LOVELAND UTILITIES COMMISSION

October 18, 2017 – 4:00pm
Service Center Willow Room – 200 N. Wilson Ave.

REGULAR MEETING AGENDA

CALL TO ORDER

APPROVAL OF MINUTES – 9/20/2017

CITIZENS REPORT (*See procedural instructions on the following page.)

INFORMATIONAL ITEMS

1. Drive Electric Northern Colorado Case Study – Gretchen Stanford

CONSENT AGENDA

2. Quarterly Goal Updates – Joe Bernosky
3. Overhead/Pad Mount Transformers 2015-54 Contract Renewal - Steve Johnson
4. Contract Amendment to Increase Overhead / Padmount Transformers 2015-54 Contract – Steve Johnson

STAFF REPORTS

5. Presentation by Jean Lever, Thompson River Commissioner – Larry Howard
6. Quarterly Financial Report Update – Jim Lees
7. 2016 Water Audit Results – Michelle Erickson

REGULAR AGENDA

8. HDR Contract for Final Design of the Boyd Parallel Interceptor and Morning Drive Parallel Waterline Project – Tanner Randall
9. Augmentation Water Lease Request – Larry Howard

COMMISSION & COUNCIL REPORTS

DIRECTOR'S REPORT

ADJOURN

The password to the public access wireless network (colguest) is accesswifi

City of Loveland

* Citizens Report Procedures

Anyone in the audience may address the LUC on any topic relevant to the commission. If the topic is a Consent Agenda item, please ask for that item to be removed from the Consent Agenda; pulled items will be heard at the beginning of the Regular Agenda. If the topic is a Regular Agenda item, members of the public will be given an opportunity to speak to the item during the Regular Agenda portion of the meeting before the LUC acts upon it. If the topic is a Staff Report item, members of the public should address the LUC during this portion of the meeting; no public comment is accepted during the Staff Report portion of the meeting.

Anyone making comment during any portion of tonight's meeting should identify himself or herself and be recognized by the LUC chairman. Please do not interrupt other speakers. Side conversations should be moved outside the Service Center Board Room. Please limit comments to no more than three minutes.

Notice of Non-Discrimination

The City of Loveland is committed to providing an equal opportunity for services, programs and activities and does not discriminate on the basis of disability, race, age, color, national origin, religion, sexual orientation or gender. For more information on non-discrimination or for translation assistance, please contact the City's Title VI Coordinator at TitleSix@cityofloveland.org or 970-962-2372. The City will make reasonable accommodations for citizens in accordance with the Americans with Disabilities Act (ADA). For more information on ADA or accommodations, please contact the City's ADA Coordinator at adacoordinator@cityofloveland.org or 970-962-3319.

Notificación en Contra de la Discriminación

"La Ciudad de Loveland está comprometida a proporcionar igualdad de oportunidades para los servicios, programas y actividades y no discriminar en base a discapacidad, raza, edad, color, origen nacional, religión, orientación sexual o género. Para más información sobre la no discriminación o para asistencia en traducción, favor contacte al Coordinador Título VI de la Ciudad al TitleSix@cityofloveland.org o al 970-962-2372. La Ciudad realizará las acomodaciones razonables para los ciudadanos de acuerdo con la Ley de Discapacidades para americanos (ADA). Para más información sobre ADA o acomodaciones, favor contacte al Coordinador de ADA de la Ciudad en adacoordinator@cityofloveland.org o al 970-962-3319".

The password to the public access wireless network (colguest) is accesswifi

Commission Members Present: Dan Herlihey, Dave Kavanagh, David Schneider, Gary Hausman (Chairman), Gene Packer, Larry Roos, John Butler, Randy Williams (arrived at 4:13p.m.), Sean Cronin, Stephanie Fancher-English

Commission Members Absent:

Council Liaison Absent: Troy Krenning

City Staff Members Present: Bob Miller, Brieana Reed-Harmel, Courtney Whittet, Cree Goodwin, Derek Turner, Jim Lees, Joe Bernosky, John Beckstrom, Kim O'Field, Melissa Morin, Roger Berg,

Guest Attendance: Clifton Welter

CALL TO ORDER: Gary Hausman called the meeting to order at 4:02 pm.

APPROVAL OF MINUTES: Hausman asked for a motion to approve the minutes of the August 16, 2017 meeting.
Motion: Dan Herlihey made the motion.
Second: John Butler seconded the motion. The minutes were approved unanimously.

CITIZEN REPORTS

INFORMATIONAL ITEMS

Item 1: Financial Report Update – Jim Lees

This item summarizes the monthly and year-to date Preliminary Financials for August 2017.

Informational Item only. No action required.

STAFF REPORTS

Item 2: Colorado Water Law and Water Court Process – Derek Turner

This presentation will provide a brief, high-level overview of Colorado Water Law and Colorado's Water Court process.

Staff report only. No action required.

Comments:

Item 3: Executive Session on Windy Gap Firming Project – Derek Turner

This item is intended to give a brief update and discuss the status of the Windy Gap Firming Project (WGFP), including the water rights component of the project.

Staff report only. No action required.

Motion to recess to Executive Session: Dan Herlihey made the motion at 5:37pm: "I move that the Commission vote to recess into executive session, under Section 4-4(c) of the City of Loveland Charter and section 24-6-402(4)(b) and (c), Colorado Revised Statutes for the following purposes:

1. To receive reports on negotiation progress and status
2. To discuss matters that are the subject of negotiation and pending litigation and are required by law to be kept confidential

3. To discuss matters that are attorney-client privileded"
Second: Randy Williams seconded the motion. The motion was approved unanimously.

Motion to Adjourn Executive Session: Dan Herlihey made the motion at 6:19pm
Second: Randy Williams seconded the motion. The motion was approved unanimously.

REGULAR AGENDA

Item 4: 2018 Water and Power Schedule of Rates, Charges and Fees – Jim Lees
The purpose of this item is to ask the Loveland Utilities Commission to adopt a motion recommending that City Council approve the proposed changes in the Water and Power Schedule of Rates, Charges and Fees for 2018.

Recommendation: Adopt a motion recommending that City Council approve the proposed changes in the Water and Power Schedule of Rates, Charges and Fees for 2018.

Motion: Dan Herlihey made the motion.
Second: Dave Schneider seconded the motion. The motion was approved unanimously.

Comments: Dave Kavanagh stated that last year he received several calls from small business owners because the Small General Service (Small Commercial) was the largest rate increase last year. Larry Roos stated he thought their rate was the largest increase because they were not up to cost of service; the utility has been subsidizing small businesses. Dave Schneider understands needing to get the small businesses up to cost of service, but we should be doing as much as we can to assist the small businesses with energy efficiency programs to help lower their bills. Roos does not want to have to explain to low income residential customers why their rates are helping to subsidize small businesses. Jim Lees will get the commissioners a good answer from the rate consultant on the methodology used to determine that the Small General Service rate needed such a large raise.

Kavanagh had some input on how the canyon service affects our cost. We have 13 customers per mile with the canyon, without the canyon, we have 55 customers per mile. Originally, the canyon customers did not want our service, which has most likely changed now that we have upgraded their service. Kavanagh would like to stop subsidizing the canyon and relinquish it to Poudre Valley REA. It may be an attractive offer to Poudre Valley REA now that it has been upgraded. Kavanagh would like to see a cost code added to the system to track the cost of service vs. the income from the canyon. Schneider would like to consider a trade with REA, Bob Miller stated there was a discussion last year with REA regarding a trade and REA declined, the only way they will take the canyon is if Loveland gave it to them outright.

Randy Williams wanted to clarify that the motion is as presented not as the packet states, since there was a difference from 5% to 4.6%. Lees clarified that the motion is for the 4.6% presented at the meeting.

COMMISSION/COUNCIL REPORTS

Item 6: Commission/Council Reports
Discuss events that the Loveland Utility Commission Board members attended, special topics and any City Council items related to the Water and Power Department from the past month.

- City Council Report

Dan Herlihey:
Dave Kavanagh:

Dave Schneider:
Gene Packer:
Gary Hausman: Spoke with John Rust, he is doing pretty well. His eyesight has not come back yet, he does not know if it will. He is restricted to no driving.
John Butler:
Larry Roos: Markets 101 with the Fort Collins Energy board was superb.
Randy Williams:
Sean Cronin:
Stephanie Fancher-English:

Council Report: Joe Bernosky gave on behalf of Troy Krenning

DIRECTOR'S REPORT

Item 9: Director's Report – Joe Bernosky

ADJOURN The meeting was adjourned at 7:33 pm. The next LUC Meeting will be October 18, 2017 at 4:00 pm.

Respectfully submitted,

Courtney Whittet
Recording Secretary
Loveland Utilities Commission

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 1
MEETING DATE: 10/18/2017
SUBMITTED BY: Gretchen Stanford
STAFF TITLE: CR Manager

ITEM TITLE:

Drive Electric Northern Colorado Case Study

DESCRIPTION:

Included in this informational item is a full copy of the Drive Electric Northern Colorado case study as well as an explanation of how the program has truly become a replicable and scalable model for other cities throughout the United States.

SUMMARY:

The Electrification Coalition: Accelerating EV Adoption and Smart Cities

The Electrification Coalition (EC) is a nonpartisan, not-for-profit group of business leaders dedicated to eliminating America's oil dependence by "electrifying" transportation. The EC collaborates with public and private stakeholders to facilitate the adoption of electric vehicles (EVs) on a mass scale through the development of EV accelerator communities. The EC has designed a proven deployment process that includes four main steps: (1) identifying community readiness and infrastructure, (2) enacting consumer education and promotion, (3) focusing on the management of consumer experience and, finally, (4) full-scale fleet transition. Most importantly, the EC works alongside these communities every step of the way to aid in the successful adoption of EVs nationwide.

The EC has enacted several related yet distinct projects that are making great strides to increase the usage of EVs and majorly benefit local communities in the process. These projects include Drive Electric Northern Colorado (DENC), Rochester EV Accelerator, Drive Electric Orlando (DEO), and the Smart City Challenge/Smart Columbus. This growing body of work has positioned the EC as an expanding thought leader and program innovator in new transportation and mobility solutions.

Drive Electric Northern Colorado

Drive Electric Northern Colorado (DENC) is a highly successful and innovative accelerator community spanning across the greater Northern Colorado area. DENC is part of a local partnership between the EC and the City of Loveland, the City of Fort Collins, and Colorado State University, demonstrating an emphasis on local partnerships and collective community involvement. Since 2013, DENC has created, tested, and implemented various experiential marketing tactics in an effort to increase EV adoption and create a replicable and scalable model for future accelerator communities. DENC's adoption efforts span across individual, family, business and commercial procurement of EVs, encouraging usage in many sectors throughout the community.

DENC has launched various groundbreaking programs, including the Drive Leadership program, which allows participants to take home and drive an EV for up to five business days, providing unprecedented first-hand experience to members of the community. Another program consists of Ride and Drive events where employers can host an "EV Day" for their workforce, allowing employees to "ride and drive" up to eight different EV models; following the Ride and Drive events, the likelihood of participants purchasing an EV jumps by an average of 15%. DENC has also launched a Group Buy program in which they collaborate with local dealerships to offer major discounts on EVs, bolstering EV purchases by 80%. This

pioneering work done by DENC has carried over into the development of other trailblazing programs supported by the EC as described below.

Attached you will find a recently completed case study that has recently been released to the public from the EC out of Washington, DC. The DENC case study examines the successful strategies, tactics and outcomes of the inaugural implementation of this integrated community framework that first began in February 2013 in the City of Loveland and the City of Fort Collins, Colorado. The program was also accomplished in partnership with Colorado State University.

A key finding from the case study was the importance of leveraging the entire EV ecosystem by engaging all stakeholders from the beginning and combining their efforts with a supportive public policy framework to achieve a strong consumer response. Thanks to DENC's comprehensive approach, the rate of EV purchases in Northern Colorado was found to be approximately three times higher than the national average. The EC's case study also provides a sample toolkit to guide communities interested in applying this model locally.

The case study highlighted five core strategies and tactics that contributed to the project's success:

- **Creating a supportive ecosystem:** A successful EV accelerator community requires participation from stakeholders including city administrators, local car dealerships, business leaders, utilities, infrastructure providers, current EV owners, and educational institutions.
- **Policy:** The identification and mobilization of key advocates in the DENC community has proved key in creating an environment conducive for EV adoption, such as point-of-sale tax credits and preferential parking and infrastructure installation.
- **Infrastructure**: While there may be a sense of urgency to immediately deploy large numbers of public chargers to mitigate potential concerns over EV range, there is value in conducting a region-wide study to find strategic locations where stations will be highly utilized before installing.
- **Workplace charging**: Workplace charging is key to EV adoption because evidence shows that employees are six times more likely to purchase or lease an EV if they have access to charging at the workplace.
- **Ride and drives**: DENC's first-hand experience with consumer engagement reinforces a growing body of national marketing data which shows Ride and Drives are among the most effective methods for selling EVs. Follow-up with participants after a ride and drive is crucial to encouraging the sale.

Rochester EV Accelerator

DENC's pioneering work in the state of Colorado has led to similar groundbreaking efforts in other areas of the country, including a brand new accelerator community in Rochester, New York. Through a grant from the New York State Energy Research and Development Authority (NYSERDA), the EC has launched a fully grant-funded accelerator community in Rochester. NYSERDA and the EC are hoping to utilize this program to develop a statewide scalable effort with the goal of launching an additional accelerator community in NY within 6 to 9 months of the kickoff of the Rochester program. The Rochester program will span over the course of 15 months and subsequently transition to the city of Rochester to be continued for the near future. Given the extensive groundwork laid by DENC and its development of local and national partnerships, marketing strategies, and state-of-the-art programs, Rochester is set to be another highly successful accelerator community and provide further inspiration for the initiation of similar programs across the country.

Drive Electric Orlando

Drive Electric Orlando (DEO) is a partnership between Orlando rental car companies, hotels, and tourist centers to aid the increased acceptance of EVs throughout the top tourist destination in the country. DEO

has collaborated with Enterprise Rent-A-Car to purchase 30 Chevy Volts for their Orlando fleet. Furthermore, DEO has facilitated the development of charging stations in 300 different locations throughout the city. In addition, those who rent EVs in the area are incentivized with valet parking at their hotels and premiere parking spots in major tourist locations throughout the city (i.e. theme parks and restaurants).

Utilizing the marketing and outreach strategies developed by DENC, DEO has focused on implementing DOE funding, marketing, and outreach efforts in the top five feeder markets. The marketing campaign generated millions of impressions and led to significant developments, including a month-over-month increase in EV reservations, record results for EV reservations in early 2017, and an expansion of Enterprise's EV fleet.

Smart City Challenge/Smart Columbus

The Smart City Challenge (SCC) was launched in 2016 as a $50 million grant application funded by the U.S. Department of Transportation (DOT) and Paul G. Allen's Vulcan Foundation. The SCC encouraged cities to develop smart ideas to revolutionize the transportation system, with the Vulcan grant providing $10 million specifically dedicated to the city that could demonstrate strong plans for a comprehensive approach to electrifying its transportation system on the mass scale. The SCC application process garnered a staggering 78 applicants with a wide range of innovative ideas focused on revolutionizing transportation systems. From these applicants, seven finalist cities were chosen with Columbus, OH ultimately selected as the recipient of the Smart City Challenge award, thus creating the Smart Columbus initiative. The seven finalist cities themselves proposed a range of groundbreaking smart city initiatives, from the implementation of autonomous city shuttles to the mass electrification of city fleets; these seven cities now collectively form the Coalition of seven, with the EC continuing to grow its partnership with this group.

The EC has continued to play an active role in supporting the Smart Columbus initiative. As the city solidified its plans for increasing EV adoption by consumers and fleets, the EC hosted a series of workshops to educate Columbus staff and partners about topics including EV charging infrastructure development; public, private and TNC fleet electrification; and consumer EV adoption. These workshops were critical in Columbus' formation of working groups that are now implementing the strategic components of their plan. Furthermore, through these workshops, the EC brought in more than 15 experts from across the nation to assist in providing relevant educational material to Columbus.

Importantly, the EC has leveraged the programs and strategies developed through DENC to organize several initial projects for Columbus, including the first official Smart Columbus Ride and Drive event, which took place in December 2016. The EC plans to work on behalf of the Columbus Partnership, the private sector leader in Columbus, over the next 3 years to run the consumer EV adoption program and support many other areas of the program, including local and statewide policy, infrastructure development, and others, while continuing to use DENC's innovative work as the basis for successful program development.

RECOMMENDATION:

Information item only. No action required.

ATTACHMENTS: If you have attachment(s), please list them here. Otherwise, please delete this section.

- Attachment A: DENC Press Release
- Attachment B: DENC Case Study

Attachment A

FOR IMMEDIATE RELEASE
August 25, 2017
Contact: Bridget Bartol | 202.461.2361 | bbartol@secureenergy.org

Electrification Coalition Releases Drive Electric Northern Colorado Case Study

Case study highlights key lessons learned from the first-ever electric vehicle accelerator community.

WASHINGTON, D.C.—The Electrification Coalition (EC), a nonpartisan group of business leaders committed to facilitating the deployment of electric vehicles on a mass scale, today released a case study documenting the nation's first electric vehicle accelerator community: Drive Electric Northern Colorado (DENC).

The accelerator community concept was first published by the EC in its 2009 *Electrification Roadmap* which outlined a vision for a replicable and scalable model to drive the adoption of electric vehicles (EVs). This fully integrated model leverages public-private partnerships that best utilize limited resources to drive widespread EV deployment and help to reduce our nation's dependence on oil in the transportation sector.

The DENC case study examines the successful strategies, tactics and outcomes of the inaugural implementation of this integrated community framework that first began in February 2013 in the City of Fort Collins and the City of Loveland, Colorado. The program was also accomplished in partnership with Colorado State University.

"Since 2013, DENC has worked with an amazing collection of partners throughout Northern Colorado to successfully establish this first-of-its-kind model to accelerate the adoption of EVs. By utilizing the EV ecosystem approach and coordinating highly engaged community partnerships we are excited to broadly share the lessons learned from this program to strengthen EV adoption efforts already under way in communities around the country," said Ben Prochazka, Vice President of the Electrification Coalition.

A key finding from the case study was the importance of leveraging the entire EV ecosystem by engaging all stakeholders from the beginning and combining their efforts with a supportive public policy framework to achieve a strong consumer response. Thanks to DENC's comprehensive approach, the rate of EV purchases in Northern Colorado was found to be approximately three times higher than the national average. The EC's case study also provides a sample toolkit to guide communities interested in applying this model locally.

The case study highlighted five core strategies and tactics that contributed to the project's success:

- **Creating a supportive ecosystem:** A successful EV accelerator community requires participation from stakeholders including city administrators, local car dealerships, business leaders, utilities, infrastructure providers, current EV owners, and educational institutions.
- **Policy:** The identification and mobilization of key advocates in the DENC community has proved key in creating an environment conducive for EV adoption, such as point-of-sale tax credits and preferential parking and infrastructure installation.
- **Infrastructure**: While there may be a sense of urgency to immediately deploy large numbers of public chargers to mitigate potential concerns over EV range, there is value in conducting a region-wide study to find strategic locations where stations will be highly utilized before installing.

- **Workplace charging**: Workplace charging is key to EV adoption because evidence shows that employees are six times more likely to purchase or lease an EV if they have access to charging at the workplace.
- **Ride and drives**: DENC's first-hand experience with consumer engagement reinforces a growing body of national marketing data which shows Ride and Drives are among the most effective methods for selling EVs. Follow-up with participants after a ride and drive is crucial to encouraging the sale.

