant upgrades in order to be brought into compliance. *(Also refer to 'Road & Bridge Committee Observations/Recommendations' dated August 19, 2010.)* There is a

somewhat antiquated fuel management system at the Ridgway Shop to document vehicle, person fueling, quantity, etc., but there is no such system at the Ouray Shop.

- The Ridgway shop is currently out of compliance with State and Federal standards because it lacks required contaminant containment system, sand/oil separator, etc. for washing vehicles and equipment. Approved wash bay infrastructure will need to be installed in order to be brought into compliance. *(Also refer to 'Road & Bridge Committee Observations/Recommendations' dated August 19, 2010.)*
- Staff reports that the Ridgway Shop is in need of an HVAC and lighting upgrade soon. There is currently no fresh air / mechanical ventilation which is well below best practice standards and sometimes affects Land Use office air quality. Lighting is antiquated T-12 fluorescent lighting which is phasing out of production.
- The indoor heated snowplow storage facility at the Ridgway Shop lacks appropriate work lighting and has no concrete floor in two or three of the bays. The shop area also has insufficient covered storage for heavy equipment, trucks, and primary equipment.
- Two out of four shop bays in Ridgway are used to park snowplows overnight during the winter which is extremely inefficient for a mechanic.
- CDOT stores materials and equipment at the Ridgway Shop at no cost because they don't have room at their Ouray County site.
- San Juan Mine Safety occupies one Bay at the Ridgway Shop at no cost.
- The Colona shop is not heated and therefore does not house snow plow vehicles.
- Colona has a permitted 40 acre gravel pit with a reported expected life of 20 years. There is an additional 40 acres below the existing gravel pit not currently being used for R&B activities.
- The Ouray Shop is heated and can house a plow truck and a pick-up truck, but not the grader. Currently it is the only workshop space for facilities which reduces efficiency.
- The Ouray Shop fuel dispensing system has no fuel management system to document vehicle, person fueling, quantity, etc.
- Will Clapsadl is only maintenance person and there is one custodian. Department of Correction crews help occasionally. Most HVAC service work is contracted to HVAC contractors.
- In terms of durability, staff reports that buildings are in relatively good shape.

### **Community Satisfaction Survey**

The RFP for this project initially requested that the assessment team interview OC residents. SGM suggested and OC agreed that an online survey would provide more comprehensive results. The survey responses are included in the Appendix and the findings can be found below.

- Q 1-6: There were 329 total respondents; 20% lived in incorporated cities/towns and 80% in unincorporated areas. Of all respondents, 43% lived in Log Hill, 10% in Ouray, 5% north of Ouray, 14% in Ridgeway, 9% in Elk Meadows, 8% in Pleasant Valley, <11% all else except 0% in Dallas Divide. Of all respondents, 94% were year-round residents. Of all respondents, 54% of travel is on gravel roads.
- Q7: 306 respondents travel >10 miles/week in vehicles; 119 travel < 50 miles/week by bike; 41 travel <10 miles/week by horse; and 26 travel < 50 miles/week using 'other'.
- Q8: > 72% of respondents disagree or strongly disagree that potholes and other road damage are repaired timely or thoroughly; > 82% agree or strongly agree that snow removal was timely and thoroughly removed; > 90% agree or strongly agree that road closures are reasonable in terms of quantity and duration.

- Q9: > 82% of respondents are either satisfied, somewhat satisfied or very satisfied with the condition of paved roads; > 78% are either somewhat dissatisfied or very dissatisfied with the condition of gravel roads; > 85% are either satisfied, somewhat satisfied or very satisfied with snow plowing frequency and thoroughness; and > 73% are either satisfied or very satisfied with R&B customer service.
- Q10: In terms of priorities; non-winter maintenance is the highest; maintaining current snow removal practices and other winter maintenance are both close seconds.
- Q11: Please refer to survey results for a list of priorities.
- Q12: The large majority of respondents feel R&B staff is courteous and respond timely, thoroughly and fairly.
- Q13: Only 2% of respondents would prefer to receive less information and 53% would prefer to receive more information.
- Q14,15: Please refer to survey results for a list of responses.
- Q16-17: The large majority of respondents are most interested in alerts and R&B long range planning information and prefer to receive alerts electronically, specifically by email, texts or WENS.
- Q18: Please refer to survey results for a list of responses.
- Q19: For non-alert information, over 59% of respondents prefer email and 44% prefer newspaper.
- Q20: 52% of respondents feel current tax rates are appropriate; 26% feel current tax rates are too low; and 21% feel current tax rates are too high.
- Q21: 85% of respondents want to maintain the current level of service even if it means raising taxes.
- Q22: 57% of respondents are either willing, somewhat willing or very willing to increase taxes in order to maintain current level of service.
- Q23: 79% of respondents are either willing, somewhat willing or very willing to increase taxes in order to increase current level of service.
- Q24: The most important improvements are: Improving road surface conditions (77%); improving non winter maintenance (71%); and improving road drainage conditions (64%).
- Q25: The large majority of respondents view adding more county roads and lighting as not very important.
- Q26: If Ouray County were to increase R&B funding: 79% of respondents are either willing, somewhat willing or very willing to increase property taxes; and 77% are either willing, somewhat willing or very willing to increase sales taxes.
- Q27-: No findings.

## Recommendations

Audits are typically performed to answer questions about efficiency, effectiveness and how best to improve. As the research phase of this audit progressed, several key questions became apparent. Therefore the recommendations are detailed responses to the thirteen key questions listed below.

### 1. What are the most important/valuable Road and Bridge improvements Ouray County can make in the immediate future to improve management and operational efficiency?

Similar to any organization, there are many opportunities for Ouray County to improve efficiencies as well as overall performance. All of the following recommendations are listed with more detail in other sections of the report as noted; however they are summarized here because they are intended to improve the efficiency of both R&B management and operations so that subsequent improvements are optimized. It is recommended that once the following recommendations are implemented, OC re-evaluate the other relevant recommendations in order to confirm if and how circumstances have changed and if/how that should alter the implementation of recommendations.