Building upon its success in Northern Colorado, the EC is working to support communities around the country and has recently launched the newest accelerator community in Rochester, NY.

###

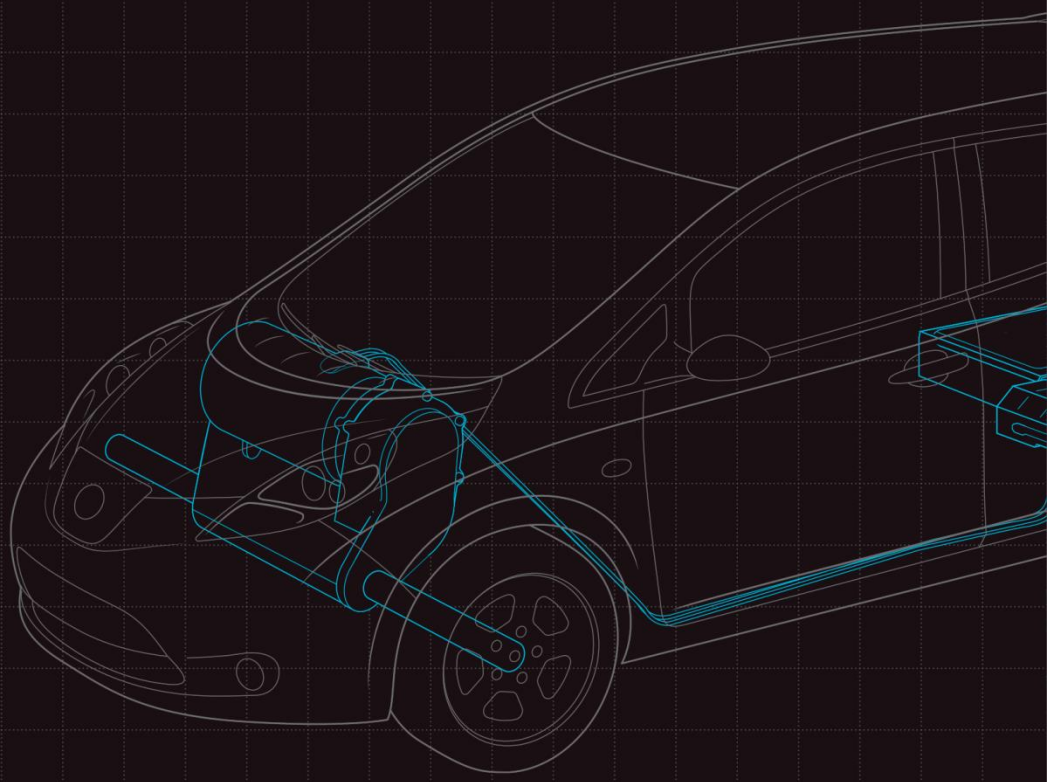
About the Electrification Coalition

The Electrification Coalition is a nonpartisan, nonprofit group of business leaders committed to promoting policies and actions that reduce America's dependence on oil by facilitating the deployment of electric vehicles on a mass scale. The members of the Electrification Coalition are leaders of companies representing the entire value chain of an electrified transportation system.

CASE STUDY

Drive Electric Northern Colorado

Establishing an EV Accelerator Community



Electrification Coalition

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ElectrificationCoalition.org

In Partnership with Securing America's Future Energy

Electrification Coalition

The Electrification Coalition is dedicated to reducing America's dependence on oil through the electrification of transportation. Our primary mission is to promote government action to facilitate deployment of electric vehicles on a mass scale. The Coalition serves as a dedicated rallying point for an array of electrification allies and works to disseminate informed, detailed policy research and analysis.

Acknowledgements

Drive Electric Northern Colorado (DENC) could not have been possible without the participation and support from the cities of Fort Collins and Loveland Colorado, Colorado State University, as well as numerous funders and partners who all provided their generous support to the program success. The Electrification Coalition (EC) deeply appreciates and thanks both cities' local leaders, residents, our numerous funders, businesses and organizations for their hard work and dedication to this effort over the last 4 years.

Special Acknowledgement to Our Principal Partners:

City of Fort Collins
City of Loveland
Colorado State University

Special Thanks to:

Fort Collins Mayor Wade Troxell
Former Fort Collins Mayor Karen Weitkunat
Loveland Mayor Cecil Gutierrez
Fort Collins City Manager Darin Atteberry
City Council of Fort Collins
City Council of Loveland
Supporting staff from the cities of Fort Collins and Loveland

DENC State and Local Supporters:

Advanced Energy (Fort Collins)
American Lung Association in Colorado
Bohemian Companies
Boulder County
Brendle Group
Brinkman Partners
Chipper's Lanes
ClimateWise Fort Collins
ClimateWorks
Co's BMW Center
Colorado Clean Energy Cluster
Colorado Energy Office
Davidson Gebhardt Chevrolet
Dellenbach Motors
Denver Metro Clean Cities Coalition
Downtown Fort Collins
Fort Collins Mitsubishi
Frameworks Timber
Gallegos Sanitation
Hewlett Packard (Fort Collins)
Hewlett Packard Enterprise (Fort Collins)
Horse & Dragon Brewing
Innosphere
Intel
Jax Outdoor Sporting Goods
Ken's Muffler Shop (Hybrid Repair)
McWhinney
Mishawaka Amphitheatre
Morning Fresh Dairy Farm
Neuworks Mechanical
New Belgium Brewing Company
Nissan North America
Northern Colorado Clean Cities
NRG eVgo
Odell Brewing Company
Platte River Power Authority
Public Service Credit Union
Resurrection Fellowship
Revive Fort Collins
Rocky Mountain Innosphere
Schneider Electric
SemaConnect
Snowbank Brewing Company
Southwest Energy Efficiency Project (SWEEP)
Spirae
Spradley Barr Ford
Sustainable Living Association
Telefonix
Telsa Motors
The Green Team Real Estate
Thompson School District
Tynan's Fort Collins Nissan

Generous Grant Support:

New Belgium Foundation
Bohemian Foundation
Planet Heritage
Hewlett Foundation
Energy Foundation
Advanced Energy Economy
Rockefeller Brothers Fund

The DENC team has so many people to thank that, inevitably, an organization may have been overlooked from this acknowledgements page. They are owed a huge debt of gratitude, as well.

Introduction

Electric vehicles (EVs) present a critical opportunity to sever the nation's oil dependence, bolstering American economic and national security while benefitting consumers. In the view of many experts, before EVs become ubiquitous nationwide they should be deployed in targeted geographic areas where all the components necessary for success—local policy, charging infrastructure, consumer education, public-private partnerships, and more—are leveraged simultaneously.

Northern Colorado was one of the first communities to launch a comprehensive and successful effort in this model. Drive Electric Northern Colorado (DENC), a partnership between the Electrification Coalition (EC), the City of Fort Collins, the City of Loveland, and Colorado State University was established in February 2013 to create a living laboratory for the development and testing of successful strategies to accelerate the adoption EVs.

DENC promotes EV acceleration by combining traditional organizing principles with technical expertise. Since its inception, DENC has launched several innovative programs that have continued to help northern Colorado exceed expectations for EV adoption, with sales typically 2-3 times the national average. Based on this success, DENC can serve as a model for other communities seeking to accelerate the adoption of EVs.

Policy

EV-friendly regulations at the city and state levels can have a dramatic positive impact on EV sales. Pragmatic city and state-level approaches can reduce the barriers to EV adoption, increase the number of public charging stations, and incentivize ownership through local policy, codes, legislation, and advocacy. In order to succeed, coordinated efforts such as DENC, referred to in this paper as “accelerator projects,” “accelerator communities,” or “EV accelerator projects” must focus on promoting these policies by mobilizing and connecting constituencies such as local businesses, automotive dealers and manufacturers, universities, and EV enthusiasts to marshal public support into actionable policy outcomes.

Component Aspects

Accelerator communities can operate as a positive feedback loop, which begins by mobilizing a core group of early adopters and advocates, expands to include affiliated organizations, and continuously builds on this momentum and reach to develop and implement new policies. The organization can curate spokespeople, engage business leaders, and enable advocates that push aggressively for policy changes which will rapidly accelerate EV adoption. Organizations can also push for state policies that will not only benefit the accelerator community but can boost EV promotion in other cities across the state.

Accelerator projects should begin with an exhaustive evaluation of existing codes, policies, and regulations to determine what is already in place to support EV adoption in the target community, how these policies can be leveraged, and which new ones should be implemented. Existing climate or air quality regulations and goals should be targeted in this effort. Partnering or collaborating with state energy, sustainability, or transportation offices are other effective ways to develop feedback channels for influencing policy. Understanding each office’s goals

and metrics for success can enable more effective partnerships.

Statewide Policy Advocacy

DENC found great success by working with the Colorado Energy Office to help lead EV adoption across the state. Specific policies included working with local advocates and city governments to retain incentives such as Colorado's original refundable EV tax credit worth up to $6,000, which switched in 2016 to a $5,000 credit available at the time of purchase, and $2,500 credit for a vehicle lease. DENC also worked with government and local advocates to increase charging station installation, also known as electric vehicle supply equipment (EVSE) through the state's Congestion Mitigation and Air Quality (CMAQ) funding initiatives.

Tax Credit Policy Maintenance

When DENC was launched, Colorado offered a significant tax credit of up to $6,000 which was slated to sunset in 2015. DENC worked with other interest groups to change the state legislature's approach to reform and extend the state tax credit. This effort was made possible through a concerted lobbying effort, which included letters of support from various advocates, a dialogue with the Colorado Energy Office, and persuasive testimony from a local advocate: An 80-year-old military veteran who drove an EV for both the energy security benefits and to protect his budget from gasoline price volatility. This spokesperson was a member of the local EV enthusiast group—a critical social component of the DENC project and described in greater depth later in this paper. This individual's testimony framed the EV tax credit as more than an environmental policy, but as part of an effort to improve the state's economic security and reduce oil dependence. DENC assisted with writing the testimony, which was delivered by a leading voice of the local community, and contributed to the unanimous passage of a bill to extend the tax credit—a move that underpinned significant EV sales in the project area. DENC also publicized the signing of the bill through an event at Loveland Water and Power to increase awareness of the project and engage stakeholders.

This $6,000 state credit has since been changed to become a $5,000 point-of-sale credit, applicable to any advanced fuel vehicle, or $2,500 for an EV lease. Vehicle financing entities can provide the $5,000 up front to consumers in exchange for the tax credit, for which they will be compensated by the state government. Coupled with the federal credit of up to $7,500, this means that in Colorado, a total of $12,500 is potentially available to consumers for the purchase or lease of an EV. There was both positive local press coverage and consumer reaction to the new tax credit, which is considered to be a simpler alternative to the previous tax credit.

DENC has also found there are opportunities to work with state, local, and regional infrastructure programs and with metropolitan planning organizations (MPOs) to tap into federal or state infrastructure funds for deploying charging stations. Energy offices generally have pre-established communication channels and outreach strategies with these organizations, which helped DENC establish a broader community of supporters.

Congestion Mitigation and Air Quality Funding (CMAQ)

Federal funds are available to improve the air quality in non-attainment areas around the country, which exceed federal standards set by the Environmental Protection Agency (EPA). Local groups are responsible for how this money is allocated. In some states, specific air quality divisions apply, and in others, the issue is addressed through MPOs. In Colorado CMAQ funds are distributed through the Charge Ahead program, a CMAQ funding initiative of the Denver Regional Council of Governments.

Charge Ahead Program

The Charge Ahead program in Colorado was a project funded by the Colorado Energy Office and the Regional Air Quality Council, designed to help Coloradans understand the state EV tax credit and encourage EV adoption. Through Charge Ahead, CMAQ funding was allocated towards MPOs and state energy offices, which allowed cities to apply for grants. DENC worked with the cities to rethink how they were allocating these
funds and succeeded in shifting a certain allocation to constructing EV infrastructure in the region. Up to $6,200 dollars per Level 2 charging station was allocated, and the grant recipient needed to provide at least a 20 percent match per station. Since 2013, the program has provided for the installation of 12

charging stations across the DENC region. In February 2013, the program—with funding from CEO—provided four more stations in Fort Collins and six in Loveland. Additionally, CEO funded two chargers at Colorado State University in March 2015.

DENC also worked with universities, local non-profit organizations, school districts, and eventually businesses to install charging infrastructure. Charging stations constructed through CMAQ funding were required to be available for use by the public even if they were located on private property, and were listed in relevant databases to make EV drivers aware of locations.

Non-Cash Incentives

Across the United States, non-cash state incentives have also proven to be an important motivator for expanding EV sales.[1] For example, zero-cost high-occupancy vehicle (HOV) lane access for EVs and reduced fees for toll roads, bridges, and tunnels can have a substantial impact on consumers' value propositions. However, Colorado issued 2,000 HOV permits for low-emission vehicles in 2008, which have long since been filled, and has no plans to issue more. New EV owners are now placed on a waitlist instead as Colorado's transport department asks for permit holders who no longer drive EVs to rescind the permits, negating much of the HOV lane access incentive for new buyers. The state can also enable energy savings performance contract (ESPC) models for municipal fleets that allow the city to lease EV systems (vehicles, electricity, charging capability) from a third party so it can take advantage of tax credits that it can't monetize independently as a public organization. Similarly, to help influence fleet adoption, the state can create mandates that require state EV fleet purchases if the incremental cost is less than 5 percent compared to an internal combustion engine (ICE).

Workplace Charging

Working with local businesses to install workplace charging was a critical component to DENC's success, as consumers are six times more likely to purchase an EV if they have access to charging at the workplace, according to a study conducted by the U.S. Department of Energy.[2] More than 20 local businesses, universities, and municipalities participated in workplace charging, giving charging access to over 15,000 individuals during across the DENC region. Involving local businesses and organizations in the Workplace Charging Challenge was a multi-stage process that involved businesses hosting Ride and Drive events to educate employees about EVs, as well as educational lunches to present information on the benefits of EVs, with the eventual goal of installing chargers at one or more of the company or organization's campuses. DENC also worked with these businesses and organizations to access funds from the Charge Ahead Program to facilitate installation.

Public Parking Facilities

DENC developed partnerships with large retailers and developing companies to encourage installation of EV charging in high traffic areas such as downtown and retail shopping centers. This influenced the installation of multiple Level 2 and DC fast charge stations in covered parking garages and highly-utilized parking lots as part of DENC's charging strategy.

Local Policy Advocacy

Coordinating with city planners can often produce high-impact EV infrastructure policies. For example, requiring that new commercial construction be wired to accommodate easy installation of charging stations can quickly produce a significant number of "EV-ready" properties. For residential buildings, the city can mandate that housing developers offer prospective buyers a standard option to pre-wire garages for EVs. When public parking lots and garages are built, the city should also require a certain percentage of these to be pre-wired for EV charging as well. This process was put in place in Denver and Boulder, near but not within DENC territory. Similar projects should seek to work with the city council to increase the number of office, apartment, and commercial buildings that incorporate EV infrastructure from the beginning.

[1] Source: Jin, L., et al. "Evaluation of State-Level U.S. Electric Vehicle Incentives," Washington, DC: International Council on Clean Transportation, 2014, at 29.

[2] Department of Energy, Office of Energy Efficiency and Renewable Energy, "Workplace Charging Mid Program Review: Employees Plug In," December 2015.

To achieve maximum impact, accelerator communities can encourage the municipality and utilities to develop an over-the-counter permitting process or simplified codes that would enable businesses and homeowners to quickly and easily install charging stations.

Lessons Learned

Analyze City and State Policy Restrictions

Colorado is a "home rule" state, meaning that cities can establish local policies, laws, and regulations as they see fit. Because of this, and the heightened level of local support for EV adoption, DENC has focused primarily on local policies to further its EV adoption goals. Organizations should analyze the most effective way to target policies in their state since municipal policy might not be as effective in some locations.

Prioritize Policy Advocacy

Some policy changes will be easier to implement than others. It is important first to develop a comprehensive list of existing policies that affect EV adoption, and categorize them as follows. First, identify existing regulations that actively obstruct EV sales or impede infrastructure development and the likelihood of removing or reforming these laws. Second, identify existing policies including financial and non-financial incentives that support EV adoption, and if they can be augmented or strengthened. Finally, accelerator communities should determine the worthiness of implementing or changing certain policies through a cost-benefit analysis to weigh the impact on potential EV adoption against the time, effort, and political capital required to make that change. A relevant example from DENC's experience, outlined in further detail below, was the decision not to press ahead with preferred parking spaces for EVs in downtown Fort Collins, given the city's limited street parking. Political capital was instead put towards more rewarding initiatives, such as Ride and Drive events and lobbying for the state tax credit to be retained.

Give Stakeholders Responsibility

An accelerator community organization should connect with a city's planning committee to determine which stakeholder(s) would be in the best position to take on responsibility for policy advocacy. The Public Utilities Commission, for example, might be the best to spearhead regulations around time of use (TOU) pricing and pricing rebates for EV drivers, while others could take a leadership role in finding innovative ways to finance the deployment of public charging stations. DENC leveraged stakeholder relationships for assistance with Ride and Drives, volunteer recruitment, creating new program ideas, building support for policy initiatives, writing grant applications, and piloting and eventually leading new strategies. These efforts are described in greater detail in later sections of this report.

Organize People Where They Are

It is critical to understand the motivations of the relevant executive, legislative, and regulatory bodies to achieve policy changes. In DENC's case, the northern Colorado area was already sympathetic to the concept of EVs. However, local EV advocates have had to step outside the traditional environmental argument for EVs when pushing for EV-friendly policies. These additional arguments centered on national security and economic stability, and proved persuasive when used to argue against the state's plan to sunset its EV tax credit. This narrative may prove to be more persuasive than the environmental benefits when encouraging EV adoption elsewhere in the country.

Expect Variation in Issue Effectiveness

Political and community realities will make some challenges more difficult than initially anticipated. In downtown Fort Collins, DENC attempted to designate preferred parking places with charging stations for EVs. Fort Collins is a university town with very limited street parking. It quickly became apparent that parking access was a challenging issue in the city and a political dead-end, despite the widespread support for DENC's mission. DENC decided not to expend political capital on this issue after discovering the challenges it posed and instead opted to pursue support for several other EV-friendly policies.

Utilize Existing Community Motivations

Many communities will already have existing environmental or infrastructure programs that can be leveraged, such as grid modernization programs, home solar, and distributed storage initiatives. Accelerator projects should also be on the lookout for additional motivators like climate initiatives. For example, Fort Collins recently approved an aggressive

Climate Action Plan that benefits DENC as there are EV acceleration goals integrated into the plan.

Conclusion

In the four years since its launch, DENC has identified and leveraged great local support for policies to accelerate EV adoption. This support has come from a wide array of community advocates, including government at both state and local levels, as well as businesses and consumers.

The identification and mobilization of these advocates in the community has proved key in creating an environment conducive for EV adoption, such as point-of-sale tax credits and preferential parking and infrastructure installation. DENC's experiences to date tell us community coordination and education are critical components of EV adoption at the local level.

Public Infrastructure

Appropriately located public charging stations are a key indicator of EV readiness in a community. The presence of infrastructure helps assure potential customers that charging will be available when it is needed. Installing charging infrastructure at way stations, for example, can give consumers particular comfort by linking EV-ready communities together and dramatically increasing the distance a vehicle can travel. DENC collaborates with city planners and other stakeholders to evaluate potential sites for public charging stations and advises businesses on deploying and managing workplace charging infrastructure.

Component Aspects

Even though the vast majority of EV charging is done at home or work, consumers must feel confident that there is sufficient public charging availability in other places to alleviate range concerns. Some consumers are hesitant to buy an EV because they are not yet aware of the convenience of charging at home.

An accelerator community organization should engage traffic planners and relevant stakeholders at the start of a program to determine the best locations for public charging stations. There will often be tradeoffs, as placing a charger on municipality-owned land may be less expensive, but deploying a charger in a costlier retail area will likely have a higher utilization rate, or be more visible.

Vehicle original equipment manufacturers (OEMs), EV infrastructure vendors, and utilities should be encouraged to fund, install, and maintain a sufficient number of charging stations in the area. While chargers should be the same for drivers wherever they charge, it's possible that competing subscription services or payment models could emerge that will have to be explained to consumers. The chargers

should be tested regularly to confirm that the equipment is fully functional and that the network meets the needs of users. Reliability and predictability are critical for widespread adoption, so the importance of such efforts cannot be overstated.

Lessons from DENC

When DENC was launched in early 2013, the only publicly accessible charger in operation was in Fort Collins. There were no public charging stations between the northern Colorado region and the nearest major metropolitan area of Denver. DENC recognized that consumers needed to be comfortable with both intracity and intercity travel before they would buy an EV, so it began working with the cities and local businesses to deploy additional chargers in the area. This effort included establishing a Regional Infrastructure Group that met monthly for the program's first two years to analyze charger utilization and identify areas that would benefit from the installation of new chargers.

Three years later, there are more than 25 publicly accessible chargers in the region. According to charging station utilization data collected by the DENC Infrastructure Group, the majority of public charging demand had been met by the third year of the program. DENC then turned its focus to deploying additional workplace charging stations to support the growing demand among regional employers.

Changing Perceptions

Many consumers don't realize that the vast majority of their charging requirements will be met at home or at work until they actually own an EV. In addition to fighting this perception with initiatives like DENC's Drive Leadership Extended Test Drive program, which is described in greater depth later in this report, DENC promotes data showing that most EV owners follow different refueling patterns than owners of traditional gasoline vehicles. DENC has also developed a campaign to promote the availability of charging stations and provides maps to show drivers where they are located.

Deploying Charging Stations

Shortly after its launch, DENC realized that initial efforts to deploy charging infrastructure in the region had to be focused on seeding the market. Local businesses, utilities, and cities were interested but needed to be convinced that the project would be worth the upfront costs.[3]

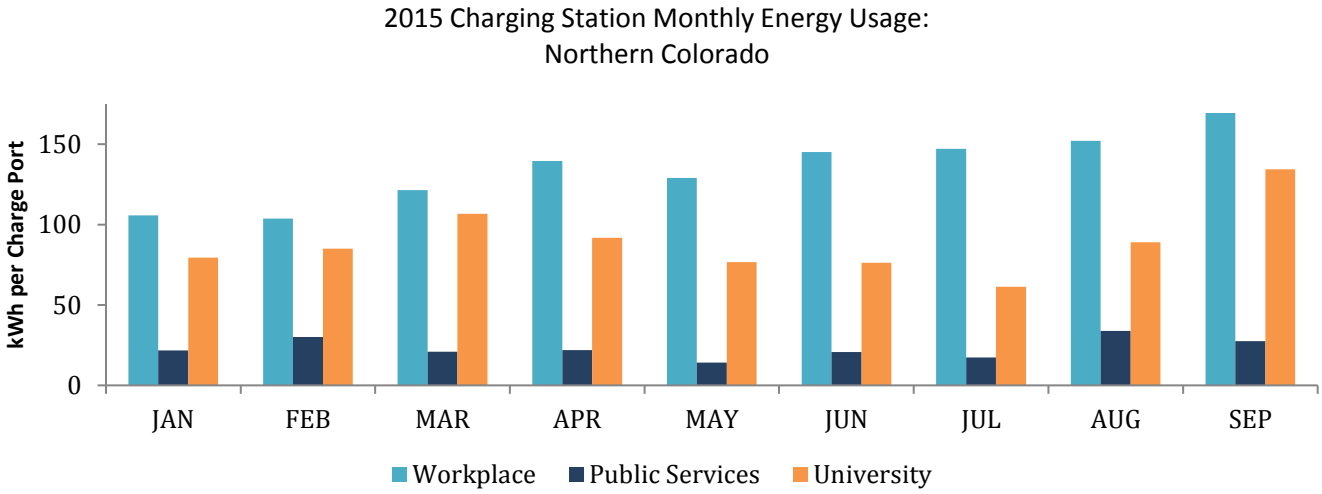
DENC established its first partnership with Nissan, which donated a direct current (DC) "fast charger" for the initiative—the first DC fast charger in the Mountain States. While the City of Fort Collins paid for the wiring and installation, the total cost was much less than it would have been because the station itself was free. Since this early success, many other partners have been willing to sponsor charging stations. Now there are six DC fast chargers in the region.

DENC was initially focused on alleviating battery range concerns of potential EV owners by deploying a significant number of charging stations as fast as possible and began discussions with the cities to evaluate potential locations almost immediately. The first stations were placed on land the city owned, where the current bandwidth was known, and in close proximity to transformers. Because the city owned the property, there were significant cost savings involved, paving the way for numerous chargers to be deployed on city property.

This charging station deployment was made easier because Fort Collins is served by a municipal utility, so the city and utility could function together seamlessly. DENC believes, however, that its model

[3] Note: Installation of AC level 2 chargers in a commercial garage or on a public street ranges from $2,000 to $8,000. Source: Transportation Research Board and National Research Council, "Overcoming Barriers to Deployment of Plug-in Electric Vehicles," Washington, DC: The National Academies Press, 2015, at 91.

for deploying charging stations is replicable in other cities without municipal utilities as well.



Lessons Learned

Engage City Employees Knowledgeable about Traffic Patterns

Accelerator projects should engage city stakeholders in conversations about traffic patterns as early as possible. While there may be a sense of urgency to immediately deploy large numbers of public chargers to mitigate potential concerns over EV range, there is value in conducting a region-wide study to find strategic locations where stations will be highly utilized before installing.

Early in the program, DENC placed a number of chargers on municipally owned land due to the cost savings relative to placing the chargers in retail areas. Because a traffic study was not considered before securing these locations, some of the municipally owned stations do not see maximum utilization. Conducting a traffic study early in the process would likely have resulted in a decision to install these stations at more expensive—but also more heavily trafficked locations that drivers would visit regularly and where they would be more willing to wait for their vehicle to recharge.

Workplace Charging

The existence of workplace charging infrastructure helps promote EV readiness in a community by making EVs a viable option for a larger number of car buyers. DENC has found that there is a link between increased workplace charging access and the number of employees at these organizations that purchase or lease EVs. The more people in a workplace who drive EVs, the more feasible the option appears to others, leading to an ongoing circle of higher EV sales.

DENC works alongside local businesses, advising them on the most appropriate infrastructure options and installation protocols. Employers have different reasons for getting involved with EV adoption and DENC, including local networking opportunities, positive public relations, and increasing employee retention, so accelerator programs should ensure that each company is recognized for their efforts and commitment to EV adoption.

Component Aspects

Evidence shows that employees are six times more likely to purchase or lease an EV if they have access to charging at the workplace.[4] In addition, while the majority of charging happens at home, DENC has found that access to workplace charging can be a determining factor for employees who live in multi-unit housing where convenient home charging may be limited. Accelerator community projects can act as a central coordinator to promote EV charging in multiple locations.

Though there are national programs like the U.S. Department of Energy's Workplace Charging Challenge and statewide programs such as the EV

[4] Department of Energy, Office of Energy Efficiency and Renewable Energy, "Workplace Charging Mid-Program Review: Employees Plug In," December 2015. .

Wired Workplaces effort through the Colorado Energy Office, localized workplace charging programs are important for several reasons. They can facilitate healthy competition among local employers to encourage EV adoption in their workplaces. These programs can host local seminars, webinars, and conferences that encourage businesses to offer charging for their employees. Local companies can also then also receive recognition for their charging efforts, which is particularly important if they are working to establish a marketing presence in the community.

DENC's Approach

In order to encourage the deployment of workplace charging stations, DENC initiated the northern Colorado Workplace Charging Challenge (WCC) in the first quarter of 2015. A few local businesses were already engaged in the national workplace charging program but expressed a desire to be a part of a local group with networking opportunities focused around workplace charging. DENC launched this effort with fifteen local businesses and recruited five more partners before the end of its first year.

Recruiting Participants

Companies may have different reasons for participating in a workplace charging initiative, and it is important to understand their motivations in order to recruit them effectively. A large technology firm, for example, may be interested in creating a reputation for itself as a top innovator, while others may be marketing their sustainability efforts. Still, others may use workplace charging as an employee benefit for recruitment and employee retention purposes.

An important initial aspect of DENC's WCC planning process was establishing a goal for the number of workplace charging partners to recruit in the first year. DENC started by focusing on businesses that had already installed charging stations but were not yet actively promoting them, and on businesses that were in final stages of considering installation. This gave DENC a strong base of committed partners with which to promote the program to other local companies. Four of DENC's core stakeholders (described in greater depth later in this report) were among those that joined the WCC at its launch or in the first few months of the program.

As a way to increase the sense of urgency around the challenge, DENC created a co-branded pledge form with the local Clean Cities Coalition and the U.S. Department of Energy. If the participating companies did not yet have charging stations installed, they were asked to commit to installing infrastructure within six months of signing the pledge. Companies also committed to undertaking a communications campaign to encourage their employees to use the stations.

DENC encourages participating employers to offer EV charging for free when possible and advises employers on other fee structures if free charging is not an option. To create consistency for EV drivers DENC advised partners to adopt a regional standard for EV charging cost, which is $1 per hour for Level 1 and 2, and $3 per charge for DC fast charge.

Tools exist from the U.S. Department of Energy for employers to survey their workers to determine workforce charging demand. Before launching its program, DENC worked with the Department of Energy to customize this survey for northern Colorado companies, to increase the likelihood of completion. In addition, the 2015 Colorado EV Market Implementation Study from the Colorado Energy Office provides sample survey templates and questions.

Media Outreach & Press Conferences

To create a sense of urgency, excitement, and community-wide collaboration, DENC launched its WCC with a press conference that immediately preceded a workshop for businesses considering workplace charging. DENC also created media outreach materials that were released to local and national media outlets in the week leading up to the press conference.

Northern Colorado
Workplace Charging Challenge Pledge

This agreement states that _____ (Company Name) has joined the Northern Colorado Workplace Charging Challenge on ___/__/____ (Date) in an effort to advance the adoption of plug in electric vehicles (PEVs) in the Northern Colorado region.

As a Workplace Charging Challenge partner, _____ (Company Name) commits to install charging station(s) available for use by company employees within six months of signing this agreement, and provide the workplace charging representative with a plan that describes the organization's strategy to deploy charging infrastructure within two months of signing this agreement. In order to provide the best possible service to its employees, the participating company also agrees to assess the following before installation:

Installation location
- Explore opportunities to install stations at preferential parking locations
- Consider future, additional build-outs and where those could be installed

Payment strategy
- Determine if the stations will be free or will need to have a cost
- Explore how this might be part of an employee benefit package

Charging station equipment
- Determine appropriate type of charging infrastructure
- Install Level I or Level II charging stations

Identify Contacts:
- Identify one primary contact, identify one public relations contact; and provide senior-level commitment to workplace charging

Promote and Share
- Connect Workplace Charging representative with one public relations contact
- Explore and establish internal messaging tactic to reach out to employee base
- Publicly announce partnership in the Challenge and a plan for workplace charging within six months of signing the pledge. Highlight new and existing workplace charging installations on an ongoing basis
- Work with DENC to host an employee Ride and Drive, and/or participate in the Leadership Drive program to further promote charging availability
- Work with DENC to publish a blog featuring _____ (Company Name) and the planned availability of charging stations
- Report progress and plans to U.S. Department of Energy (DOE) and DENC on an annual basis

☐ *Check here if you do not consent to participate in the DOE Workplace Charging Challenge*

Senior Executive Signature: _____ Date: _____
Printed Name: _____
Title: _____

Primary Point of Contact Information
Name: _____
Title: _____
Phone Number: _____
Email: _____

Public Relations Point of Contact Information
Name: _____
Title: _____
Phone Number: _____
Email: _____

Let's Charge Our Community!

Drive Electric Northern Colorado **Electrification Coalition**

Engaging Current Partners

DENC makes monthly calls and emails to each participating company to maintain an open channel of communication, check in on their progress, and to see if they need any assistance in meeting their commitments. This ongoing communication creates a high level of engagement with the partners, allowing DENC to utilize their motivation as workplace charging advocates, speakers for workplace charging press events, and other programmatic needs.

Ongoing Recruitment of Partners

After the WCC's successful launch in early 2015, DENC set a goal of increasing the number of participants from 15 to 20. To achieve this, DENC developed a list of the most likely potential partners based on the number of employees at their workplace, their existing interest, and whether they had an existing sustainability program or similar marketing campaign. DENC staff worked with these companies to sign the WCC pledge. As new partners joined, DENC organized social media, blogs, and newsletter content to recognize their commitment to participating in the challenge publicly.

DENC also established an Ambassador Program comprised of employees from workplace charging partners who are willing to assist DENC with outreach and act as a public face of workplace charging. These ambassadors are typically individuals who are interested in being leaders at their workplaces or with DENC. DENC trains them on effective strategies to help accelerate EV adoption. Ambassadors commit to activities that include advocacy within their company, writing letters to the editor, answering questions from journalists or reaching out to other businesses and organizations to encourage them to offer EV charging. These ambassadors increase the credibility of DENC and the WCC, particularly as many of them are trusted members of the community or associated with well-known and respected businesses.

Lessons Learned

Overcome Objections

Some companies will have objections to participating in the WCC. It is important to anticipate and overcome these objections when possible. For example, national companies that have a local campus generally exhibit the most hesitation due to internal bureaucracy. There may also be legal hurdles at the national level that might make it more difficult for the local affiliate to get approval from headquarters.

Another objection might include concerns that an employer is favoring some employees over others by providing those who drive electric vehicles with an extra benefit that is not available to drivers of gasoline-powered vehicles. To overcome this argument, DENC supplies the companies with resources to survey employees about workplace charging interest level, so the company will have strong data to counteract this argument if it arises. DENC also encourages employers to connect workplace charging to a broader company strategy such as employee benefits or sustainability goals, which helps to counteract any internal questions that are posed. DENC has found that once workplace charging is launched there is generally very little employee hesitation, but these questions tend to arise among an employee base before or in the early stages of offering workplace charging.

Invitation to One of DENC's Workplace Charging Seminars

Another potential apprehension is cost. After working one year to develop an internal workplace charging strategy , the City of Loveland found that providing one day of Level 1 EV charging for a city employee

costs less than providing one cup of coffee. DENC encourages companies to compare the benefits already being provided to employees, with the cost for workplace charging (resources for this can be found on the U.S. Department of Energy Workplace Charging Challenge website). Because of the low cost of electricity, the ongoing costs of providing workplace charging tends to be a very low.

Encourage Other DENC Programs as a Gateway

If a company is not able to install workplace charging infrastructure because the up-front investment is too high, DENC suggests they host a workplace Ride and Drive instead, where company employees can have the opportunity to test drive EVs. DENC also refers these companies to the grant programs such as the Charge Ahead grant, to help fund EV charging installations (more information mentioned in the "Policy" section of this report).

Hosting a Ride and Drive enables DENC to begin building a relationship with the company that can lead it to consider other EV programs or better understand the level of employee interest for EVs. If employees buy EVs as a result of the Ride and Drive, it is more likely that the company will install charging stations in the future because of the increase in employee demand.

Engage Current Employees

DENC volunteers who work at participating workplace charging partner companies have helped increase the number of employee purchases at their companies. These employees often act as advocates and internal resources for EV adoption. They also have a pivotal role in helping to relay internal feedback from other employees to company executives that can encourage the company to undertake future EV initiatives.

Implement Preferred Pricing Program

DENC has seen a high level of EV sales success when combining preferred pricing programs with its workplace initatives. This is especially effective for workplaces that have had charging stations installed for more than three months due to the already hightened EV awareness among employees. DENC implemented such an initiative as part of its EV Group Buy program starting in 2015. The Group Buy is a program that offers a pre-negotiated price for EVs and a simple EV purchasing experience.

Creating an Ecosystem

A successful EV accelerator community requires participation from stakeholders including city administrators, local car dealerships, business leaders, utilities, infrastructure providers, current EV owners, and educational institutions. Communication and coordination among these groups are essential, as the EV adoption effort will only succeed if it is accompanied by changes in multiple products, systems, and industries simultaneously.

These stakeholders should form the basis of a steering committee that can support the program by offering ideas, providing demonstration vehicles, making introductions within the community, and monitoring progress. To maximize engagement, stakeholders must be identified, understood and organized in the context of their own organizational goals.

Component Aspects

One of the first steps in building this ecosystem is establishing a steering committee with representatives from the various groups mentioned above. In addition to giving each stakeholder a clear role on the steering committee, it may also be effective to assign titles or positions based on leadership potential, as this often results in an increased level of motivation and participation.

Through the steering committee, an EV accelerator organization should establish an annual plan with metrics and general goals for each stakeholder. This plan should be broken into quarterly segments to allow progress toward these goals to be tracked and resources to be allocated.

Engaging the Ecosystem

DENC began by analyzing the entire value chain of an electrified transportation system to determine how the various stakeholders could help drive EV adoption in northern Colorado. After creating the steering committee, it tasked this group with developing an annual plan that outlined goals and timelines, as well as the resources that would be required. Several

technical components of DENC's plan, such as charging infrastructure and marketing, required the creation of task forces comprised of individuals with specific expertise, and these task forces acted as subcommittees to the larger steering committee.

In order to create an effective and motivated committee atmosphere, DENC recruited members with strong organizing personalities and those with backgrounds in engaging their organizations to achieve challenging goals. The committee's structure included bi-weekly, quarterly and industry-specific meetings that fostered a sense of ownership and commitment among committee members. This forum also enabled the partners to propose their own ideas, which often became part of DENC's overall program.

Stakeholders in the Ecosystem

DENC has identified several categories of stakeholders that are important to have on an EV accelerator community's steering committee.

Utilities

Utilities were an early and important DENC stakeholder because of their experience developing charging infrastructure, their role in establishing time-of-use electricity rates and EV incentive programs, and their understanding of how utility rates are impacted as more EVs are placed on the grid. Utilities also have strong relationships with local businesses, often referred to as "utility key accounts," which provides a direct connection for DENC to engage and educate these businesses about EVs. Consumers also respect the utility as an authority on the electric power resource mix, which is a major concern for northern Colorado residents and often impacts EV purchase decisions.

Dealerships and OEMs

Dealerships benefit from increased vehicle sales, and accelerated EV adoption provides them with an opportunity to both grow revenue and gain market share. Aside from providing vehicles for Ride and Drive events, dealerships can support the organization's mission by sharing data on current and past EV sales, and can help track the effectiveness of various marketing activities. As dealerships became more engaged they can become active members of the steering committee, host volunteer events, sponsor EV owner events, sponsor marketing, and other innovative ways to help the program.

OEMs supply vehicles to the dealerships and in many cases determine the monthly incentives dealerships receive for selling EVs. It is consequently very important to have strong partnerships with OEMs which will ensure there is sufficient EV inventory available and will help dealerships understand the incentives they have available from their corresponding OEM to sell EVs.