- a. Implement all organizational structure recommendations in Question #2. With the exception of the increased staffing recommendation, these recommendations have little to no costs and are expected to have favorable, albeit nearly impossible to measure, return on investment. Adding a mechanic is a significant cost increase; however current maintenance operations are severely hindered by only having one mechanic.
- b. Resolve existing or potential non-compliance issues including, but not limited to:
  - i. Replacing mag chloride storage tanks as described in 11.a.1.
  - ii. Installing wash bay infrastructure as described in 11.a.2.
  - iii. Upgrading fuel system as described in 11.a.3.

These non-compliance issues could result in higher long-term costs. The mag chloride storage tank replacement is recommended first because it is also wasting staff time to repair tanks on a regular basis. It may be feasible to fund the replacement of the mag chloride tanks and potentially the replacement of the fuel system through vendor service contracts.

- c. Provide the additional basic tools/improvements needed for fleet maintenance to be efficient, which includes:
  - i. Provide a heavy duty hydraulic tire changer; a portable waste oil drain tote; and a 4 post vehicle lift system as described in 9.1 to make shop repair operations more efficient and cost effective.
  - ii. Install a fluid dispensing (aka 'lube reels') system with an option for a fluid management system as described in 9.3.a, to document vehicle, maintenance personnel, quantity, etc.
  - iii. Design and construct a two (2) bay extension to the vehicle storage shed as described in 9.3.b which would include completing the concrete slab and upgrading the lighting. Indoor storage is essential for winter maintenance vehicles; however storing these vehicles in the maintenance bays significantly compromises the efficiency of fleet maintenance.
- d. Optimize the fleet by eliminating unnecessary or less efficient (in terms of operational efficiency) vehicles as described in 10.2. R&B staff has already identified a strategic approach to eliminating some dump trucks with more versatile 6x6 all-wheel drive class 8 vehicles and it is recommended that OC implement

this strategy as soon as possible. Doing so will streamline fleet maintenance, vehicle-specific training, and either reduce fleet maintenance costs or improve fleet maintenance quality.

- e. Commit to strengthening communication between all R&B stakeholders as described in 2.3. While there is regular communication between the stakeholders, such as R&B staff, Road Committee, BOCC and other citizens, it does not appear that all stakeholders are as informed, engaged and/or trusted as they would like to be. Full alignment of viewpoints may not be possible, but it is recommended that stakeholders find a common vision and work collaboratively to achieve that vision.
- f. Actively pursue additional revenue and/or funding opportunities as described in 3.3, 3.4, 3.5, 3.6. Ouray County's revenue portfolio is more diverse and more reliable than similar counties; however the amount of funding is inadequate to meet current expectations. There are multiple alternatives for either increasing revenue or using alternative funding mechanisms and the sooner OC can agree on how to pursue them and what to use them for the better off it will be.

**2. How can the Road and Bridge organizational structure be optimized for performance and cost? (Including but not limited to staffing levels, job descriptions, salaries, training, communication, etc.)**

Please refer to the 'CPG' table for a general comparison of County Peer Group (CPG) statistics and metrics. OC benefits from excellent staff retention. However; most OC R&B salaries are reportedly on the low end of the job-specific ranges and the recent re-opening of the Camp Bird Mine has made hiring technical R&B staff more challenging because the mine reportedly has higher wages.

**Recommendations:**

- 1. Please refer to the Staffing Analysis Table in the Appendix for recommendations on staffing levels, job descriptions and salaries. The recommendation includes filling the open Road and Bridge Foreman position, hiring an additional mechanic, eventually hiring up to three additional part-time operators, and slightly modifying pay ranges and job descriptions. It is recommended that the Foreman and Mechanic positions be filled immediately. After all recommendations in Question #1 have been implemented, it is recommended that OC re-evaluate their operations and confirm the need for up to three part-time operators before they are hired.
- 2. Fund and encourage adequate and appropriate training for employees. Currently OC allocates approximately \$4,000 on average per year to R&B staff training to which we understand includes basic safety training for employees. This amount is in addition to training funded through dues to organizations such as County Technical Services, Inc. (CTSI). Training is often viewed as a necessary evil but it has the opportunity to improve efficiency and reduce risk (and potentially expenses), while improving employee commitment/engagement.
  - a. Continue current training which includes all applicable risk management/accident prevention/workman's comp training provided by CTSI and First-Aid/CPR/AED training for all employees provided by Ouray County EMS.
  - b. When new assets such as vehicles, equipment, etc. are purchased, have staff O&M training included in the cost of the asset.
  - c. Fund and encourage attendance in Local Transportation Assistance Program's (LTAP) 'Safety on the Job' training. San Miguel County (SMC) has R&B employees attend this class so coordination with them might either reduce costs or allow for more cost-effective on-site training. Other applicable LTAP events should be attended periodically by staff. Ideally all staff have the opportunity to attend these events, even if attendance alternates.



- d. Both OC and SMC, and perhaps more contract with CTSI to perform occasional walk-throughs of their facilities to help identify risk. OC should schedule a walk-through prior to making significant facility upgrades to ensure upgrades will address all high risk concerns.
  - e. In order to create management redundancy for vacations, illness and succession planning, the Foreman should be/continue to be cross-trained in all aspects of R&B management. The Road Supervisor and Foreman should attend applicable management-level trainings available from LTAP and/or American Public Works Association (APWA).
3. Commit to honest, respectful and regular communication between County Commissioners, Committee members, County Administration, R&B staff, other agencies and the general public. There appears to be, at best a level of frustration between various groups, and at worst a lack of trust. It is clear that all groups are working for the betterment of Ouray County; however poor communication is compromising R&B efficiency.
- a. After review of this report by all groups mentioned above, conduct a group meeting and/or planning process that results in true buy-in from all stakeholders on the short-term and long-term vision for R&B.
  - b. Road Committee Chair and Road Supervisor could meet regularly (at least monthly), to review the vision, progress reports, planned work, etc.
  - c. Road Committee and R&B department should work towards 'speaking as one' to the BOCC and community at large so that R&B vision, projects, funding needs, accomplishments, challenges, etc. are communicated effectively.
  - d. Road Committee could consider hosting a blog that encourages constructive dialogue and information sharing on R&B issues.