OEMs can also help with specific marketing and corporate initiatives like workplace Ride and Drives and/or offer special EV pricing for partners that install workplace chargers on their premises. When DENC organized its first Group Buy in 2015, one of DENC's partner OEMs donated a Level 2 charging station to the northern Colorado employer that had the most employee EV purchases through the Group Buy. This was seen as a benefit for the dealerships representing that OEM and also to the OEM because they received marketing exposure. It also benefited local businesses, which had a strong incentive to market and promote the Group Buy to their employees.

EV Enthusiasts (EVEs)

DENC recognized the importance of integrating existing EV owners and advocates into their efforts very early in the program. EVEs have often done substantial independent research in the course of purchasing their own vehicles and can, therefore, be especially persuasive to potential buyers, many times even encouraging their friends and colleagues to purchase EVs. This group has been instrumental to DENC's success in activities like advocating for

charging stations at their workplaces and volunteering at Ride and Drive events. EVEs account for about 85 percent of DENC's Ride and Drive volunteers, and their participation enables DENC to offer a much larger number of test drives than would otherwise be possible because they often require little to-no-training on the technology. DENC holds a monthly meeting to organize and train new and existing EVEs, and to recognize their support. EVEs can also provide the same type of support offered by program ambassadors, as mentioned above in the Workplace Charging section of this report.

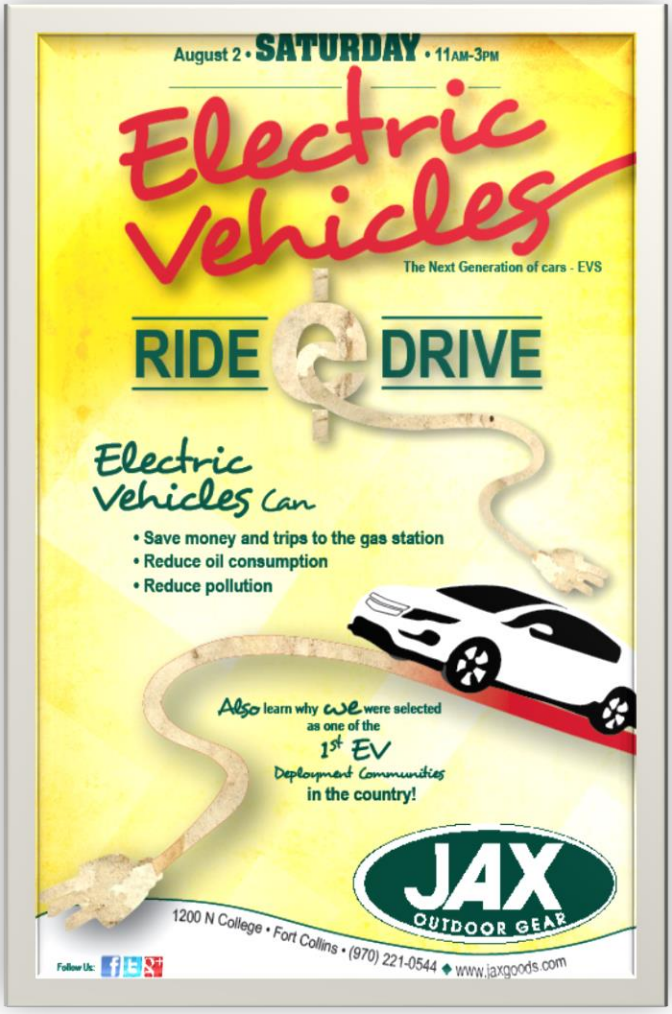
Cities or Municipalities

DENC works closely with its two partner cities, Fort Collins and Loveland, Colorado. DENC and the city representatives on the steering committee quickly established the importance of bringing together existing local industry-specific expertise. Engaging the city fleet manager, for example, provides visible leadership to private sector businesses by demonstrating the viability of switching to EVs. City engineers also provide valuable insights around charging station installation protocols and help establish a regional consistency for the consumer charging experience. The cities also share best practices around grant writing for EV charging stations with local businesses, and once a grant has been successful, the other entities in the cities are able to use it as a template to increase overall funding for the region.

It is also important to engage mayors and city council leadership, as they can influence city council policy and are prominent advocates for engaging local businesses. DENC also established a relationship with the city manager in Fort Collins, who plays a role similar to the mayor.

Colorado Energy Office

Engaging with the Colorado Energy Office has given DENC a voice in state policy, influence in the deployment of EV charging infrastructure, and the ability to develop business partnerships outside of northern Colorado. Colorado has an existing Colorado Energy Office that helps develop and promote statewide EV policies and incentives.



Example of Ride and Drive Poster

Infrastructure Providers

DENC's partnerships with charging infrastructure providers have been important for several reasons, including determining the level of public infrastructure needed to mitigate concerns over battery range, understanding the cost of infrastructure development, and identifying potential funding sources. Infrastructure providers have also provided recommendations for locating strategic charging station installation locations. One charging station manufacurer, for instance, led an initiative to install two DC fast chargers in Fort Collins and Loveland, and collaboratively hosted a public launch event with DENC.

Institutes of Higher Learning

Educational institutions have also been helpful program partners. Colorado State University (CSU), for example, provides DENC with considerable

analytical and technical support. As a large and distinguished employer in the region, CSU has also utilized DENC workplace programs such as Ride and Drives, extended test drives and workplace charging. CSU also provides much of the volunteer and intern support that plays an increasingly important role in assisting DENC with developing case studies, writing grants and conducting programmatic research.

CSU has established DENC as a central part of its aggressive environmental sustainability goals, and long-term Climate Action Plan, and has thus been a committed partner in the project. As part of this involvement, CSU has undertaken several EV research and development initiatives including engineering programs where students design and build plug-in electric vehicles through the national EcoCar competition. CSU has also established a fleet electrification goal and has already integrated a small fleet of GemCars—low speed, energy efficient street certified vehicles, –several Nissan LEAF EVs for campus use, and a Chevrolet Volt. CSU has also installed more than 18 charging stations on campus—free for students and staff—and has played a central role in educating the community about the benefits of workplace charging.

Business Community

Local businesses are vital to DENC efforts as they provide the most effective way to reach a large number of people with EV education, Ride and Drives, extended test drives and workplace charging infrastructure. Some initial DENC business supporters included New Belgium Brewing Company, Odell Brewing Company, and Hewlett-Packard, all of whom helped validate the DENC program in its early stages and have continued to do so throughout the program.

DENC's business partners vary in their level of engagement with the program, so DENC invests significant time in ongoing partnership development with each company. When DENC encounters companies that are difficult to solidify partnerships with, it emphasizes the benefits of EV partnerships and programs including:

- Providing a strong employee benefit because EVs save employees money, especially when free workplace charging is offered;
- Creating positive press for the company; and
- Recruiting and retaining staff by demonstrating that the company adopts cutting-edge technologies and embraces environmental sustainability.

Lessons Learned

Organizing the Steering Committee

While the initial intention to organize DENC around a yearly plan proved effective, DENC soon learned that it was important to also break this plan down into monthly and quarterly segments to encourage stakeholders to meet milestone deadlines and chart progress toward the overall goal.

DENC also learned that scheduling bi-weekly 'all-hands' meetings helped both committee members and DENC staff execute their commitments. DENC established separate meetings to focus on specific program areas that required expertise and/or a disproportionate time commitment, like charging infrastructure deployment and marketing.

In addition, DENC established a quarterly in-person meeting with stakeholders to track the progress of the various initiatives and to re-align priorities for the approaching quarter when necessary. These meetings are often followed by a networking component because stakeholders see this as a benefit of participating in the meetings.

Understanding Utility Type before Developing Partnership

There are several types of electrical utilities around the country including investor-owned, municipal, and electricity cooperatives. DENC cities have two municipal utilities that obtain their power from Platte River Power Authority, which also supplies power to several other cities. One benefit DENC has encountered in working with a municipal utility is the ability to directly integrate the utility's expertise into the stakeholder group, which provides the opportunity to link other city services and/or leadership and direction.

Engaging Industry-Specific Businesses

Perhaps not surprisingly, technology businesses have been the fastest to recognize the benefits of participation in EV programs like Fleet Transition, Ride and Drives, and deploying workplace charging

infrastructure, while many small businesses have also been early adopters. Mid-sized and non-high-tech businesses have taken more time to develop EV partnerships, as they generally have lengthier approval processes. A hospital, for example, might see value in participating in EV programs because the effectiveness of the organization depends on the health of the environment, but because the hospital board may have several more pressing priorities, integrating EV programs might take longer to get approved, if they do at all.

Ride and Drives

A Ride and Drive is a planned test drive event, in which potential consumers can experience multiple EVs at one location and learn about specific vehicles from current owners. These events play an important role in seeding the local market for EV adoption and, ultimately, can increase EV sales. DENC has found that after people get behind the wheel of an EV, they often share their experience with friends and serve as third-party validators for EV adoption. DENC's first-hand experience with consumer engagement reinforces a growing body of national marketing data that shows Ride and Drives are among the most effective methods for selling EVs.

DENC uses four different types of Ride and Drives to promote EV adoption, with each event type targeting a different group of participants:

- Public Ride and Drives in conjunction with major public events like festivals, fairs and community days
- Workplace Ride and Drives hosted by a local employer
- Neighborhood Ride and Drives hosted at an EV owner's home
- Drive Leadership extended test drives for community leaders and business executives.

Component Aspects

Accelerator projects should develop standard policies and procedures for the identification and execution of Ride and Drive events. It is important to maintain a steady flow of Ride and Drives over time, so the organization should start scheduling these events well in advance. It should set a goal for the number of Ride and Drives it wants to hold each year and then identify upcoming public fairs and festivals, talk with EV Enthusiasts, and meet with local company executives to determine host locations. These should then be ranked from most to least desirable based on test drive participation potential, and the events should be prioritized in that order.

The accelerator community organization should communicate regularly with its dealership partners to make sure they know about upcoming Ride and Drives and secure the number of vehicles that will be needed. It should then follow up a 3-4 days before each event to coordinate on whether the cars will be picked up by program volunteers or delivered by dealership staff. It is often easier for DENC if dealerships to have dealership staff bring them to the event. It is also important to ensure the dealerships have the appropriate license plates on the vehicles before the leave the dealership lot.

Marketing partners should also be identified, especially with public Ride and Drives, as these partners will help spread the word about the event. In pre-event promotion and on the day of the event, the organization should strive to market all EVs equally, which will give each OEM and dealership maximum exposure, and provide an unbiased experience for event attendees. It should also encourage people to test drive as many EVs as possible at the event to ensure the user experience is varied and not based on a single EV type.

Volunteers are essential to the success of Ride and Drives and oftentimes come from three main sources: EV Enthusiasts, university students, and dealership staff. Dealership staff can be expected to spend most of their time near their vehicles, enabling the EVEs or university students to staff the sign-in booth or escort guests to vehicles. EVEs should be paired with the vehicles they own whenever possible, as they are in the best position to answer questions about that vehicle model. EVEs should be provided with message training and a fact sheet about their specific vehicle and EV ownership in general.

Public Ride and Drives

Public Ride and Drives give prospective EV owners an opportunity to test drive multiple EVs in conjunction with local events, like fairs, festivals, or community days. Event staff are often eager to coordinate these Ride and Drives with the accelerator community, as the opportunity to test drive EVs is seen as contributing to the overall festival or fair experience for the attendees. Some of the most successful Ride and Drives for DENC have been at environment-themed events like Earth Day or sustainability fairs, which attract large numbers of engaged citizens who are already looking for ways to make environmentally friendly lifestyle choices.

Public Ride and Drive events also promote the visibility of the accelerator project to the community at large and provide a unique opportunity for dealerships to gather important information about consumer attitudes and behaviors towards EVs.

Northern Colorado's annual Sustainable Living Fair is a good example of how DENC leveraged a successful partnership between a major festival and a Public Ride and Drive event. More than 10,000 people attend this event every year, and for the last three years, DENC has been chosen to provide EV transportation for the mile-long journey between the parking lot and the fairground. Ride and Drive advertisements are integrated into event materials, and DENC gives presentations to guests on the benefits of EV ownership at two highly visible DENC tents.

Workplace Ride and Drives

Workplace Ride and Drives provide opportunities for employees of local companies to test drive EVs where they work, in a convenient time such as a lunch break. These events are uniquely impactful because they can offer the organization the chance to talk with company executives and fleet managers about other priorities like installing workplace charging stations and transitioning their fleet to EVs. Dealership staff are also usually eager to participate because these events provide access to captive corporate audiences that they might not be able to

partner with on their own. Employers often treat these events as a way to support employee recruitment and retention, as well as to demonstrate their leadership as an innovative employer.

DENC has found high-tech companies and utility key accounts to be the most receptive to hosting workplace Ride and Drives. If an accelerator organization finds it difficult to partner with companies, EVEs that work at these locations and can be very helpful in making introductions and helping to schedule the events. Workplaces should be encouraged to provide lunch at events, as this incentive offers an opportunity for the organization to give a short educational seminar about EV ownership to everyone attending.
Prior to the Ride and Drive, the organization should recruit a company executive to take an extended test drive (explained in more detail below). Parking the vehicle in front of the office for a few days before the event builds interest and encourages participation in the upcoming Ride and Drive.

Workplace Ride and Drives are easier to market than other types of events because companies already have an effective system in place for connecting with their employees. When necessary, DENC works with individual companies to develop their marketing plans for the events, which can include hanging posters throughout the office and sending direct email advertisements to every staff member.

DENC organizes the Ride and Drive aspects of the event by providing the vehicles, volunteers, and staff, as with the other types of Ride and Drives.

These events are very effective due to their small size and intimate atmosphere. Attendees generally stay much longer at these events than at other Ride and Drives and are more likely to test drive all of the vehicles, rather than just a few. To increase the number of attendees the host and DENC work together to send direct mail invitations (an example of which is included above) that also helps build brand identity for the program and the vehicles. Costs for direct mail advertisements vary, but generally a $200 investment can reach as many as 1,000 people.

Neighborhood Ride and Drive invitation

Neighborhood Ride and Drives

Neighborhood Ride and Drive events are generally hosted at the home of an EV Enthusiast, enabling a more relaxed and informal event atmosphere. The host is responsible for promoting the event within their network and organizing a fun, neighborhood event by providing refreshments, barbeque, or other elements to attract friends, family and neighbors.

DENC Event Selection Criteria

Tier One (100+ Ride and Drive participants)

- Lead time of 3+ months for planning purposes
- Built-in audience of 600+
- Confirmations for event: 150-200 confirmations
- Pre-established promotion plan with partner organization including but not limited to:
  - Reach of 20,000+ people (public events, or entire employee base for workplace Ride and Drives)
  - Drive Leadership agreement with marketing department and/or executives
  - Direct-to-consumer marketing (mail out, email marketing, announcing at staff meetings, etc.)
  - Promotion begins 3 months prior
- High profile location
  - Front of building
  - Large visible parking lot
  - Ability to line up cars in plain view of target audience

Tier Two (50-100 Ride and Drive participants)

- Lead-time of 2+ months for planning purposes
- Built-in audience of 100+
  - Employee base of 200+ (workplace-specific)
- Confirmations: 50-100
- Pre-established promotion plan with partner organization including but not limited to:
  - Reach of 5,000+ people
  - Drive Leadership agreement with marketing department and/or executives
  - Direct-to-consumer marketing (mail out, email marketing, etc.)
- High profile location
  - Front of building
  - Large visible parking lot
  - Ability to line up cars in plain view of target audience

Tier Three (20-50 Ride and Drive participants)

- Lead-time of 3+ weeks for planning purposes
- Built-in audience of 20-50
- Pre-established promotion plan with partner organization including but not limited to:
  - Reach of 800-1,000 people
  - Direct-to-consumer marketing (mail out, email marketing, etc.)
- High profile location
  - Front of building
  - Large visible parking lot
  - Ability to line up cars in plain view of target audience

Drive Leadership Extended Test Drives

Drive Leadership extended test drives provide local leaders and business executives with an opportunity to experience "owning" an EV for several days. These test drives are an effective way to promote upcoming public, workplace or neighborhood Ride and Drives, and to turn trusted community leaders into third-party validators of the technology.

DENC's Approach

DENC has found that the number of test drive participants that indicate they are "likely" or "very likely" to purchase an EV increases by 17 percent after test driving an EV. Since 85 percent of DENC test drive participants have never driven an EV before visiting a Ride and Drive, these experiences present unique opportunities for DENC to shape general impressions about EV technology.

Organizing and Scheduling a Standard Ride and Drive

DENC has developed a detailed process for identifying and scheduling events. Each month, DENC staff compiles a list of fairs, festivals and community days occurring in northern Colorado and researches potential workplace and neighborhood events. These opportunities are then ranked in three tiers based on which events will result in the largest number of potential test drives (event selection criteria included at the left). This prioritization is important, given DENC's limited time and resources.

DENC's goal is to hold roughly 18 Ride and Drive events per year, which includes five Tier 1 events with 100-200 expected test drives each. These large engagements are then used to benchmark attendance goals for Tier 2 and Tier 3 events.

Planning and Marketing

DENC relies on co-marketing agreements with partners to increase Ride and Drive attendance These arrangements amplify DENC's reach beyond its limited advertising budget. DENC generally engages these marketing partners before an event date is finalized in order to confirm their ability to assist with proportion.

Others

Marketing efforts for Drive Leadership events or others are less intensive than for standard Ride and Drive events but generally require more press and media promotion to be effective. When the mayor of Fort Collins completed an extended EV test drive through DENC's Drive Leadership Initiative, for example, he wrote an article in the local business magazine to describe his experience. Similarly, the Fort Collins city manager sent an email to 2,000 city employees about his experience, which included a short video. Non-test-drives such as educational tabling events at public festivals will typically piggyback on the marketing campaigns of those events.

Event Execution Process

Ride and Drives

DENC works closely with the local dealerships when planning and executing Ride and Drives, and sends each dealership partner a monthly email to remind them of upcoming events and the number of EVs that will be required. Dealerships are generally eager to provide these vehicles because of the marketing value that they receive from participating in the events.

Dealerships that consistently provide staff to Ride and Drive events convert event leads into sales at a higher rate than dealerships that participate staff less frequently. Nissan and BMW, for example, have even integrated DENC events into their overall marketing efforts, and Loveland's BMW dealership, Co's BMW, estimated that nearly 30 percent of its 2015 i3 sales resulted from leads generated through participation in DENC Ride and Drive events.

Day-of Event Procedure

Trained volunteers are critical to the success of Ride and Drives, and DENC uses two approaches for training them. The first is an annual volunteer orientation dinner, where DENC reviews the important aspects of Ride and Drives. The second of training is provided to new volunteers during a pre-event orientation one hour before the event. In all cases, DENC provides fact sheets to the volunteers about the vehicles to prepare them to answer questions from attendees.

A streamlined, digital sign-in process is important for Ride and Drives because it helps create a professional

first impression, is an easy process for volunteers to manage, and takes less time for attendees to register, which maximizes the number of test drives. There are several pieces of information that DENC collects from Ride and Drive participants on the sign-in form including their name, e-mail address, phone number, driver's license number, insurance carrier, and signature on a waiver form. DENC has also created a ten question survey that drivers are asked to complete before and after the test drive to measure changes in their perceptions of EVs. To streamline the sign-in process, DENC uses an application called "iCapture," which is a digital survey software that enables information to be entered and compiled without a wireless Internet connection.

Lessons Learned

Participant Follow-Up

Ride and Drives are most effective in promoting EV adoption when there is a systematic process in place to follow up with the participants, as these events are important lead generators for potential customers. DENC has developed a way to follow up with attendees while protecting their privacy and is currently developing a system to track the sales that result from these leads. This system should ensure that attendees provide enough information about themselves at the events. For example, nearly 20 percent of DENC Ride and Drive participants do not provide email addresses unless they are required to do so.

Engage Dealerships

Because DENC has a small staff, time and resources are often limited. DENC has learned to effectively leverage the efforts of dealerships who are eager to support Ride and Drives. This has saved DENC a substantial amount of time in recruiting additional volunteers and transporting vehicles to and from events.

Plan for Increased Event Demand

As DENC has become more established in the community, there has been an increased demand to host Ride and Drive events. This has the potential to increase pressure on an accelerator community's limited resources, particularly if staff time needs to be divided between administering multiple events. Priority should, therefore, be given to Ride and Drive events that maximize the number of test drives, even if this sometimes means declining opportunities to organize more intimate gatherings. DENC's event selection criteria, included in this report on page 25, will help organizations select high attendance events.

Optimize Host Locations

DENC has found that events at locations like shopping centers and health food stores are not as effective as other locations such as festivals, schools, employers, or neighborhood events. While there are generally significant built-in audiences at shopping centers, these consumers are not aware of the test drive before arriving at the location and as a result, are less likely to take the time to test drive when they had planned alternative activities for their time. DENC's most successful events are in a location where attendees are either aware of the Ride and Drive before arriving at the event, are in a position to spend time on an activity they had not planned, or need to test drive the EVs as part of a shuttle system for an event.

One of DENC's most successful annual events feautres an EV test drive as the shuttle system to a local sustainability festival from the parking lot. Attendees are overwhelmingly excited about driving themselves in a private shuttle to the festival, and from DENC's perspective, this provides a captive audience that already demonstrates an interest in EVs due to their attendance at an environmental sustainability festival. DENC has since replicated this shuttle concept for Comic-Con festivals and technology festivals.

Streamline Sign-in Processes

DENC has learned that an integrated digital sign-in process is much more efficient, and registration tables are now equipped with three tablet devices that let participants complete the entire process on one, seamless form. This process now takes attendees less than five minutes to complete, and has contributed to significantly higher test drive numbers versus DENC's prior paper-based system

Understand Local Regulations

DENC learned about local and state regulations regarding the use of dealership vehicles in order to be successful with its events. For example, Colorado dealership license plates, those used on EVs supplied by DENC's dealership partners, are not valid on

Sundays, so Ride and Drive events are generally restricted on these days.

Enforce PMAs, or Vehicle Marketing Districts

When coordinating with multiple cities, it is important to be aware of the marketing boundaries, or Primary Marketing Areas (PMAs) that are assigned to each dealership. PMAs are geographic boundaries where each OEM's dealerships can legally market their vehicles. They are designed to minimize conflict between dealerships regarding marketing territories. Early in the program DENC learned each OEM's PMAs in order to minimize potential conflict with other area dealerships. Once DENC understood the specific PMA boundaries, the organization became very careful not to invite dealerships outside its PMA to attend events.

Communications and Outreach

A consistent communications strategy is important for accelerator community organizations to achieve public awareness. Salient messages that show how EVs save money, are fun to drive, reduce oil dependence, and lessen environmental impacts should be amplified and reflected in all marketing materials and activities. Accelerator community organizations should actively seek out new opportunities to project positive themes about EV use and ownership.

Component Aspects

To create a robust community-wide understanding of EVs, accelerator communities must develop an outreach, education, and marketing strategy that is underpinned by a consistent set of messages. People have different reasons for driving electric vehicles, and accelerator projects should promote all of them.

Outreach education and marketing should utilize a wide range of media to reach as many consumers as possible. These can include events like Ride and Drives, earned and paid radio, print, television, and online advertising, blogs, websites, newsletters, direct mail, and social media. The organization should work with its partners and stakeholders to maximize these efforts. Cities, utilities, OEMs, and dealerships, for example, have large distribution lists that can be very helpful in connecting with the broader community.

In addition to establishing an internally consistent marketing strategy, accelerator communities should also develop a system for organizing its partners. This could include sending a monthly email to these stakeholders and choosing quarterly themes around which they can coordinate their marketing efforts.

The organization should also develop ways to systematically track outreach, education, and

marketing data and metrics to measure the scale and effectiveness of its marketing campaigns on an individual and aggregate level. This will help generate data that can be used to convince potential partners to join or existing partners to become more engaged in the mission.

DENC's Approach

Develop Consistent Messages

DENC has developed four basic themes that flow through all of its marketing and communications efforts: (i) EVs save drivers money; (ii) EVs help reduce oil dependence and strengthen U.S. national security; (iii) EVs reduce environmental impacts; and (iv) EVs are fun to drive—they are quiet, handle well, and have exceptional performance.

Develop Program-Specific Outreach Channels

In order to increase brand recognition, DENC has developed a system for community and stakeholder outreach that includes a bi-weekly public newsletter, a regularly updated blog, and daily social media postings. The newsletter and blog posts are sent on alternating weeks and include information on dealership pricing, upcoming events, EV news and information on recent business partnerships and engagements.

An Example of a DENC Quarterly Campaign

This is a useful way for DENC to engage its growing number of Ride and Drive participants, and to reinforce its core messages, among other priorities. It also provides opportunities to give recognition to business partners, volunteers and other stakeholders.

DENC has found that different media connect well with different demographics. For example, the demographic of DENC's Facebook followers is largely males ages 25-50, while blog followers tend to be more diverse. Analyzing the audience for each medium has enabled DENC to extend and target its reach within the community.

Develop Program Components

DENC began with fleet education and advocacy, workplace education, Ride and Drive events, and broad consumer education. DENC developed additional program elements like the Workplace Charging Challenge and the Drive Leadership extended test drives in the second year to connect with additional audiences. DENC also has created one-page outreach materials and web pages for each program element to explain these initiatives and educate the public and potential partners.

Work with Partners

DENC has focused on engaging and maintaining a wide array of program partners. They are invited to monthly meetings, are given opportunities for local networking, and their EV adoption accomplishments are highlighted in the community. These partners help DENC amplify its message, and the organization regularly engages them about their priorities and how to best coordinate marketing plans when applicable.

Radio stations, for example, will often provide DENC with discounts, as it is a non-profit organization working closely with some of the station's biggest customers such as car dealerships. Dealerships budgets can also be leveraged to promote Ride and Drive events. While DENC is the prime promotor for the event, the extra mention in dealership radio spots helps reach more potential participants.

DENC's partners also send out direct mail on its behalf. The City of Loveland, for example, sent out a brochure highlighting the organization to 36,000 people, while a local sanitation company sent out a DENC video to their list of 40,000 customers.

DENC works with co-marketers whenever possible. When DENC hosted an event with the Fort Collins Downtown Business Association (DBA), for example, the DBA invited clients, customers, and community members to the event by releasing a press release and promoting through its website and social media. The EV Enthusiasts also write letters to the editor in local papers promoting events and other positive EV messages.

One way that DENC encourages its partners to become more committed to the program is to make sure they are recognized for their EV efforts. DENC has also found that the more its partners are recognized, the more other organizations wanted to participate.

Communicate with Core Partners

DENC regularly communicates with partners and stakeholders in order to maximize its effectiveness. Because many of these groups are large organizations with limited time, DENC condenses all of its program updates and requests into a single monthly email. These updates are graphically rich and can include sample social media posts as well as information on any quarterly campaigns DENC might be organizing.

Quarterly Campaigns

In the third year of the program DENC began narrowing its outreach and education program to focus on one EV education topic per quarter. This was an effort to focus partner and stakeholder energies, as partners found it more effective to collectively promote one message over the course of several months, through as many channels as possible. Once a partner agrees to participate in a quarterly campaign, DENC obtains a written commitment of their activities and follows up regularly to check progress.

DENC creates a custom toolkit to support each quarterly campaign because specific messaging and collateral is crucial for success. This toolkit includes visual aids like posters and digital image files, sample social media posts, sample email and newsletter content and sample letters to the editor.

Track Outreach, Education, and Marketing

DENC has developed a system to track the effectiveness of its outreach, education and marketing initiatives on both an individual and aggregate levels. DENC tracks the number of ads and direct mail pieces that have been purchased and matches these against the number of people who attend Ride and Drives and the number of EVs that are ultimately purchased or leased in the region. DENC also has a question on its consumer perception surveys to identify where attendees learned about the event. This tracking enables DENC to understand which marketing programs are working and which are not, allowing it to better deploy its limited resources.

Lessons Learned

Understand the Audience and Tailor Messaging

Depending on the demographic makeup of an event, DENC will tailor the messaging for how EVs benefit the attendees. For example, some audiences may connect more with the message that EVs reduce U.S. dependence on oil and enhance national security. In contrast, for Earth Day events or sustainability festivals, DENC emphasizes the environmental benefits of EVs instead.

An Example Social Media Post for Partner Outreach

DENC provides its partners with message training including hand-outs so that they can effectively market DENC activities to multiple audiences. When discussing the proliferation of charging stations, for example, partners are trained to talk less about battery range and perceived range anxiety, and more about how EV drivers are never farther than six miles away from a charging station in northern Colorado.

Collateral and Educational Materials are Important

Relevant and consistent collateral is important to DENC's success. It is also critical to ensure that there are always enough available materials for events and outreach opportunities. Vehicles are by far DENC's most effective props because they provide an interactive way to educate potential consumers about EVs and showcase the the viability of the vehicles.

HOW CAN INDIVIDUALS GET INVOLVED?

- Find out how much you can save driving electric by visiting DriveElectricNoco.Org/Drive-Electric-Cost-Comparison.
- Visit a DENC Ride and Drive event; more details at DriveElectricNoco.org/Upcoming-Events.
- Volunteer with the DENC team.
- Spread the word—find DENC on Facebook, Twitter, and LinkedIn.

HOW CAN BUSINESSES GET INVOLVED?

- Host a Ride and Drive event at your workplace for your colleagues and employees.
- Join the Northern Colorado Workplace Charging Challenge, in which dozens of companies across Northern Colorado are offering EV charging at the workplace.
- Participate in Drive Leadership, an extended test drive experience for community leaders.
- Share your experience through your company's Facebook, Twitter, and LinkedIn.
- Have another idea? Give us a call so we can find an EV event that works for you.

CONTACT DENC

DriveElectricNoCo.org

info@driveelectricnoco.org or (970) 987-3055.

@DriveElectricNoCo

@facebook.com/DriveElectricNoCo

WHERE DO PEV DRIVERS CHARGE?

Studies show that as much as 90% of charging takes place at home or at work. However, with more than 24 chargers in the region and even more planned, Northern Coloradoans are never more than 6 miles from a public charging station, meeting and exceeding the average EV owner's charging needs.

Below is a map of the region that shows the increasing number of chargers available

DENC CORE PARTNERS AND SUPPORTERS

City of Loveland

City of Fort Collins

Colorado State University

Colorado Clean Energy Cluster

Clean Cities

PARTICIPATING DEALERSHIPS

Co's BMW Center

Dellenbach Motors

Davidson Gebhardt Chevrolet

Tynan's

Fort Collins Mitsubishi

Spradley Barr Ford

FT. COLLINS • COLORADO

www.spradleybarr.com

DRIVE electric

NORTHERN COLORADO

Let's Charge our Community

DriveElectricNoCo.org

AN INITIATIVE OF THE Electrification Coalition

DENC's Program Brochure

Utilize EV Enthusiasts (EVEs) Effectively

EVEs are great assets but sometimes know so much about the vehicles that they focus too heavily on technical aspects rather than messages designed to persuade potential customers to drive electric. DENC has learned to provide EVEs with training on its four main messages, listed above under "Develop Consistent Messages," to optimize their effectiveness.

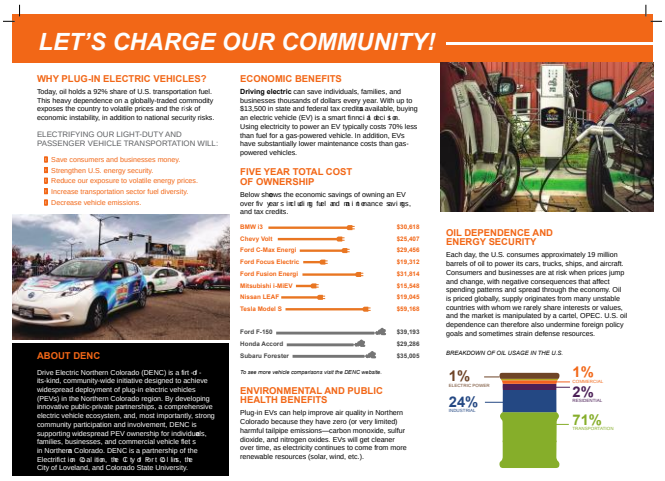
Engaging Dealerships

EV customers at dealerships often report lower levels of satisfaction with their salespeople than those purchasing conventional vehicles. One reason for this is that EVs are a new product for many dealerships, and their salespeople may not yet be knowledgeable about them. It is also possible that the salesperson is not as motivated to sell EVs, as the vehicles may have lower gross margins and require less ongoing maintenance—areas in which dealerships have traditionally made most of their profits.

DENC offers EV sales training for dealership staff and provides educational materials to customers on site. Dealerships are also the primary source of vehicles for Ride and Drive events, where potential consumers can test drive these vehicles in an EV-focused environment.

Component Aspects

EV accelerator organizations must establish strong relationships with regional dealerships to be successful. The general manager or owner of a dealership is the most effective first point of contact, as this person will have direct authority over partnership development and will best understand the benefits of new partnerships.



Example of Materials for Dealerships

While most OEMs require dealership staff to have a basic level of training about EVs in order to sell the vehicles, salespeople will probably have limited knowledge about the EV ownership experience beyond vehicle functionality. Accelerator programs can offer valuable training to help sales staff fill this knowledge gap by providing them with information about topics like historical consumer charging patterns, the location of regional charging infrastructure and available tax incentives. Dealerships should also be encouraged to have their staff participate in DENC Ride and Drives, as this is a uniquely effective way for them to be trained on EVs while interacting with current owners and developing sales leads. Providing sales benefit to the dealerships through Ride and Drive leads and Group Buy sales programs is the most effective way to conitnue building the partnerships, as dealerships will see the strong financial benefit of engaging with a program like DENC.

Ride and Drives can also be useful branding opportunities for dealerships and can provide a forum to introduce their vehicles and expand their customer base. Accelerator projects should explain these benefits to the OEMs and encourage them to incentivize their dealerships and salespeople to participate.

Regular meetings should be held with dealerships to enlist their advice and expertise in both planning and executing the program. This will keep the dealerships informed and involved and will enhance their level of commitment to the effort. Dealership representatives should also be invited to monthly EV Enthusiast meetings to give them an opportunity to solicit feedback on the vehicles and build relationships with potential customers.

Vehicle Model	Type	MSRP-2014 Models-As low as**	Federal Credit	Estimated State Credit*	Estimated Cost After Credits
Mitsubishi i-MiEV	BEV	$22,995	$7,500	***$2,479***	***$13,016***
Nissan LEAF	BEV	$28,980	$7,500	***$5,155***	***$16,325***
Ford Focus Electric	PHEV	$29,170	$7,500	***$4,984***	***$16,686***
Ford C-max Energi	PHEV	$24,170	$4,007	***$1,532***	***$18,631***
Ford Fusion Energi	PHEV	$26,270	$4,007	***$1,692***	***$20,571***
Chevy Volt	PHEV	$34,185	$7,500	***$4,270***	***$22,415***
Toyota Prius Plug in	PHEV	$29,990	$2,500	***$1,210***	***$26,280***
BMW i3	BEV	$41,350	$7,500	***$6,000***	***$27,850***
Tesla Model S	BEV	$69,000	$7,500	***$6,000***	***$55,500***
Cadillac ELR	PHEV	$75,000	$7,500	***$6,000***	***$61,500***

Sample overview of tax benefits for Colorado EV purchases: an educational resource provided to dealerships by DENC to increase effectiveness at EV sales.

DENC's Approach

Recruiting Dealerships

DENC has found that an effective way to engage dealerships is to explain how the organization helps increase EV sales. By enabling dealerships to understand the financial benefits of increasing EV sales, DENC is able to establish partnerships with a wide variety of dealerships so that consumers have a diverse selection of EV models to choose from in their area. Partnerships have also been developed with dealerships that do not stock EVs so that these relationships are in place when the vehicles eventually arrive. Some partnerships move faster than others, so DENC promotes the successes of dealerships already in the program to encourage others to participate.

If a dealership's OEM has not already required it to have charging infrastructure as a precondition for selling EVs, DENC will encourage the dealership to install a station as a means to regularly interact with EV owners about their cars and to take a leadership role in the community. DENC also leverages dealerships for introductions to local business leaders and reciprocates where possible by inviting dealerships to stakeholder meetings.

Invitation to Workplace Charging Seminar

Why Do Dealerships Get Involved?

Most dealerships are excited to partner with DENC because the program brings sales leads from its events and other promotional tactics, and potential EV buyers are often first-time customers. Brand and dealership loyalty is very important in the automobile industry, so getting new buyers in the door is crucial to the business model.[5]

Dealerships who partner with DENC can also provide input on the program's initiatives like Ride and Drives, policy and incentive proposals, and public infrastructure strategies. They also receive positive public relations from their involvement, as DENC aggressively promotes its initiatives and events over both social media and traditional media like radio and television. DENC also publicizes the latest OEM and dealership incentives and price changes over these channels on a monthly basis.

DENC Provides Collateral to the Dealerships to Increase Sales

EVs are still a relatively small portion of inventory at most dealerships, so salespeople are often focused on selling non-EV models. The more EVs a dealership sells, the more inventory space will be allocated to them, and the higher priority staff will place on selling them.

One way that DENC is helping to drive this circle is by creating materials about EVs the dealerships can provide to customers. DENC has developed several pieces of collateral for this purpose, including information on EV tax credits, maps of regional charging stations, information about EV Enthusiast groups and general DENC program brochures. Information on tax credits is especially important because dealerships are often hesitant to provide tax details themselves for liability reasons, and a third party provides an easy way to give this data to potential customers. Because these materials have the DENC brand and logo, they also provide outside validation of the dealer's interaction with customers.

Dealership Assistance with Ride and Drives

Dealership participation is critical to the success of Ride and Drives, because they provide demonstration vehicles and often provide sales staff to act as co-pilots for the test drives. It is typically easy for dealerships to provide vehicles, as most already have a system to facilitate test drives that include insurance and license plates for test drives.

Dealership Assistance in Marketing

Dealerships also provide assistance with marketing, primarily through co-branding opportunities at DENC's Ride and Drive events featuring their vehicles. Dealerships may also be title sponsors and third-party validators at specific events where DENC may not have a pre-existing connection.

One of the strongest examples of this collaboration has been the donation of a co-branded EV to DENC by a local dealership. This vehicle is used for extended test drives and business meetings, displayed at high-traffic points around northern

[5] Source: Source: IHS Global Research, Country and Industry Forecasting "IHS Automotive Analyses Loyalty Trends in US Market," The National Academies Press, 2014. http://www.ihsglobalinsight.com/SDA/SDADetail23311.htm

Colorado and showcased at Ride and Drive events. It has become a recognized billboard for both DENC and the dealership throughout the region.

Dealerships and the Local Business Community

Dealerships can provide introductions to members of the local business community, as several dealerships have fleet programs that target large employers. These connections have helped DENC prioritize which companies to target for workplace Ride and Drives and potential charging installations.