**3. How can the Road and Bridge financial structure be optimized with respect to revenue sources, expenditures, budgeting, and asset management planning?**

Please refer to the 'CPG' table for a general comparison of CPG statistics and metrics. Please refer to the 'Funding' table for analysis of historic budgets and refer to the 'Budget' table for recommendations on future revenues and expenditures. There appears to be detailed fund accounting within Road and Bridge (R&B); however OC does not have a capital improvement plan (CIP) or multi-year budget for any department. Although sales tax revenue was intended to bring additional revenue to R&B, due to the decline in property values and a corresponding decrease in mill levy revenue, sales tax has only backfilled the R&B budget in recent years, thus preventing even larger budget/service reductions. Property tax revenue decreased significantly in 2013 and 2014 but has increased on average 5% per year since 2007, and 11% since 1992.

**Recommendations:**

1. Develop an Asset Management Plan (AMP) - This plan should allow OC to better plan and budget for asset repairs and replacements. This plan should live on the Ouray County network for any approved user to access at any time. Considering the County only has limited financial resources and needs to stretch its funding as much as possible, this plan is critical. This plan can also demonstrate OC's fiduciary responsibility to citizens and grant reviewers. A description of this plan is as follows:
  - a. The foundation of this plan is an inventory of all R&B assets, such as vehicles, facilities and major equipment. A simplified version of this plan has been created in the 'AMP' table for OC's use or reference. This plan should include a 20 year (or 10 year minimum) repair and replacement schedule and budget for major projects (capital improvement plan/CIP), components, equipment (capital equipment replacement fund/CERF), etc. For the R&B Audit, many costs have been included as well as

recommended timeframes for future costs. It is recommended that OC add cost estimates and other information as soon as possible so that it can adequately plan for future expenditures. This plan will require time; however it can begin small and evolve as time allows. PubWorks could be used for this or to help create this plan.

2. Consider 2-year budget cycle - After an AMP is developed, consider a 2 year budget cycle that could reduce staff time in creating budgets and facilitate longer term planning. It is anticipated that during the 'off year' there would still be a simplified budget review and BOCC adoption; however the idea is that the budget would not change considerably.

3. Increase voter-approved funding - Based on the need for increased R&B funding to meet increasing expectations often communicated by citizens and articulated in the responses to the Community Satisfaction Survey, the Road Committee should explore the viability of increasing voter-approved funding sources. Without additional funding, R&B should plan to scale back its road O&M practices. Increasing funding options should include:

- increasing sales tax; and/or
- increasing property tax; and/or
- creating an improvement district.

Ultimately the increase amount will likely be determined by the voters and the O&M practices/projects will be tailored to the revenue source. However based on road condition/maintenance expectations and the projected capital improvement projects necessary to meet those expectations, it is recommended that OC request an increase as soon as possible. It is estimated that approximately \$18.3M in additional funding will be needed between 2016 and 2020. Thereafter and additional \$944,000 per year on average will be needed. For reference purposes, generating this additional amount of revenue could result from:

- Increasing the R&B sales tax by 0.5%, assuming 2014 sales volumes.
- Increasing the R&M mill levy by 1 mill, assuming 2014 assessed values.

This increase would equate to a 22% increase in revenue, excluding grants.

An improvement district, such as a public improvement district, which has the ability to fund nearly any type of R&B expense; or a local improvement district, which has the ability to fund specific capital projects but not maintenance are two common examples for Colorado counties.

Local improvement districts are also referred to as assessment districts. They do not have an independent corporate existence and therefore are merely a geographical area within which improvements are constructed and assessments levied. They generate revenue through a surcharge, not a property tax.

Public improvement districts are separate political subdivisions with their own board of directors, powers and responsibilities; however the BOCC serves as the ex officio board. They generate revenue through a property tax or surcharges.

An improvement district may be an appropriate funding source for a specific area that has different circumstances than the rest of the county. For example, an improvement district could be used to fund the reconstruction and/or maintenance of CR 1.

4. Consider and evaluate bonding - For near-term capital improvements, improvements such as those outlined in Question #1 should be implemented sooner rather than later.

Because the County is prohibited by law to fund R&B from the General Fund, many if not most of the recommendations in this report will require additional funding, particularly in the short term. While the various funding mechanisms and budgeting tool recommended are important to implement, increasing voter-approved funding is essential if Ouray County is to optimize R&B operations and meet citizen expectations in the future.

5. Consider and evaluate financing through service contracts - Inquire about and evaluate vendor financing where capital costs could be rolled into monthly or annual service costs. Applicable expenses could include but are not limited to mag chloride storage, fuel storage, and new vehicle training. Similar to how OC financed its Courthouse boiler upgrade project, it could evaluate an Energy Saving Performance Contract (ESPC) for Ridgway shop HVAC upgrades.

NOTE: Petroleum Equipment Sales & Service, Inc. (PESS) out of Glenwood Springs provided cost estimates for replacing the fuel storage system and installing a fluid reel system. PESS also has a strong working relationship with Western Petroleum, a fuel and oil supplier, which confirmed the possibility of funding applicable capital improvements through long term service/purchase contracts. PESS is available for further consultation. Contact info: David Sarno, 970.379.8698, [david@sarnopess.com](mailto:david@sarnopess.com) .

6. Pursue utility rebates - For projects that will reduce energy use, such as lighting retrofits listed in #11 below, rebates should be pursued.

**4. How can Road and Bridge management and operations be optimized with respect to work plans; use of PubWorks, GIS, and other technology; safety; public communication/notification; etc.**

OC uses PubWorks software for R&B cost tracking and uses esri software for GIS. Each CPG county takes a similar albeit slightly different approach to asset management.

**Recommendations:**

1. Develop a more formalized work plan process so that staff clearly understands not only daily tasks but broader R&B vision; senior managers, BOCC and Road Committee members can better understand what tasks are being accomplished as they relate to the broader vision; and work can be documented to better plan in subsequent years. Elements of this plan could include:
  - a. Utilizing PubWorks' Work Orders Module to create daily/weekly/monthly/annual work plans and Preventative Maintenance Schedules; create Alerts for reminding staff of time-sensitive tasks; automatic job costing by task, road, road segment, etc.; and map trends for analysis and future planning.
  - b. R&B staff, with guidance from BOCC and Road Committee, to create an annual work plan that summarizes key tasks. BOCC and Road Committee should agree on and monitor goals and allow R&B staff to focus on day to day tasks needed to accomplish those goals. The annual work plan and budget should be reconciled so that BOCC, County Administrator and R&B staff all agree that goals can be accomplished with allocated funds.
  - c. R&B staff submits a monthly progress report to BOCC and Road Committee that states:
    - i. Lists specific goals/tasks as stated in annual work plan;
    - ii. Summarizes progress to date; and
    - iii. Anything staff needs in order to accomplish the goal/task.

NOTE: PubWorks reports can likely be customized to streamline this effort.

2. Better utilize PubWorks to streamline management and improve reporting.
  - a. Train Admin. Asst. to be as knowledgeable as possible on PubWorks. Budget for this person to spend up to 2 hours per week on data entry from R&B staff timesheets for labor and material.
  - b. Create standard report templates and train R&B Supervisor so that reporting can be regular and efficient. (PubWorks staff can assist with this task and a recommended list of reports is provided below.)

**Suggested PubWorks Reports - Annually/ Monthly:**

- Cost Summary by Location
- Cost Summary by Task
- Cost Summary by Employee
- Cost Detail by Location/Task
- Fleet- Comprehensive Summary
- Fleet - Last Odometer Reading
- Fleet - Work Order Detail
- Fleet - Repair Cost summary
- Fleet - Mechanic Weekly Summary

**Suggested PubWorks Reports - periodically as needed:**

- Employee Listing
  - Equipment Listing
  - Locations Listing
  - Location Feature Listing
  - Contractor Vendor Listing
  - Contractor Vendor Summary
  - Project Cost Summary
  - Asset Class Listing
- c. Begin using Work Order Module for work plans as stated above.
- d. Clean-up Road Assets Task List and Locations so that options are as few as possible while creating the level of detail needed. Ensure staff inputs are consistent. *Hunt Walker is available to assist OC with this task at a discounted rate.*
- e. Once Road Assets Tasks List is cleaned-up, extend to fleet assets/management and facility assets/management.
- f. Fully utilize the PASER assessment function that is already included in PubWorks. Specifically it is recommended for R&B staff to rate their roads using the PASER manuals as a guide. Paved sections of roads should be assessed once a year. Every two years staff should rate gravel and unimproved roads on non-snow days in the winter and rain days in the summer.
3. Continue to optimize GIS use. GIS has become an invaluable tool for R&B departments and Ouray County is no different. However, because GIS is perhaps the most rapidly advancing technology in use by OC, it is necessary to regularly assess its use in order to optimize operational efficiency.
- a. Conduct a review (ideally by a third party) of GIS work flows, tools, database organization, and possibly licensing agreement to identify potential efficiencies and opportunities for improvement. Budget for this review on an annual basis.
  - b. Implement recommendations which will likely include typical GIS maintenance, which includes but is not limited to database organization (aka file clean-up). This may require third party assistance or a dedicated time allotment from OC staff.
  - c. Develop and adopt language for OC RFPs and land use requirements that clearly articulates specific requirements for acceptable GIS as-built-data from contractors, developers, etc.
  - d. Budget for and encourage the appropriate level of GIS training for applicable R&B staff.

4. Safety – In addition to training recommendations stated in question 2, OC should begin tracking and aligning goals for:
  - a. Days without accident; and
  - b. YTD Workman’s Comp claims.



Please also refer to recommendations stated in #9 for creating a safer working environment.

5. Public Communication - OC is very good about providing alerts to its citizens and 53% would prefer more information, specifically about alerts and R&B long range planning news. The majority prefer electronic communication such as email, texts, and WENS. To address these requests, it is recommended that OC:
  - a. Identify and implement the most effective way to publicize/promote the current option of registering online for electronic alert notifications.

NOTE: It is recommended that R&B only notify residents when a particular project/maintenance task is going to close a road or significantly disrupt traffic. It is not recommended for R&B to publish its daily work schedule. Because of the nature of daily R&B tasks, which are inherently too inconsistent, publicizing them would likely only add to existing communication frustrations and would likely reduce operational efficiency.

- b. Publicize the Snow Removal plan in the fall by posting it on the website and alerting citizens when it is posted. Clarify that this plan is subject to change, potentially without notice.
  - c. Publicize the non-winter work plan in the spring by posting it on the website and alerting citizens when it is posted. Clarify that this plan is subject to change, potentially without notice.

**5. Which tasks and/or services are appropriate to out-source?**

OC R&B outsources very little due to limited funding. OC does outsource all paving, engineering, gravel crushing, and mag chloride hauling. Some engine overhauls are outsourced.

**Recommendations:**

1. Please refer to the Outsourcing Evaluation Table in the Appendix for specific recommendations. In general it is recommended for OC to continue its current outsourcing practices with only a few minor changes.