Dealerships and Workplace Charging

Dealerships can take a leadership role by offering workplace charging at their own locations. This encourages employees to buy EVs themselves and can make the dealership a regular stop for commuters. Many OEMs require that dealerships install charging stations on premises before they begin selling EVs, so in these cases, the infrastructure is already available. Besides creating excellent public relations, this can be a way for dealerships to demonstrate their interest in and commitment to EVs.

Dealerships and Creative Marketing

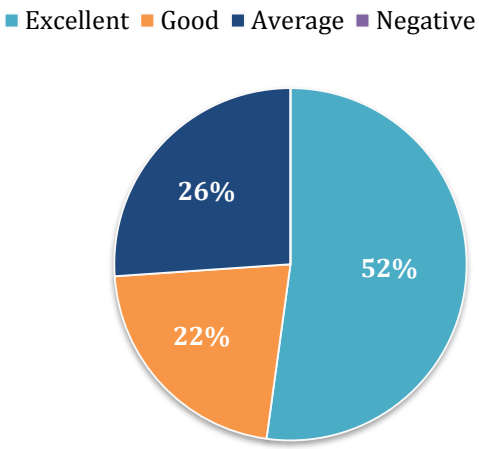
DENC has earned a high level of confidence and trust from OEMs and dealerships regarding program's impact on brand marketing and sales. Consequently, DENC has had the opportunity to work with these groups on several creative marketing campaigns to test the effectiveness of various messages and tactics. One example was the 2015 Group Buy initiative, in which DENC worked with Nissan North America and the local Nissan dealership to pre-negotiate a price for the LEAF EV.

DENC took the lead in marketing the LEAF to the general public at a price that reflected all of the available tax credits and OEM/dealership incentives. This tactic was very effective at driving sales of not only the LEAF, but of other EV models,and resulted in EV sales eight times higher than normal EV sales in the region during the program. The success of the LEAF Group Buy attracted the interest of other dealerships, and BMW also launched a Group Buy for the i3 shortly after Nissan's program.

Challenges

Inventory Levels and the OEMs

In order to increase EV adoption in an area, local dealerships have to carry a sufficient number and variety of vehicles. Dealerships only have limited space on their lots, and because they operate in a volume-based, low-margin business, the cars that sell most quickly are the ones that occupy the largest portion of that space.



74% of participants in the DENC Group Buy rated their experience with the dealership as "Excellent" or "Good." No respondents rated a "Negative" experience.

OEMs are responsible for allocating EV inventory to various dealerships across the country, and DENC has established relationships with these OEMs to ensure that northern Colorado is a priority for receiving this inventory. This kind of advocacy is necessary because OEMs are required to sell a minimum number of EVs in states like California that have approved a Zero Emission Vehicle (ZEV) mandate. Colorado does not have a ZEV mandate, so without advocacy like DENC's Colorado would not normally be among the first states to receive EV inventory.

The OEMs can also provide incentives for dealerships to sell or donate vehicles. They can do this directly through cash back or financing offers, or by creating incentives that make it economical for dealerships to provide demonstration vehicles to organizations like DENC. This latter option is important, as a vehicle's value depreciates each time it is used at a Ride and

Drive, thus disincentivizing dealerships to loan vehicles to DENC for EV Ride and Drives and other test drive events.

Long-Term Profitability of EVs

One potential concern that could arise for a program like DENC is that long-term margins for dealerships may be lower for EVs than for traditional internal combustion engine (ICE) vehicles. Dealerships have traditionally made the vast majority of their income from parts and servicing, and EVs do not need the same level of ongoing maintenance as conventional vehicles because they have fewer moving parts. Though DENC has not yet seen this emerge as a deterrent, organizations should stay vigilant to ensure the reliance on parts and servicing sales do not become a reason for dealerships to forego EV sales. DENC has found that programs such as the Group Buy, which provide a strong upfront financial benefit to the dealership, will minimize concerns related to long-term profitability.

Keeping up with Price Changes

Prices, OEM incentives, and available deals can change on a monthly basis for EVs, as they do for all vehicles. This can be especially confusing because while the manufacturer's suggested retail price (MSRP) may stay roughly the same, changes in financing costs and other incentives can have a big impact on the overall price consumers pay for the vehicle. DENC holds monthly meetings with each local dealership in order to get the latest information on deals and inventory, and then promotes this pricing through the website and social media. While dealerships are generally forthcoming with this information, they are often inconsistent about providing it without reminders from DENC.

Obtaining Data

DENC must take a proactive role in obtaining other kinds of regular information, like sales data, from dealerships. As EVs often only account for a small portion of dealer inventory, managers may not make providing this data a high priority. In response, DENC is developing a simple online mechanism where dealerships can provide these updates effortlessly.

DENC is also working to establish a system with OEMs to improve the transfer of information about the various EV sales strategies they are employing throughout the country, and which ones are effective. This is information that can be leveraged in northern Colorado and in future accelerator communities to increase sales.

Lessons Learned

Enabling Dealership Branding at Events

DENC was initially hesitant to allow dealerships to showcase their branding at Ride and Drives because of concerns that DENC would not appear impartial. It was quickly realized, however, that allowing sales staff to display signs and hand out collateral at these events does not compromise DENC's neutrality and provides dealerships with a feeling that these events are valuable. DENC has continued to evaluate the best ways to help motivate dealerships to participate in Ride and Drives while retaining its vendor-agnostic mission.

Conclusion

The EV Accelerator Community approach to EV adoption addresses the understanding that in order to make EV adoption ubiquitous, EVs must first be deployed in large numbers in select geographic areas. Northern Colorado was the first Accelerator Community of the Electrification Coalition, and the program saw immense success. The region now has EV sales consistently three times higher than the U.S. national average, with many additional long-term benefits. The DENC model has also addressed many of the challenges that
are still experienced in other cities and regions across the U.S. regarding the sale of EVs, such as how to create motivated EV sales staff at dealerships.

By merging all components necessary for an EV ecosystem including local policy, charging infrastructure, consumer education, public-private partnerships, and others, DENC has created a model that can be replicated and scaled to other cities across the U.S. and internationally that are seeking to accelerate EV adoption.

Appendix

Case Study: Municipal Employee Education

City of Loveland, Colorado

As a core partner of DENC, the City of Loveland developed a year-long educational program to help city employees learn about and experience electric vehicles (EVs). In an effort to continue making DENC a replicable model for other communities, Loveland has compiled the following review of their employee education efforts.

For the City of Loveland, EVs are just one of the many ways we can be proactive, progressive, and innovative. This action has made the city a symbol of innovation for cities across North America. Loveland is proud to be a part of DENC, a partnership that continues to improve and influence the Loveland community.

In order for the City of Loveland to enhance its partnership in DENC, it is essential that the city offer opportunities for city staff to get involved with EV adoption. A primary consideration during the planning process of this dynamic effort was to consider the value of staff's time, prioritizing convenience and making the experience meaningful and impactful. Overall, this initiative involved multiple components that have helped create a successful and evolving employee engagement strategy as described below.

Ride-and-Drive Events

Throughout 2015, the City of Loveland organized several opportunities for city staff and residents to get behind the wheel of an EV. Hands-on experience with an EV is an important step in learning about the technology. Moreover, DENC's consumer perception research indicates that completing a test drive increases consumer consideration to purchase an EV.

In Loveland, getting behind the wheel has proven to be a valuable teaching tool that has led to increased EV adoption within our community and the City of Loveland workplace.

The marketing, outreach, and events team at the City of Loveland has organized Ride and Drives at each public and internal event where it was possible. Using the event selection criteria developed by DENC, the city assessed several factors to determine which events would be suitable for a Ride and Drive. These factors included anticipated attendance, projected target audience, estimated community involvement, proximity to a parking lot or private roadway to park vehicles, overall location, integration in relative existing events, as well as several other factors.

The city has hosted Ride and Drives at events including their annual Business Appreciation Breakfast, annual Earth Day Festival, annual Passport to Water and Power Open House, a local business grand opening, and many more.

Employee 10,000 Mile Challenge

In 2012 the City of Loveland began adding EVs to its fleet for a variety of applications. Currently, there are two Nissan LEAFs used as employee administrative pool cars. In an effort to continue educating employees about EVs, in 2015 the City instituted a challenge to achieve 10,000 miles driven in each of the Nissan LEAF pool cars. The challenge sets out to encourage employees to choose an EV before choosing an internal combustion engine vehicle. As a result, we saw increased EV usage that has tallied more than 2,000 additional miles driven in the first few months of the challenge.

To date, the total number of miles driven in the EV pool cars is 16,497 (9,948 miles in one LEAF and 6,549 miles driven in the other). The cost of driving EV pool cars can be estimated at just $395.93 spent in fuel costs for the lifetime of the vehicles or .02 cents per mile versus 14.6 cents per mile for a gasoline-powered vehicle that achieves fuel economy of 24 miles per gallon (at $3.50 per gallon). Using the current mileage total of the EV pool cars, Loveland is happy to report that we have saved more than $2,078.60 in fuel costs by choosing to drive electric.

EV Ambassadors

In 2015, Loveland selected 38 city employees from a variety of departments including Water and Power, the City Manager's Office, Public Works, Parks and Recreation, and the Library to fulfill the role of an EV ambassador. The ambassadors were selected based on a list that was created from our outlook calendar, which is the mechanism we use to "check out" the EVs. We have the ability to know who, where and how the vehicles were used and the destination of each vehicle. EV ambassadors are trained to be a resource for city employees, offering tips and suggestions on how to reserve and operate EV pool cars. Ambassadors were chosen for their influence and interest in using the EV pool cars.

Once selected, ambassadors received an orientation letter summarizing what it means to be an EV ambassador at the city and their role. The ambassadors also receive a sticker to put on their office door or cubicle to notify other employees that they were available to answer questions about EVs. These ambassadors were not only able to help extend the knowledge of EVs throughout the city employee-base, but were also empowered as individuals within the city to become a leader with the DENC initiative. We have used the ambassador list several times to communicate messages such as adding EV charging station activation cards to the key chains once accounts were created. Therefore, people would know that they could use these when they are traveling to other cities with charging stations. Also, it is a great way to get the "buzz" going in the office. Once the stickers were applied to ambassadors' office windows or cube walls, others that didn't have the sticker were asking how they could get one!

Drive Electric Challenge

The primary goal of this marketing effort was to provide city employees with an opportunity to learn about electric vehicles, encourage staff to use the plug-in fleet vehicles and attend a Ride and Drive or lunch-and-learn.

During this nine week outreach campaign, Loveland Water and Power (LWP) sent weekly e-mails to City of Loveland employees which contained different promotional material and educational opportunities. Throughout the weekly emails there were several

ways in which employees chose to participate and earn entries into a variety of prize drawings. Some of the entries were earned by doing things such as downloading the PlugShare App, completing a myth-buster survey, using the cost comparison calculator on the DENC webpage, attending events, driving the electric pool cars and even watching a how to use the charging station video that was made internally (with some help from our EV enthusiast leaders within the city). It was important to make participation easily accessible, timely, educational, and engaging.

This information was communicated to city employees via e-mail, the city intranet and print flyers. Each learning opportunity corresponded with a specific number of entries into the prize. The prize drawings included a five day free trial with the BMW i3, a variety of gift cards to help support local businesses, and a give-away basket from Loveland Water and Power and DENC. The city had more than 80 participants and approximately 350 total entries into the prize drawings. Overall, this effort was very successful in creating an environment for healthy competition and most importantly educating and encouraging city employees to become leaders in EV adoption.

EV Safety Training

In order to make the employee engagement strategy a holistic approach, the City of Loveland also decided to target new employees and begin to set the stage that Loveland is proactive, progressive, innovative and a leader in EV adoption. The goal of this outreach effort is to provide new City of Loveland employees with the information they need to integrate EVs into the daily work routine as soon as possible, and encourage them to use the pool EVs whenever and wherever they drive. After working with the City of Loveland Safety Coordinator and developing a PowerPoint presentation and one page hand-out, EVs are now integrated into the Safe Driving Course for all new employees. The Safe Driving Course is offered by Human Resources and teaches new employees how to properly use the pool cars, check them out and stay safe behind the wheel.

EV Driver of the Quarter

Coinciding with the 2015 Drive Electric Challenge, Loveland also created an award for city employees. City employees that take action, promote, and/or endorse the quarterly EV campaign have the opportunity to win an award and recognition. In 2016, an employee made it a point to participate in our drive electric challenge. This employee drove a significant amount of miles in the EV pool cars during the drive electric quarterly campaign and served as an EV advocate across the city. The city recognized this employee throughout all city departments and awarded them with a prize. The following year Loveland began awardeing employees during each of the quarterly campaigns. Upcoming DENC quarterly campaigns will be shared with city employees along with ways for them to participate, so employees can compete to win the EV Driver of the Quarter.

Opportunities for Improvement

During 2015 the DENC steering committee within the City of Loveland asked itself, “who are we missing, and why do some people not want to get involved?” Since then, Loveland has been making a large effort to reach out to gather feedback from employees that are not involved with EVs to get suggestions for improvement. This has strictly been a word-of-mouth effort. By taking the time to meet with those employees and gather feedback it has opened the door to assess addditional opportunities in the employee engagement strategy and make plans for improvements in the following years. For example, we asked employees who have never driven an EV to take the EV for a drive. We wanted to know what was clear and what was unclear in operating the vehicle, if they felt comfortable using it, and if they able to understand how the EV worked without a tutorial. In addition, we sought feedback on the ease (or lackthereof) of charging the EVs. This has helped the city increase the effectiveness of its education by providing each vehicle with simple print instructions for operating and charging.

Conclusion

The employee education campaign has demonstrated the value of EV education and engagement to the city. The City of Loveland is proud of our efforts to increase electric vehicle awareness and to get people behind the wheel of an EV. With the help of Drive Electric Northern Colorado, Loveland is excited to continue to build our partnership and make a difference in our community. For more information regarding the City of Loveland Employee Education

initiatives, please check out the toolkit provided below, which includes supplemental materials.

Toolkit Contents (Appendix)

- Ride-and-Drives
  - Sample Event Flyer
  - Link to Passport to Water and Power Promotional Video
- https://www.youtube.com/watch?v=WC9LfcJX1sE
- 10,000 Mile Challenge
  - Initial E-mail
  - Email Update
- EV ambassadors
  - EV Ambassador Welcome Handout
  - EV Ambassador badge
- Drive Electric Challenge
  - Drive Electric Challenge Flyer
  - Sample Email – Example 1
  - Sample Email- Example 2
  - How to Use Charging Station video
  - Myth Buster Survey
  - Challenge Results
- EV Safety Training
  - EV Safe Driving Presentation
  - EV Safety Training Handout

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 2
MEETING DATE: 10/18/2017
SUBMITTED BY: Joe Bernosky
STAFF TITLE: Director

ITEM TITLE:

3rd Quarter 2017 Goal Update Report

DESCRIPTION:

This is a quarterly review of our progress on our 2017 utility goals.

SUMMARY:

This item is to review the attached 2017 utility goals and the 3rd quarter goal updates.

RECOMMENDATION:

Review the presented information and approve the 2017 3rd Quarter 2017 Goals Update Report.

ATTACHMENTS:

- Attachment A: 2017 3rd Quarter Goal Update Report

Attachment A

	2017 Goals & Quarterly Updates	Est. Completion	Actual Completion
1	**Finalize design and begin construction in spring 2017 of the Wastewater Treatment Plant expansion and rehabilitation project.**	**July 2017**	**Jul-17**
	Q1 Update: The Wastewater Treatment Plant improvements project is in its final stages of design and beginning to transition into the construction phase. With the recent approval of the Construction Package No. 1 by the LUC and City Council, Garney Construction is scheduled to mobilize to the plant site by the end of April. Construction activities to take place include the demolition of the abandoned digesters/maintenance building, demolition of the abandoned sludge drying beds, excavation for the new digester facility, rehabilitation of all three existing secondary clarifiers, construction of a new maintenance building, and various water and sewer line relocations. While Garney is constructing the above items, the design engineers will complete the design for the remaining scope of work. Construction Package No. 2 will be presented to the LUC and City Council for approval during the June/July timeframe.		
	Q2 Update: The design of the WWTP expansion is now 100% complete. Construction of Package 1 is underway. Package 2 GMP cost proposal is currently being negotiated between the City and the Contractor. Construction of Package 2 is anticipated to begin in late August 2017 and will continue through the first quarter of 2019.		
	Q3 Update: This goal has been completed.		
2	**Complete the construction of the Foothills Substation by September 2017.**	**September 2017**	
	Q1 Update: The substation is currently under construction. The substation walls have been completed and we are waiting on final installation of the gates. Foundations for the electrical equipment are under construction with the City's portion complete. PRPA is nearing completion of their foundations for the high voltage equipment. City staff and PRPA staff did factory witnessing of the production and design tests for the transformers at the manufacturing plant in Pocatello, Idaho. The transformers have arrived onsite and are being installed and field tested before the City accepts delivery.		
	Q2 Update: The substation is still under construction. The foundations and substructure are complete. The city owned and PRPA owned equipment within the substation is installed and is being connected. The transmission infrastructure has been upgraded and the additioanl towers have been installed and new wiring strung to serve the new substation. Testing and wiring connections will be completd during July and August with estimated completion in mid-August.		
	Q3 Update: The substation construction is complete and it was energized on August 3rd, 2017. Load was transferred to the substation on September 20th, 2017 as was the Foothills solar generation. The substation and solar are considered substatially complete. The Foothills campus still has ongoing work to complete the landscaping and the interpretive signsfor the site. This is expect to be completed by the end of the year.		
3	**Complete an algae mitigation study and implement selected solutions to prevent taste and odor issues by July 2017.**	**July 2017**	**May-17**
	Q1 Update: We are in the process of finishing a comprehensive algal mitigation study with Corona Environmental, the finalized memo is expected mid-April. This study includes options for reservoir management, water intake structure gate optimization and in-plant taste and odor removal. Currently, Water will be pursuing a reservoir mixing technology from the Medora Solarbee Corporation with an implementation goal of early May. We are also contracting with Lake Solitude management for back up algaecide application in case of an unexpected algal bloom. Additionally, Water Quality staff is beginning a study on carbon efficiency improvements for increased taste and odor removal. Customer Relations and Water Quality are currently planning a communications plan for public outreach on algae and interdepartmental notifications on algal issues.		
	Q2 Update: SolarBee mixers were installed May 12, city staff is working in conjunction with Medora to properly adjust the drop tubes in order to improve mixing. Following guidance from water quality staff the WTP is drawing water from the bottom gate of GRGR in order to treat the water with the lowest taste and odor and algae. In addition, discussions with Water Resources are being had on better river utilization to dilute potential taste and odor issues. Powdered activated carbon efficiency is currently being studied with the selection of the best performing product anticipated for August. Staff is still working on a contract for back up algaecide application with the expectation of it being completed in July.		