**6. How can inter-agency cooperation be optimized with agencies such as CDOT, the Towns of Ridgway and Ouray, and adjacent counties?**

OC works with cities/towns and adjoining counties frequently to maintain roads, dredge river, etc. OC assists the City of Ouray to dredge the river once a year in exchange for inexpensive road base material.

**Recommendations:**

1. Maintain a strong working relationship with each agency, which could include maintaining multiple relationships at different levels of operations.
2. Err on the side of over-communicating information that may affect their operations and ensure they are automatically notified for all applicable events.
3. Arrange for a semi-annual meeting between adjacent county R&B Supervisors, Public Works Directors and appropriate CDOT staff. Responsibility to plan the meeting can rotate between agencies. Some meetings may involve inviting other agencies, such as first responders, etc. Annual work plans could be shared at these meetings.
4. Maintain consistent communication within Ouray County so that the applicable people are kept in the loop about issues that pertain to them.

7. How can road maintenance be optimized for performance and cost? (Including but not limited to capital improvements, maintenance standards and practices, gravel operations, level of service (LOS) standards, etc.)

Road maintenance, specifically gravel road maintenance, appears to be the most concerning issue for all interested stakeholders. Staff has indicated that the roads needing the most attention include CR 1, 24, 23, 361, and 5. County Road 1 (CR 1) has the heaviest traffic and most, if not all stakeholders would prefer to pave it if funding were available. OC has applied for a TIGER grant for this purpose. Regardless OC has requested a plan to address sustainable maintenance practices that all stakeholders can live with given available funds.



Below is a summary of road condition findings:

- Some paved roads are in need of a chip seal to improve their useful life.
- The asphalt has failed on several segments of the paved roads and is need of repair.
- Structurally some county roads, including County Roads 5 and 5A, are in good shape, but drainage needs to be improved.
- Although some roads have good drainage, a majority of the roads traveled, including County Roads 23, 24 and 361, need to have the drainage improved. Common drainage problems include: shallow ditches, shoulders are higher than road causing standing water on the road, or private properties have eliminated the ditches.
- Some roads, like County Road 23, have sufficient ROW width to make the necessary drainage improvements while some roads, like #17, have narrow ROW widths making it difficult to make drainage improvements.
- A lot of private property fences encroach on the road ROW's.
- Some subdivision roads, similar to Whispering Pines Drive, have no ditches. Private property owners have encroached on the ROW making it difficult to plow in the winter and maintain in the summer.
- Currently there is no formal process for road assessments, work orders, vehicle replacements, etc. as OC does not have a capital improvement plan (CIP).

Below are recommendations to address many if not all of the concerns noted above:

**Recommendations:**

1. Capital Improvements: Please refer to the 'Improvement' table and Notes in the Appendix for specific recommendations and notes pertaining to the recommendations. The TIGER Grant application and #13 can also be referenced for specific information pertaining to CR 1.
2. Maintenance Standards and Practices: Both R&B staff and the Road Committee have requested recommendations on maintenance standards and practices, as well as level of service (LOS) standards. With permission from both Pitkin and Garfield Counties, their standards have been combined and somewhat customized into a draft that Ouray County can edit and adopt if it so chooses. Please refer to the 'OC\_RMMP\_Draft' document. One recommendation that needs to be emphasized for any agency maintaining roads is:

*Once a road is paved, that road must become a priority. Once pavement deteriorates beyond a certain point, expensive reconstruction rather than less expensive periodic maintenance becomes necessary. Therefore before the decision to pave is made, there should be a commitment to fund adequate maintenance for the life of the road.*

The 'AMP' Table includes recommended annual road repair budgets through 2020 and annual maintenance budgets for 2012 through 2035 and are listed in the Road Improvement and AMP Tables. The annual maintenance budgets were calculated by determining a recommended annual maintenance cost per mile for each of the different HUTF classifications (listed in the 'Unit Cost' Table) and multiplying them by the length of road.

As an additional supplement, it is recommended that R&B staff reference The Wisconsin Transportation Information Center website (<http://tic.engr.wisc.edu/Publications.lasso>) which has produced a series of short bulletins (SGM specifically recommends bulletins 4, 5, and 19) which introduce and discuss a variety of roadway topics. These 4-to-12 page booklets are designed to inform local officials of common roadway concerns and practice. As an alternative OC could also reference Gravel Roads: Maintenance and Design Manual, Report No. LTAP-02-002, April 2005. Written by South Dakota Local Transportation Assistance Program (SD LTAP). Published by U.S. Department of Transportation / Federal Highway Administration.

3. Gravel Operations: Colona has a permitted 40 acre gravel pit with a reported expected life of 20 years. There is an additional 40 acres below the existing gravel pit not currently being used for R&B activities. However high costs in the future are possible due to high ground water and expected high permitting costs. Applying gravel to roads is currently limited by several factors including but not limited to:
  - a. inadequate funding for crushing gravel at the Colona Gravel Pit (staff estimates that funding only allows for approximately 5 miles worth of gravel per year);
  - b. limited equipment for hauling gravel from the pits (belly dumps); and
  - c. limited operators.

It is recommended that OC begin due diligence on extending the pit immediately in order to determine if relocating the pit is a viable option.

#### **8. How can snow removal operations be optimized for performance and cost?**

In general, the public is pleased with snow removal practices. However; R&B staff feels that snow removal operations are currently limited by an inability to store plow vehicles at the Colona Shop.

##### **Recommendations:**

1. Please refer to the facility upgrade recommendation for the Colona Shop which are summarized below:
  - a. Dedicate funds as recommended in the 'AMP' table to install a block heater at the Colona Shop, which may require upsizing the electrical service. While staff would prefer to have a heated facility, the capital and operating costs of heating that facility outweigh the potential snow removal operational savings.
  - b. Dedicate funds as recommended in the 'AMP' table to design and construct a salt/sand storage facility.

#### **9. How can vehicle/equipment maintenance be optimized for performance and cost?**

Mechanic operations are currently limited by several factors including but not limited to:

- only having one full-time mechanic for a workload well exceeding 40 hours per week (makes vacation and sick time, not to mention training for staff on new equipment very challenging);
- inadequate shop facilities including limited indoor vehicle storage, no fresh air ventilation, a lack of tools and diagnostic equipment to safely and efficiently operate what usually is a 'one-man shop', and no fluid dispensing system for lubricants, requiring more staff time and higher costs for purchasing fluids.

Equipment in general is old with high mileage / hours, thus requiring excessive maintenance. Excessive maintenance then compromises road maintenance efficiency because there isn't enough equipment to maintain steady progress, such as grading. Staff has begun streamlining parts and equipment storage in an effort to minimize storage space needs; however multiple vehicle types limit this effort.

It should be noted that the recommendations include significant capital and O&M costs; however improving vehicle/equipment maintenance should be a very high priority as it will improve staff morale, working conditions and efficiencies.

Below are recommendations:

**Recommendations:**

1. Dedicate funds as recommended in the 'AMP' table to purchase the following equipment in order to make shop repair operations more efficient and cost effective, and less dangerous for equipment and maintenance staff:
  - a. a heavy duty tire changer capable of servicing heavy truck and equipment tires up to 28 inch wheel diameter;
  - b. a portable waste oil tote on wheels to capture and store waste oil directly from equipment at the time of service to capture and store waste oil;
  - c. and a four post vehicle lift system with appropriate support stands of various heights.
2. Budget for and hire an additional Mechanic – Level 2 (journeyman or higher). This position should have a similar skillset to the Senior Mechanic which would allow for 7 day-a-week coverage and more preventative maintenance. Please refer to the 'Staffing Analysis' table for budget recommendations.
3. The vehicle maintenance strategy in the future should include the following:
  - a. Priority should be given to repairs needed on unique and one of a kind equipment, as well as high hourly usage equipment.
  - b. Preventive Maintenance (PM) intervals should be strictly adhered to and equipment should not be allowed to go 'past due.' PM's should follow recommendations of the OEM.
  - c. Mechanics should strive to perform as much service/repair work in house for projects requiring less than 30 +/- hours. Projects exceeding 30 hours take the mechanics away from the day to day support of the fleet where their time is best spent keeping the maximum quantity of trucks and equipment in service.
4. Please refer to the facility upgrade recommendation for the Ridgway Shop which are summarized below:
  - a. Dedicate funds as recommended in the 'AMP' table to specify and install a fluid dispensing system. Include as an option a fluid management system to document vehicle, maintenance personnel, quantity, etc. This system should be compatible with PubWorks.
  - b. Dedicate funds as recommended in the 'AMP' table to design and construct a two (2) bay extension to the vehicle storage shed which would include completing the concrete slab and upgrading the lighting. Include as an option adding a two (2) bay carport for additional covered vehicle/equipment storage.
  - c. Discuss alternative vehicle storage options with San Juan Mine Safety including but not limited to re-locating to the vehicle storage shed, constructing a dedicated bay on the vehicle storage shed, or compensating Ouray County for the existing space.



**10. How can the vehicle/equipment fleet be optimized with respect to types, quantity, purchase method and rotation?**

The R&B staff and Road Committee requested that this analysis include recommendations on all aspects of vehicle/equipment replacement.



**Recommendations:**

1. Regarding the question as to whether it is better for OC to purchase or lease equipment, please refer to the 'Vehicle Acq.' Table. In summary, it is clearly more cost effective to purchase equipment rather than to lease it; however if capital is limited, leasing becomes the recommended option because it will provide more new equipment sooner for less upfront capital.
2. Regarding a recommended replacement schedule for OC's fleet, please refer to the 'Capital Equipment Replacement Fund' (CERF) table for a specific budget and schedule for each vehicle and piece of equipment. The recommendations included in this table references many variables and provides net cash outlay for replacement.

In some cases, vehicles are recommended to be retired or replaced with other vehicles for fleet uniformity and standardization in order to minimize the tools, training and software required to perform maintenance and repairs. It would also reduce repair parts inventory. For example and included in the Vehicle Schedule Table, are single-functionality dump trucks that will be replaced with 6x6 all-wheel drive class 8 vehicles that can double as water trucks, plow trucks, etc. This will reduce vehicle storage space, parts storage space, streamline maintenance, and more.

The current fleet makeup includes a wide variety of types and manufacturers. Standardization by using one manufacturer and use of consistent components reduces the number of repair parts that must be kept on hand. Costs are also reduced for special tools and diagnostic software required to perform maintenance and repairs.

Class 8 trucks could be spec'd to utilize a quick hitch system that could carry multiple arrangements of truck equipment. It could be a dump truck one day and a water truck the next day, making one truck more versatile by performing several different functions. This approach could also be used on heavy equipment fitted with an integrated tool carrier "IT". This allows a loader to have a bucket, plow, forklift forks, or a rotating broom attached for different tasks. The attachments are interchangeable between multiple pieces of equipment.

3. It is also recommended that diagnostic software be provided by vendors at the time of the purchase or lease.
4. A Capital Equipment Replacement Fund (as provided in CERF Table) should be established and reviewed frequently to ensure that the fleet needs are being met and planned for in the future. Replacements should be selected based on equipment age, mileage and life to date maintenance cost guidelines. Discuss with fleet users any additional recommendations for replacement evaluation.

**11. How can facilities be optimized for performance and cost?**

The Ridgway shop serves as Ouray County's primary R&B facility and is where R&B administrative offices are located and where all vehicle maintenance is performed. In addition, this facility has a fuel farm, mag chloride storage, a separate vehicle storage shed, miscellaneous storage, as well as CDOT material storage around the site. It should also be noted that the San Juan Mine Safety has a dedicated garage in this facility.