	2017 Goals & Quarterly Updates	Est. Completion	Actual Completion
	Q3 Update: As of October 4th, the mixers have performed very well and this is the first year on record that there has been no detectable taste and odor results entering the distribution system to this date. Due to the success of these mixers this is also the first year that there has been no need to apply a chemical algaecide to mitigate algal growth. In addition to these mixers, Water treatment plant staff in conjunction with Water Resources have managed river and reservoir usage differently to optimize the intake water quality to provide the best water possible to the City. Water quality data has been utilized to select the best depth to draw water into the plant from the reservoir and in consideration of dilution ratios for river usage. Most recently, to further improve taste and removal capabilities a full scale in plant trail of a new powdered activated carbon (PAC) was performed. This data is still being reviewed but preliminary results suggest this could be another potential tool to continue to optimize the WTP's taste and odor removal. In an effort to create redundancy and further optimize the performance of the SolarBee mixers a 5th machine is being considered to demo at no cost for the year of 2018 to see if it has positive effects. If after a year it is proven to help, SolarBee will sell the machine at a 50% discount to the city.		
4	**Participate with Platte River and member cities in the program evaluation of common Demand Side Management programs.**	**December 2017**	
	Q1 Update: We have selected, with Fort Collins as the lead in the RFP, Research into Action (Portland, OR) to lead the third party evaluation. We hope to have Research into Action under contract by the end of April and start the evaluations in May.		
	Q2 Update: We have hired Research Into Action and its partners Apex Analytics and Mesa Point Energy (the evaluation team) to evaluate the energy and water saving programs by conducting primary research and sharing lessons learned from their evaluations of similar		
	Q3 Update: We will meet with Research into Action partners in mid-October to review results of the primary research and offer comments on the preliminary findings. We are anticipating a final report on the DSM evaluation in early December.		
5	**Support the efforts of a new Customer Information Systems (CIS), IT Roadmap and Community Solar Initiative working collaboratively with Platte River, member cities and various City departments.**	**Ongoing**	
	Q1 Update: CIS: Utility Applications Services (UAS) staff held meetings with key department stakeholders to gather requirements for the new CIS. UAS staff shared these findings with the CIS project team. IT Roadmap: UAS staff has organized a new steering committee and that will provide guidance and governance to technology projects in the department. UAS staff is organizing a city-wide GIS summit to explore the ways different departments use and support GIS. We are currently soliciting proposals to evaluate and optimize our work order system implementation. Community Solar: Platte River and municipality staffs continue to work on developing a community solar program that could serve all four municipalities. A customer survey is being completed to provide insight on the solar market and local solar economics.		
	Q2 Update: Community Solar: A customer survey was completed in April 2017 and results presented to LUC on June 21, 2017. We are currently working on developing an RFP, including participating in discussions with the Rocky Mountain Institute on a joint RFP with local co-ops. Discussions also continue around program administration and marketing. CIS & IT Roadmap: No update.		
	Q3 Update: Community Solar: Community Solar Committee members are continuing to plan for a 5-MW joint community solar project located at the Rawhide Energy Station. We have worked with the Rocky Mountain Institute (RMI) and the Rawhide Flats developer (juwi) to collect quotes for two potential locations on the Rawhide property. Staff members are currently coordinating with the top two bidders and hope to begin negotiating a PPA in October, pending the receipt of Request Letters from the municipalities to pursue a 25-year binding solar PPA. The top two bidders have both indicated a planned commercial online date for the project during the second half of 2018. We anticipate offering community solar as a new charge under Tariff 7. A Loveland Community Solar Design Team, consisting of staff from Power, Finance, Utility Applications and Customer Relations, has been formed to clarify program requirements, program administration and marketing. CIS: We will begin going over the individual scoring matrix and collectively scoring the vendors on Nov. 1st and 2nd. IT Roadmap: No update		
6	**Support the Colorado Water Plan and strengthen Loveland's raw water supply portfolio through continued participation in the Windy Gap Firming Project, finalizing a decision on acquiring downstream storage, and continuing to explore how to use alternative transfer methods (ATMs) when opportunities arise.**	**Ongoing**	

	2017 Goals & Quarterly Updates	Est. Completion	Actual Completion
	Q1 Update: Loveland continues its participation in the WGFP, and during this quarter its subscription was increased from 9,000 AF of storage to 9,451 AF of storage, out of 90,000 AF in the project. A meeting was held with the Board of the Hillsborough Ditch Company concerning future cooperation with the City on its Big Thompson River diversion structure in exchange for being able to make diversions or replacements at or near their location. Staff has continued working with the City's consultant on an evaluation of a potential downstream storage site. Easements across intervening property for a pipeline for filling or draining the reservoir have been discussed with the landowner. No new opportunities for participation in an ATM has become evident this quarter.		
	Q2 Update: Planning and preliminary design for the Windy Gap Firming Project continues to move ahead. The US Army Corps of Engineer's 404 Permit has been issued, received, and approved, which is an important step. Decisions on the type of dam have moved ahead, with the most likely being an asphalt core rockfill design. This design has been used more commonly in Europe, but is being driven here because of a lack of sufficient clay material on the site for a clay core. Staff is in discussions on downstream storage with the owner and neighboring property owner.		
	Q3 Update: Windy Gap Firming Project: Progress continues on preliminary design issues, including clearing brush and trees, making property acquisitions where needed, and learning more about asphault core rockfill designs. Discussions continue on joint financing for the Project. Two entities at this point indicate they intend to move ahead with individual financing, the remaining parties plan to participate in the joint funding. Current indications are that a AA rating is likely. On September 28 a joint application was filed in Division 5 Water Court by the Subdistrict and the Colorado River District to amend the Windy Gap decrees to accommodate needed changes.		
7	**Complete an infiltration and inflow/selenium study in our wastewater collection system and develop a selenium reduction program to reduce selenium discharges from the Wastewater Treatment Plant.**	**September 2017**	
	Q1 Update: The Infiltration and inflow/selenium study has been started. A sampling plan for the project has been developed and adopted for this project. A total of 26 flow meters and 17 sampler have been deployed. A set of wastewater samples has been taken during the low flow time periods from April 4, 2017 thought April 6, 2017. All samples have been turned into the lab for testing and we are continuing to collect wastewater flow data.		
	Q2 Update: We have completed several months of flow monitoring and have completed two differenct wastewater sampling events. We are currently processing the data from the sampling events and working on the study that will be turned into the state in September of 2017.		
	Q3 Update: The study was completed and submitted to the State at the end of September. The State recently gave us a time extension to 2020 to meet the new selenium discharge limit. We expect that we will ultimately need to request a site specific stream standard variance due to the extremely low limit currently in our permit (4.6 parts/billion), and the limited options available for removing selenium from our wastewater system.		
8	**Complete a comprehensive in house audit and update of the Water & Power Schedule of Rates, Charges and Fees.**	**August 2017**	
	Q1 Update: This project starts after we have submitted our 2018 budget to the Budget Office, so it will be getting under way in late June.		
	Q2 Update: We are underway with some work completed on updating the impact fees and the entire update will be completed by the end of August. This project has been completed and received unanimous approval from the LUC at their September meeting. It was also		
	Q3 Update: This project has been completed and received unanimous approval from the LUC at their September meeting. It was also approved by City Council by a 6-3 vote on First Reading at their October 3, 2017 meeting.		
9	**Continue the second phase of the M36 water loss audit which will improve water tracking methods and practices to ensure data validity. Review and implement cost-effective recommendations.**	**Ongoing**	

	2017 Goals & Quarterly Updates	Est. Completion	Actual Completion
	Q1 Update: We are in the process of compiling the water audit for the 2016 calendar year. This year, we have requested logs to backup each number used in the audit. We have made great improvements in the tracking of various authorized, but unbilled and unmetered water usage (i.e. fire training, fire fighting, sanitizing of new water lines, line flushing, tank cleaning, etc.).		
	Q2 Update: Progress will resume when Michelle Erickson returns from leave.		
	Q3 Update: Michelle Erickson will present the results of the water loss audit over the 2016 calendar year at the October 2017 LUC meeting.		
10	**Acquire additional CBT shares that apply the concept of dollar cost averaging to future purchases and negotiate prices based on the market.**	**Ongoing**	
	Q1 Update: Contacts have been received from parties, but prices remain very high. Staff continues to follow up with interested parties.		
	Q2 Update: Contacts have been received from parties, but prices remain very high. Staff continues to follow up with interested parties.		
	Q3 Update: Contact with sellers has continued. Staff offered cash on up to 18 units, but the seller required more.		
11	**Continue water and electric resource planning to address current and anticipated trends and concerns.**	**Ongoing**	
	Q1 Update: Water: The Water Department is working closely with Northern Water on the final permitting and financial planning for the Chimney Hollow reservoir. Also, the Water Department is evaluating the feasibility of acquiring a gravel pit located downstream from the wastewater treatment plant in order to take full advantage of certain water rights that can be used to extinction. Electric: We are continuing to work with PRPA on future electric resource needs including a possible partnership with the other cities to construct a solar garden. PRPA is scheduled to do a Resource Planning presentation at the May 2017 LUC meeting.		
	Q2 Update: Power: We are continuing to work with PRPA on the Customized Resource Plan. In 2017 our goals are to develop a broad understanding of the CRP environment and develop some basic cost impacts. Water: The Chimney Hollow Reservoir Project recently received the Corps of Engineers 404 permit bringing us one step closer to adding much needed storage capacity to firm up our Windy Gap Units. Regarding the downstream storage reservoir, the feasibility study is complete, and negotiations have been ongoing with the land owner. We have budgeted $3.3M in 2018 to aquire the reservoir, and we have identified funds in our 10 CIP (starting in 2026) to construct the necessary diversion structure and pump station to make the reservoir usable.		
	Q3 Update: Power: We are continuing to work with PRPA on the Customized Resource Plan. In 2017 our goals are to develop a broad understanding of the CRP environment and develop some basic cost impacts. Water: This is covered in Item 6 above.		

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 3
MEETING DATE: 10/18/2017
SUBMITTED BY: Steve Johnson
STAFF TITLE: Buyer

ITEM TITLE:

Overhead / Padmount Transformer 2015-54 Contract Renewal

DESCRIPTION:

Renew a one (1) year contract (year 3) to Western United Electric Supply Corporation for Overhead / Padmount Transformer 2015-54. Through the Municipal Code, City Council has previously authorized LUC the option of approving contracts exceeding $500,000. This authorization reduces the number of items that go to Council for consideration and increases the City's efficiency. Under these circumstances, the City Manager then signs the supply contract after LUC approval. This contract renewal is being brought forward for LUC action.

SUMMARY:

Used in the conversion of power from a primary high voltage to a usable secondary voltage, transformers are used throughout the City of Loveland's distribution system. Whether using an overhead transformer mounted on a utility pole or a pad mount transformer mounted on a pad, these transformers service Loveland residential as well as commercial customers throughout our entire system. Transformers purchased under this contract are used in new construction projects, replacing damaged, failing or failed units. With an expected 40-year lifespan, transformers are evaluated not only on initial costs but also on their efficiencies, quality, safety and availability.

On 23 July 2015 the City of Loveland received sealed bids for our Overhead / Padmount Transformer needs, entered into a contract with Western United Electrical Supply Corporation on 24 November 2015 (Year 1), renewed contract 24 October 2016 (Year 2). Western United Electrical Supply Corporation has agreed not to increase "base" unit costs or change the terms of the original contract for all the products purchased under this contract. Requested contract renewal dollar amount ($660,000.00) for year 3 is being increased over 2016 contract due to usage forecast and increase costs of copper and oil that is passed along in the cost of the transformer (per the terms of the contract) quarterly.

Per original bid documents: General Conditions 3.0 the term of the contract shall be one (1) year from the date of execution. The Contract may be renewed for up to three (3) additional twelve (12) month periods upon written agreement of City and Supplier. This contract will be the second renewal making it year three (3). The City Staff has agreed not to rebid for our transformer needs based on two reasons: 1) The City of Loveland has an established account with the transformer manufacturer (ERMCO) with agreed lead-times. Due to national growth and recent hurricanes, the transformer industries has been impacted with high demand, moreover, lead-times are being extended on new accounts and spot purchases. Rebidding this contract may have adverse effects in our ability to purchase transformers and likely will result in longer lead-times. 2) Western United Electrical Supply Corporation and ERMCO has been a longtime supplier in providing the City of Loveland's transformer needs by demonstrated outstanding reliability, customer service and price stability.

Per Municipal Code 3.12.060A and 3.12.060B, the LUC must approve Water and Power contracts above $500,000 or any change order that causes a contract to equal or exceed $500,000 and which, when combined with all previous change orders, equals or exceeds 20% of the original contract amount.

RECOMMENDATION:

Award the renewal contract for Overhead / Padmount Transformer 2015-54. to Western United Electric Supply Corporation in an amount not to exceed $660,000.00 and authorize the City Manager to execute the contract on behalf of the City.

Information item only. No action required.

ATTACHMENTS:

- Attachment A: 2015 Contract W/ LUC Approval
- Attachment B: 2016 Contract Renewal

Attachment A

CONTRACT

THIS CONTRACT is made and entered into this 24th day of November, 2015, by and between the **CITY OF LOVELAND, COLORADO**, a home rule municipality ("City"), and **Western United Electric Supply Corp.** ("Supplier").

Supplier, in consideration of the sum to be paid to Supplier by City and of the covenants and agreements contained herein and in the Contract Documents, identified in paragraph 2 of the "Instructions to Bidders" and incorporated herein by reference, hereby agrees at Supplier's own proper cost and expense to supply all materials and/or equipment for **Overhead / Padmount Transformer 2015-54** To the extent of Supplier's bid dated **05 August 2015**, attached hereto and incorporated herein by reference ("Bid"), all in full compliance with the Contract Documents.

In consideration of Supplier's performance hereunder, City agrees to pay to Supplier for materials an amount not to exceed **Nine Hundred Sixty Thousand Seven Hundred Seven Dollars $960,707.00** as adjusted in accordance with the Contract Documents, and to make such payments in the manner and at the times provided in the Contract Documents.

Time is the essences of this Contract. Supplier agrees to deliver the materials and or equipment as set forth in the Contract Documents and accept as full payment hereunder the quantities computed as determined by the Contract Documents and based on the prices set forth in the Bid.

IN WITNESS WHEREOF, the parties have executed this Contract the day and year written above.

(SEAL)

Attest:

Corporate Secretary

SUPPLIER: Western United Elec. Supply

By: Michael Prom

Title: CEO

(SEAL)

CITY OF LOVELAND SEAL COLORADO

Attest:

City Clerk

CITY OF LOVELAND, COLORADO

By:

Title: City Manager

Approve as to Form:

City Attorney

LOVELAND UTILITIES COMMISSION
REGULAR MEETING
November 18, 2015 - 4:00 p.m.
Service Center Board Room
200 North Wilson Avenue
AGENDA

4:00 pm - **CALL TO ORDER**

4:15 pm - **APPROVAL OF MINUTES - 10/21/2015**

CITIZENS REPORTS

Anyone in the audience may address the LUC on any topic relevant to the commission. If the topic is an item on the Consent Agenda, please ask for that item to be removed from the Consent Agenda. Items pulled will be heard at the beginning of the Regular Agenda. Members of the public will be given an opportunity to speak to any item on the Regular Agenda during the Regular Agenda portion of the meeting before the LUC acts upon it. If the topic is an item on the Staff Report, members of the public should address the Commission during this portion of the meeting as no public comment is accepted during the Staff Report portion of the meeting.

Anyone making comment during any portion of tonight's meeting should identify himself or herself and be recognized by the LUC chairman. Please do not interrupt other speakers. Side conversations should be moved outside the Service Center Board Room. Please limit comments to no more than three minutes.

4:20 pm - **CONSENT AGENDA**

1. 2016 Annual Sub-Structure Contract Renewal – Mark Warner
2. 2016 Annual Directional Bore Contract Renewal – Mark Warner

APPROVED BY THE LUC on 11-18-2015 Stephen G. Adams

4:30 pm - **REGULAR AGENDA**

3. Overhead / Padmount Transformer Bid 2015 – 54 – Steve Johnson

4:45 pm - 4. **COMMISSION / COUNCIL REPORTS**

- Loveland Water and Power (LWP) and Platte River Power Authority (PRPA) Facility Tour – October 26, 2015
- 2016 South Platte Forum – October 28-29, 2015
- Northern Water- Fall User's Meeting November 10, 2015

5:00 pm - 5. **DIRECTOR'S REPORT** – Separate Document

5:15 pm - **INFORMATION ITEMS**

6. Financial Report Update – Jim Lees

5:30 pm - **ADJOURN**

The City of Loveland is committed to providing an equal opportunity for services, programs and activities and does not discriminate on the basis of disability, race, age, color, national origin, religion, sexual orientation or gender. For more information on non-discrimination or for translation assistance, please contact the City's Title VI Coordinator at TitleSix@cityofloveland.org or 970-962-2372. The City will make reasonable accommodations for citizens in accordance with the Americans with Disabilities Act (ADA). For more information on ADA or accommodations, please contact the City's ADA Coordinator at bettie.greenberg@cityofloveland.org or 970-962-3319.

"La Ciudad de Loveland está comprometida a proporcionar igualdad de oportunidades para los servicios, programas y actividades y no discriminar en base a discapacidad, raza, edad, color, origen nacional, religión, orientación sexual o género. Para más información sobre la no discriminación o para asistencia en traducción, favor contacte al Coordinador Título VI de la Ciudad al TitleSix@cityofloveland.org o al 970-962-2372. La Ciudad realizará las acomodaciones razonables para los ciudadanos de acuerdo con la Ley de Discapacidades para americanos (ADA). Para más información sobre ADA o acomodaciones, favor contacte al Coordinador de ADA de la Ciudad en bettie.greenberg@cityofloveland.org o al 970-962-3319".

The password to the public access wireless network (colguest) is accesswifi.

City of Loveland

CITY OF LOVELAND
WATER & POWER DEPARTMENT
200 South Wilson Ave. Loveland, Colorado 80537
(970) 962-3000 • FAX (970) 962-3400 • TDD (970) 962-2620

AGENDA ITEM: 3
MEETING DATE: 11/18/2015
SUBMITTED BY: Steve Johnson, Buyer

TITLE: Overhead / Padmount Transformer Bid

DESCRIPTION:
Award of a one year contract to Western United / ERMCO for Overhead / Padmount Transformer Bid. Through the Municipal Code, City Council has previously authorized LUC the option of approving contracts exceeding $500,000. This authorization reduces the number of items that go to Council for consideration and increases the City's efficiency. Under these circumstances, the City Manager then signs the construction contract after LUC approval. This contract approval is being brought forward for LUC action.

SUMMARY:
On August 06, 2015 the City of Loveland received sealed bids for Overhead / Padmount Transformer Bid. It shall be noted that the City of Loveland evaluates prices based on Total Ownership Cost (TOC) this calculation evaluates the purchase price and the total operating expense (losses) of the transformer over the projected 40 year life cycle. Prices below represent costs for an estimated 253 transformers.

Bid Tabulation	(TOC) Purchase Price including Losses	Purchase Price
◦ Western United / Howard Industries	$1,748,304.16	$924,146.00
◦ Border States / Howard Industries	$1,752,812.71	$918,171.92
◦ Western United / ERMCO	$1,758,456.98	$960,707.00
◦ Stuart Irby / Cooper	$1,893,308.44	$1,097,031.36
◦ WESCO / ABB	$1,908,932.21	$1,126,304.00
◦ Gray Bar / Central Moloney	$2,058,284.62	$1,289,180.00
◦ Western United / Central Moloney	$2,059,009.42	$1,273,256.00
◦ Western United / CG Powers	$1,283,346.08 *	$732,341.00 *

*Bid 20 of 35 Transformers (three phase only)

After a comprehensive evaluation including site tours at two bidder sites, the City of Loveland Electrical Specification Committee, has agreed that a contract should be awarded to Western United / ERMCO in the amount of $960.707.00. Although Western United / ERMCO was not the lowest bidder, justification for this recommendation for award is due impart to overall highest

plant evaluation scores, safety design of the ERMCO three phase cabinet and past experience including exceptional customer service provided by ERMCO.