Several improvements have been identified that can improve the efficiency of R&B operations, modernize the facility for safety and performance, and potentially reduce operating costs. Specifically, the following projects are recommended for consideration, evaluation, and/or implementation:

**a. Ridgway Shop**

1. Replace mag chloride storage tanks – Currently many mag chloride storage tanks do not comply with State and Federal standards due to regular leaks. In order to minimize environmental damage and a waste of resources, R&B staff spends a significant amount of time repairing tanks before winter. The result is R&B staff time is diverted away from their primary purpose of maintaining county roads.



**Recommendation:** Request from the mag chloride vendor a cost for it to provide leak-free mag chloride storage that meets or exceeds State and Federal water quality standards as part of the cost/contract for supplying mag chloride. If vendor does not provide storage, dedicate funds as recommended in the ‘AMP’ table to specify and replace leaking tanks so that they meet or exceed State and Federal water quality standards. (Recommendation applies to all mag chloride storage facilities.)

2. Install wash bay infrastructure – Currently the Ridgway shop is out of compliance with State and Federal standards because it lacks required contaminant containment system, sand/oil separator, etc. for washing vehicles and equipment.

**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to design and construct approved wash bay infrastructure that meets or exceeds State and Federal water quality standards.

3. Upgrade fuel system – Currently the fuel storage and dispensing system does not comply with State and Federal standards and will require significant upgrades in order to be brought into compliance.

**Recommendation:** Request from the fuel vendor a cost for it to provide fuel storage as part of the cost/contract for supplying fuel. If vendor does not provide storage, dedicate funds as recommended in the ‘AMP’ table to design, specify and replace the fuel storage and dispensing system so that it meets or exceeds State and Federal water quality standards. Include as an option a fuel management system upgrade at Ridgway and a new fuel management system at Ouray to document vehicle, person fueling, quantity, etc. This system should be compatible with PubWorks.

NOTE: Petroleum Equipment Sales & Service, Inc. (PESS) out of Glenwood Springs provided cost estimates for replacing the fuel storage system. PESS is available for further consultation. Contact info: David Sarno, 970.379.8698, [david@sarnopess.com](mailto:david@sarnopess.com).

4. Upgrade HVAC and lighting systems – The existing heating system is nearing the end of its useful life and there is currently no fresh air / mechanical ventilation which is well below best practice standards. On occasion this has negatively affected Land Use office air quality. Lighting is inefficient T-12 fluorescent lighting which is phasing out of production.

**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to design, specify and upgrade the HVAC and lighting system. The HVAC system upgrade should be an engineered system and should include meeting or exceeding current code requirements for fresh air ventilation, as well as heating and cooling efficiency standards. Include as an option a control system that would enable staff and/or service technicians to monitor and/or troubleshoot the HVAC system remotely. Prior to this upgrade,

thermal envelope improvements such as air sealing and insulation upgrades should also be considered to reduce heating and cooling loads and therefore reduce HVAC equipment capital costs.

The lighting system should be designed by a lighting expert and include LED fixtures. Include as an option a control system that would enable staff and/or service technicians to monitor and/or adjust the system remotely. Applicable utility rebates should be identified during the planning phase.

5. Install fluid dispensing system – Currently mechanic operations are not optimized for performance or cost due to several factors including not having a fluid dispensing system for lubricants. This requires unnecessary staff time to manage fluids and higher costs for purchasing fluids in smaller quantities. This system should include bulk oil/fluids with pumps, hose reels and dispensers with product volume counters.

**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to specify and install a fluid dispensing system. Include as an option a fluid management system to document vehicle, maintenance personnel, quantity, etc. This system should be compatible with PubWorks.

NOTE: Petroleum Equipment Sales & Service, Inc. (PESS) out of Glenwood Springs provided cost estimates for replacing the fluid dispensing system. PESS is available for further consultation. Contact info: David Sarno, 970.379.8698, [david@sarnopess.com](mailto:david@sarnopess.com).

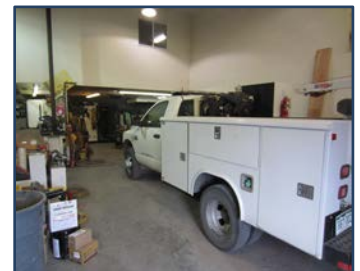
6. Expand vehicle storage bays – Currently the indoor heated snowplow storage facility lacks appropriate work lighting and has no concrete floor in two or three of the bays. The shop area also has insufficient covered storage for heavy equipment, trucks, and primary equipment. For example two out of four shop bays are used to park snowplows overnight during the winter which is extremely inefficient for a mechanic. Each afternoon the mechanic has to remove the vehicles or equipment he is repairing out of the bay, put away his tools, and park the plow. In the morning he has to remove the plow from the bay and move his repair vehicle back in along with his tools. Not parking equipment indoors however; is also very inefficient because it requires additional staff time to prep the equipment for use. Eliminating overnight storage in the maintenance bays by providing additional storage elsewhere would improve vehicle maintenance efficiency.

**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to design and construct a two (2) bay extension to the vehicle storage shed which would include completing the concrete slab and upgrading the lighting. Include as an option adding a two (2) bay carport for additional covered vehicle/equipment storage.

7. Develop salt/sand storage facility – Currently OC has access to free bottom ash (aka ‘cinders’) and therefore only pays to haul the material to Ouray County. This supply is expected to be exhausted within 2-5 years at which time OC must have an alternative solution ready to go.

**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to design and construct a salt/sand storage facility.

8. Re-locate San Juan Mine Safety truck storage – Currently the San Juan Mine Safety has use of a dedicated garage in the Ridgway facility at no cost. It is unclear how often the space is used by San Juan Mine Safety; however it is highly likely the space would be used more frequently by R&B staff. This garage space is adjacent to the R&B parts storage room, is clean, heated and would improve vehicle maintenance operations, such as converting it into the vehicle maintenance office and garage. This would allow the mechanic to more efficiently utilize a computer



and access the internet for cost accounting, parts research, etc. Relocating the mechanics office could allow for additional facility maintenance shop space which would also improve efficiency.

**Recommendation:** Discuss alternative vehicle storage options with San Juan Mine Safety including but not limited to re-locating to the vehicle storage shed, constructing a dedicated bay on the vehicle storage shed, or San Juan Mine Safety compensating Ouray County for the existing space.

9. Develop a Stormwater Management Plan – Ouray County does not currently have a plan and is at risk of violation(s). The State may require that a Stormwater Management Plan be submitted to the Colorado Department of Public Health and Environment (CDPHE). It is recommended that OC be proactive in this regard and begin developing the plan before it is required to do so.

**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to develop a Stormwater Management Plan that meets or exceeds CDPHE standards.

**b. Ouray Shop**

1. Install fuel management system – Currently the fuel storage and dispensing system does not track fueling information and is on the ‘honor system’.

**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to specify and install a fuel management system to document vehicle, person fueling, quantity, etc. This system should be compatible with PubWorks.



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2. Expand vehicle storage bays – The Ouray Shop is heated and can house a plow truck and a pick-up truck, but not the grader. Currently it is the only workshop space for facilities which reduces efficiency.

**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to design and construct a shop extension which would allow storing a grader indoors and improving the Facilities Department’s work space.

**c. Colona Shop**

1. Heated vehicle storage – R&B staff would prefer to keep a plow truck at the Colona Shop to service the northerly plow route instead of starting that route from Ridgway. However the facility is not heated and therefore plowing would be delayed because of necessary time to warm-up the plow truck. Storing this plow truck in Ridgway slightly delays plowing for this route, exacerbates vehicle storage issues at the Ridgway Shop and reduces snow removal operational efficiency.



**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to install a block heater at the Colona Shop, which may require upsizing the electrical service. While staff would prefer to have a heated facility, the capital and operating costs of heating that facility outweigh the potential snow removal operational savings.

2. Develop salt/sand storage facility – Currently OC has access to free bottom ash (aka ‘cinders’) and therefore only pays to haul the material to Ouray County. This supply is expected to be exhausted within 2-5 years at which time OC must have an alternative solution ready to go.

**Recommendation:** Dedicate funds as recommended in the ‘AMP’ table to design and construct a salt/sand storage facility.

## 12. How can facility maintenance be optimized for performance and cost?

Will Clapsadl is the only facility maintenance staff for Ouray County and there is only one custodian. Will and Connie Hunt (County Administrator) typically share project management responsibilities for larger projects. Department of Correction crews assist with facility maintenance occasionally. Most HVAC service work is contracted to HVAC contractors. The only Facilities Shop is in the Ouray R&B Shop. In terms of structural durability, staff reports that buildings are in relatively good shape.

### Recommendations:

1. Develop a Facilities Management Plan in order to improve efficiencies, reduce risk of failures, retain more institutional knowledge and perhaps reduce HVAC service expenses. This plan should be integrated with a broader Asset Management Plan and live on the Ouray County network for any approved user to access at any time. Considering the County only has one facility staff member and has limited resources to hire technical staff, this plan is critical. This plan should include, but not be limited to the following:
  - b. An inventory of all facilities and major equipment with general descriptions (facility description, HVAC system description, etc.) important information (location of shut-off valves/circuits, recent history of work performed, etc.) and key contact information (vendors, service technicians, etc.). This inventory will require time; however it can begin small and evolve as time allows. PubWorks could be used to assist with this task.
  - c. A 20 year (or 10 year minimum) repair and replacement schedule and budget for major components, equipment, etc. Ideally this is developed after or as part of a condition assessment of all facilities. These costs should be incorporated into Ouray County’s master asset management plan.
  - d. A customized maintenance manual for primary facilities that includes daily/weekly/monthly/seasonal/annual checklists with instructions on how to maintain components and systems.
  - e. An annual work plan that outlines prioritized projects and also includes a way to track day to day service requests. PubWorks could be used for this.
2. Re-locate San Juan Mine Safety truck so that the R&B mechanic can re-locate to that space and allow for Facilities Maintenance to create shop space in the Ridgway Shop.
3. Conduct periodic third party review of HVAC systems and service to verify that systems are operating as designed, are repaired as requested and service charges are appropriate.
4. Budget to add .5 – 1.5 FTE facility maintenance and/or custodial staff within 5 years in order to accommodate anticipated increase in maintenance and project implementation due to deferred maintenance and recommended facility upgrades.

## 13. How can County Road 1 (CR 1) be optimized for performance and cost?

Clearly improving the condition of CR 1 is a high priority for OC as evidenced by its pursuit of TIGER Grant funding for four consecutive years. While the PASER rating for this road is above average and not significantly worse than other county roads, the average daily trips (ADT) and concerned citizens that travel the road have made it a high priority.

The ideal upgrade for this road is clearly and thoroughly outlined in OC's 2015 TIGER Grant Application available on its website. However if this grant is not awarded to Ouray County, paired-down improvements are recommended in the Road Improvement Table and Notes in the Appendix. The recommended project/budget can be summarized as follows:



1. Paving the 6.7 miles of gravel sections (HUTF Segments 300 + 400) with 3" of asphalt on top of 6" of new gravel; and ditch pulling and installation of new culverts, one every 2,500ft in 2016 with a budget cost of \$2,482,040.
2. Potential additional drainage improvements and road widening *was not* included.
3. Chip sealing the existing paved and chipped portions of CR1 (HUTF Segments 100, 250,+ 500) is scheduled for 2018 with a budget cost of \$471,962.



We provide innovative, practical solutions to make our clients successful while ensuring the health, safety and welfare of our neighbors. We develop and maintain lasting client relationships and are committed to our local communities.

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