RECOMMENDATION:
Award the contract for Overhead / Padmount Transformer Bid to Western United / ERMCO in an amount not to exceed $960,707.00 and authorize the City Manager to execute the contract on behalf of the City.

REVIEWED BY DIRECTOR:
AB for SA

Attachment B

SUPPLY CONTRACT RENEWAL

THIS RENEWAL CONTRACT ("Renewal Contract") is made and entered into this 26th day of September, 20 16 by and between the CITY OF LOVELAND, COLORADO, a home rule municipality ("City"), and **Western United Supply Corp.**("Supplier").

1. The City awarded Supplier the bid for the **Overhead / Padmount Transformer 2015-54** , to the extent of the Supplier's bid dated **August 5, 2015**. The City and the Supplier executed the original Supply Contract (the "Contract") on **November 24, 2015**. The Contract provides that the Contract may be renewed for up to three (3) additional twelve (12) month periods upon written agreement of the City and Supplier. The parties hereby agree to renew the Contract for one additional one-year term, as set forth in Paragraph 2 below.

2. The Contract is hereby renewed for a one-year term effective **October 24, 2016** unless earlier terminated in accordance with the Contract Documents, as defined in the Contract.

3. The Supplier, in consideration of the sum to be paid to the Supplier by the City and of the covenants and agreements contained herein and in the Contract Documents, identified in the Instruction to Bidders at section 2.0 and incorporated herein by reference, hereby agrees at the Supplier's own proper cost and expense to supply all materials and/or equipment **Overhead / Padmount Transformer 2015-54** to the extent of the Supplier's bid dated **August 5, 2015**, in full compliance with the Contract Documents.

4. In consideration of the Supplier's performance as set forth in the Contract Documents, the City agrees to pay to the Supplier a sum not-to-exceed **Four Hundred Ninety Thousand Dollars ($490,000)**, as adjusted in accordance with the Contract Documents or as otherwise herein provided in Exhibit A attached hereto and incorporated herein, and to make such payments in the manner and at the times provided in the contract documents.

5. Time is the essence of this contract. The Supplier agrees to deliver the materials and/or equipment within the timeframes set forth in each individual purchase order issued under this Renewal Contract and to accept as full payment hereunder the quantities, which are estimated and may change but will be computed as determined by the Contract Documents and based on the unit prices set forth in the bid, or as adjusted in the Exhibit A to this Renewal.

6. All other terms and conditions of the Contract shall remain in full force and effect according to the provisions thereof.

7. This Renewal Contract may be executed by electronic signature in accordance with C.R.S. § 24-71.3-101 *et seq.*

IN WITNESS WHEREOF, the parties have executed this contract as of the date first above written.

SIGNATURES ON NEXT PAGE

CITY OF LOVELAND, COLORADO

By: Stephen C Adams

Title: CITY MANAGER

ATTEST:

Deputy City Clerk

CITY OF LOVELAND SEAL COLORADO

APPROVED AS TO FORM:

Assistant City Attorney

SUPPLIER:
Western United Electric Supply Corp.

By: Michael Prom

Title: CEO

ATTEST: (if corporation)

Corporate Secretary

STATE OF COLORADO)
) ss.
COUNTY OF Adams)

The foregoing contract was acknowledged before me this 20th day of September, 2016 by Michael Prom.
(Insert name of individual signing on behalf of the Contractor)

Witness my hand and official seal.

My commission expires Feb. 27, 2017.

AUDREY A GRESS
Notary Public
State of Colorado
Notary ID 20134012928
My Commission Expires Feb 27, 2017

Audrey Gress
Notary Public

WUE-City of Loveland- ERMCO Contract 2016-2017---------- **EXHIBIT A**

* Includes JFD's		Price Change					
	VENDOR	Western United/ ERMCO	4th Quarter 2015	2016 1st Quarter	2nd Quarter 2016	3rd Quarter 2016	4th Quarter 2016
Overhead	Mineral Oil	Bid Price	*Blanket #405694*				
City Stock #	KVA Size						
LV10-7200	10	$743.00	$730.00	$723.00	$709.00	$722.00	
LV10-2400X7200	10	$853.00	$838.00	$830.00	$814.00	$829.00	
LV25-7200	25	$989.00	$978.00	$962.00	$945.00	$962.00	
LV25-2400X7200	25	$1,064.00	$1,046.00	$1,036.00	$1,016.00	$1,035.00	
LV50-7200	50	$1,186.00	$1,165.00	$1,154.00	$1,138.00	$1,153.00	
LV50-2400X7200	50	$1,449.00	$1,424.00	$1,410.00	$1,384.00	$1,408.00	
LV75-7200	75	$1,816.00	$1,784.00	$1,767.00	$1,734.00	$1,764.00	
LV75-2400X7200	75	$2,168.00	$2,130.00	$2,109.00	$2,069.00	$2,106.00	
LV100-7200	100	$2,281.00	$2,240.00	$2,219.00	$2,177.00	$2,215.00	
LV100-2400X7200	100	$2,644.00	$2,597.00	$2,572.00	$2,523.00	$2,569.00	
Single Phase Pad Mount	Mineral Oil						
City Stock #	KVA Size						
LV25-120	25	$1,442.00	$1,417.00	$1,403.00	$1,377.00	$1,401.00	
LV50-120	50	$1,750.00	$1,720.00	$1,703.00	$1,672.00	$1,701.00	
LV75-120	75	$2,095.00	$2,058.00	$2,038.00	$2,000.00	$2,036.00	
LV100-120	100	$2,458.00	$2,415.00	$2,391.00	$2,346.00	$2,388.00	
LV-167-120	167	$3,239.00	$3,181.00	$3,149.00	$3,090.00	$3,144.00	
Three Phase Pad Mount	Mineral Oil		*Blanket #406290*				
City Stock #	KVA Size						
LV45-208	45	$5,323.00	$5,228.00	$5,176.00	$5,078.00	$5,167.00	
LV45-480	45	$5,411.00	$5,315.00	$5,262.00	$5,163.00	$5,253.00	
LV75-208	75	$5,649.00	$5,548.00	$5,493.00	$5,389.00	$5,484.00	
LV75-480	75	$5,474.00	$5,377.00	$5,324.00	$5,223.00	$5,314.00	
LV112.5-208	112.5	$5,881.00	$5,776.00	$5,719.00	$5,610.00	$5,709.00	
LV112.5-480	112.5	$5,624.00	$5,625.00	$5,468.00	$5,366.00	$5,460.00	
LV150-208	150	$6,332.00	$6,332.00	$6,269.00	$6,150.00	$6,258.00	
LV150-480	150	$6,664.00	$6,665.00	$6,480.00	$6,358.00	$6,469.00	
LV225-208	225	$7,162.00	$7,163.00	$6,954.00	$6,833.00	$6,953.00	
LV225-480	225	$6,938.00	$6,938.00	$6,746.00	$6,619.00	$6,735.00	
LV300-208	300	$8,194.00	$8,047.00	$7,968.00	$7,816.00	$7,954.00	
LV300-480	300	$7,933.00	$7,791.00	$7,713.00	$7,568.00	$7,700.00	
LV500-208	500	$10,523.00	$10,335.00	$10,232.00	$10,038.00	$10,214.00	
LV500-480	500	$9,871.00	$9,694.00	$9,597.00	$9,415.00	$9,581.00	
LV750-208	750	$13,656.00	$13,412.00	$13,278.00	$13,026.00	$13,254.00	
LV750-480	750	$12,879.00	$12,147.00	$12,023.00	$11,798.00	$12,005.00	
LV1000-208	1000	$16,715.00	$16,416.00	$16,252.00	$15,944.00	$16,223.00	
LV1000-480	1000	$14,865.00	$14,598.00	$14,452.00	$14,178.00	$14,427.00	
LV1500-480	1500	$18,838.00	$18,499.00	$18,315.00	$17,967.00	$18,282.00	
LV2500-480	2500	$27,294.00	$26,804.00	$26,536.00	$26,040.00	$26,488.00	

ERMCO
DISTRIBUTION
TRANSFORMERS

ERMCO's base bid prices are firm for orders received through June 30, 2015 and delivery within the quoted lead time. Orders received July 1, 2015 and beyond will be subject to escalation based on the ERMCO Material Price Index at the time of order. The price will be adjusted based on the difference in the latest published ERMCO Material Price Index (once per quarter) prior to shipment and the base ERMCO Material Price Index. The base ERMCO Material Price Index for these quotations is -18.18%.

Price Increase Example:

Quoted Price = $1,000.00
Order Date 8/15/15
Base ERMCO Material Price Index = -18.18%
ERMCO Material Price Index 3Q 2015 (Estimate) = -17.18%

Invoice Price = Quoted Price + Escalation

Escalation = (((1+3Q 2015 Index) – (1 + Base Index))/ (1 + Base Index)) * Quoted Price
Escalation = (((1-.1718) - (1-.1818))/ (1-.1818)) x $1,000.00
Escalation = ((.8282 – .8182)/ .8182) x $1,000.00
Escalation = (.01/.8182) x $1,000.00
Escalation = .01222 x $1,000.00
Escalation = $12.22

Invoice Price = $1,000.00 + $12.22 = $1,012.22

Price Decrease Example:

Quoted Price = $1,000.00
Order Date 8/15/15
Base ERMCO Material Price Index = -18.18%
ERMCO Material Price Index 3Q 2015 (Estimate) = -19.18%

Invoice Price = Quoted Price + Escalation

Escalation = (((1+3Q 2015 Index) – (1 + Base Index))/ (1 + Base Index)) * Quoted Price
Escalation = (((1-.1918) - (1-.1818))/ (1-.1818)) x $1,000.00
Escalation = ((.8082 – .8182)/ .8182) x $1,000.00
Escalation = (-.01/.8182) x $1,000.00
Escalation = -.01222 x $1,000.00
Escalation = -$12.22

Invoice Price = $1,000.00 - $12.22 = $987.78

P. O. Box 1228, Dyersburg, Tennessee 38025-1228
2225 Industrial Rd., Dyersburg, Tennessee 38024
Telephone: 731-285-9121
Fax: 731-287-4104

April 29, 2010

ERMCO SURCHARGE EXPLANATION

General Comment about the Surcharge Confidentiality:

ERMCO greatly respects our customers and we want to ensure that we are providing clear visibility on material pricing. However, it is also important to know that ERMCO has specific confidentiality agreements with many of our suppliers (oil, conductor and core steel). Our suppliers are aware that we need to share some of this confidential supply information with our key customers but our suppliers want our customers keep this data confidential. Do not share any of this supplier cost information with ERMCO's competitors.

The ERMCO Surcharge is based on changes in material cost from one quarter to the next. The ERMCO surcharge uses actual material costs paid to suppliers. In some cases as explained in detail below the cost change is tied to an index however in other cases there is no indexed pricing. In all cases ERMCO is able to verify the surcharge adjustment by sharing material invoices provided this information is maintained in strict confidence.

The base cost of material and the amount of material that makes up the purchase price was established in the 4th quarter 2008. The annual spend established the percent material content for the basis of the surcharge calculation as well as the percent material comprises the transformer price.

The base content percentage is:

Item	Material Content %
Core Steel	44.86%
Copper Wire	5.47%
Aluminum Wire	5.63%
Aluminum Strip	6.28%
T-Oil	11.91%
Tank Steel	8.99%
Copper Strip	0.08%
Copper Leads	0.77%
Alum Leads	0.26%
Steel Parts	3.96%
Components	11.77%
Sum Total	100.00%

Material comprises 64.30% of the transformer price.

Each quarter the cost of material is compared against the base cost. The percent increase or decrease in each material is calculated. That material calculation is then multiplied by the material content % in the table above. A sum total of all material cost adjustments is then available and multiplied by the 64.3% which provides a cumulative equivalent selling price increase/decrease %.

ERMCO quotes a price with reference to the surcharge index number in effect at the time of the quote. Each quarter the change in the surcharge index (up or down) is applied to the base price of the transformer. For example if the quote sets the transformer price at $1000 with a starting index of 5.75%, then transformers invoiced in that quarter will be sold for $1000. Assume in this example that the next quarter index goes to 4.75% then the transformers sold in that quarter will be $990.

The various materials in the ERMCO surcharge are adjusted as follows:

Core Steel: ERMCO's price for core steel is a fixed base price that is in effect for an entire calendar year PLUS a surcharge adder that changes on a monthly basis. The core steel surcharge is based on scrap steel prices and natural gas costs. The AK Steel monthly surcharge is typically 3.5 cents lower than the Allegheny surcharge as Allegheny uses pig iron in their manufacturing process. AK's price for steel scrap shall be obtained from the scrap index for number one dealer bundles in Pittsburgh as published in the Iron Age magazine on the second issue of each month. The natural gas price is based on the closing NYMEX natural gas monthly settlement for the same period.

The core steel companies typically publish their surcharge for core steel 1.5 months in advance of the pricing period. (Example : On or about August 15, AK will provide ERMCO with the surcharge adder for the month of October). ERMCO does quarterly price adjustments 4 weeks before the start of the quarter. ERMCO personnel (with input from the steel company) rely on reputable trade publications (Wall Street Journal, Fortune, etc) for forecasted pricing trends for scrap steel and natural gas in forecasting the core steel surcharge price that will be in effect for November and December.

As mentioned previously, the steel contract will change base prices at the beginning of each year. Therefore at the beginning of the year there will be two possible changes to the core steel price in ERMCO's surcharge: 1) change in base price from the core steel supplier; 2) change in surcharge adder from 4th quarter to 1st quarter based on changes in scrap steel price and change in natural gas price

ERMCO uses a weighted average price for core steel based on our purchased mix of the types of core steel. Typically, the % mix used between grades of steel do not change from quarter to quarter so the pricing change will only be the result of changes in the monthly steel surcharge adder.

Copper wire - ERMCO's price for copper wire is based on 4 items - 1) COMEX base price for copper ; 2) Conversion cost adder from the manufacturer ; 3) Fabrication cost adder from the manufacturer ; and 4) price surcharge per pound.

Wire suppliers establish their conversion cost adders and fabrication costs adders at the beginning of the year and they are in effect for the entire calendar year. REA Magnet wire is the only supplier that charges a price surcharge per pound for copper wire. This price surcharge from REA magnet wire will be used for the full calendar year for the copper wire styles that ERMCO buys from REA.

The first item (the COMEX base price for copper) is the only item out of the 4 items that will change on a quarterly basis.

To establish the next quarter forecasted price for copper, ERMCO's uses the COMEX futures forecasted price for copper. Futures prices for copper on COMEX are typically forecast for the upcoming 9 months. The ERMCO quarterly surcharge price for copper wire will be 1) the price per pound that COMEX futures traders are forecasting for copper for that quarter PLUS 2) the conversion cost adders , the fabrication cost adders and the price surcharges that were established by the manufacturers at the beginning of the year.

Aluminum wire - ERMCO's price for aluminum wire is based on 4 items - 1) COMEX base price for aluminum; 2) Conversion cost adder from the manufacturer; 3) Fabrication cost adder from the manufacturer; and 4) price surcharge per pound.

Wire suppliers establish their conversion cost adders and fabrication costs adders at the beginning of the year and they are in effect for the entire calendar year. REA Magnet wire is the only supplier that charges a price surcharge on aluminum wire however it is firm for the full calendar year.

The first item (the COMEX base price for aluminum) is the only item out of the 4 items that will change on a quarterly basis.

To establish the next quarter forecasted price for aluminum, ERMCO's uses the COMEX futures forecasted price for aluminum. Futures prices for aluminum on COMEX are typically forecast for the upcoming 2 months. The ERMCO quarterly surcharge price for aluminum wire will be 1) the price per pound that COMEX futures traders are forecasting for aluminum for that quarter PLUS 2) the conversion cost adders , the fabrication cost adders and the price surcharges that were established by the manufacturers at the beginning of the year.

Aluminum Strip and Copper Strip - Similar to Copper wire and Aluminum wire, ERMCO's current month price for aluminum strip and copper strip is based on the previous month's average price on the COMEX trading exchange PLUS a processing fee from the various manufacturers. For future months base price for aluminum and copper strip, ERMCO uses the COMEX futures forecast.

Transformer Oil - ERMCO buys transformer from 3 primary suppliers as none of the suppliers are capable of supplying all of our T-oil needs. ERMCO's price from the 2 of the 3 primary suppliers is tied to the prior month moving average cost for crude oil on the NYMEX trading exchange. If there is a supply need that cannot be covered by the 3 main suppliers, ERMCO will buy the needed transformer oil from another supplier. This back up supplier uses a base price that is determined by the previous average 30 day cost for Low Sulfur Diesel Fuel. The price used in the ERMCO surcharge will always be a weighted average based on the quantities anticipated to be received from the suppliers in the quarter.

ERMCO establishes surcharge pricing for oil 4 weeks before the start of a new quarter however the oil suppliers establish prices on a month to month basis based on market demand or the prior month NYMEX trading exchange. ERMCO has to forecast what will happen with crude oil prices for the future quarter one month ahead of the quarter. The Wall Street Journal typically has an article every other day that addresses what is happening in the world and its potential impact on crude oil prices. The ERMCO management team uses info from the Wall Street Journal and other reputable publications to forecast T-oil costs for the upcoming quarter.

ERMCO will always try to come up with the lowest weighted average cost for T-Oil. ERMCO uses a weighted average price for T-Oil based on our forecasted purchased mix from the various suppliers.

Carbon Steel (used in fabrication of tanks) - ERMCO purchases their tank steel from 4 to 5 suppliers. As previously mentioned, quarterly surcharge prices are established 4 weeks in advance of the beginning of the quarter. 4 weeks prior to the quarter the steel suppliers will only be able to tell us the tank steel prices for the upcoming 2 months. ERMCO will use the weighted average cost from the multiple suppliers for the 2nd month unless one of our key suppliers has told us that they will be seeing an upcoming price change from one of the major producers of carbon steel.

Components - ERMCO purchases many different types of parts that fall into this category. Examples of parts that fall into this category are arresters, breakers, bushings, disconnect switches, fuses, pallets, molded gaskets and assemblies. ERMCO purchases these items from several different suppliers (Cooper Power, ECI, H-J Enterprises, Hubbell, M&K Pallet, Cole Pallet, and ABB Power T&D). ERMCO uses a weighted average to calculate a price change for this category. Copper and Carbon Steel are the two commodities that are used heavily in the components purchased by ERMCO. If copper prices are going up, ERMCO is likely to see a cost increase on the components purchased from ABB, Cooper and H-J Enterprises. The ERMCO surcharge is a weighted average upcoming price change from the various suppliers.

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 4
MEETING DATE: 10/18/2017
SUBMITTED BY: Steve Johnson
STAFF TITLE: Buyer

ITEM TITLE:

Contract Amendment to Increase Overhead / Padmount Transformers 2015-54 Contract

DESCRIPTION:

This item is to increase the Overhead / Padmount Transformers 2015-54 contract with Western United Electric Supply Corporation for the purchase of Overhead & Padmount Transformers.

SUMMARY:

The City has seen activity in aid-to-construction capital projects, in-house capital construction, and system maintenance in 2016 -2017 that has required more than expected purchases of overhead and padmount transformers; we expect this trend to continue through the remainder of this contract. The additional transformers needed for the aid-to-construction capital projects, in-house capital construction and system maintenance will require an increase in the contract of $170,000, changing the contract from $490,000 to $660,000.

Per Municipal Code 3.12.060A and 3.12.060B, the LUC must approve Water and Power contracts above $500,000 or any change order that causes a contract to equal or exceed $500,000 and which, when combined with all previous change orders, equals or exceeds 20% of the original contract amount.

RECOMMENDATION:

Adopt a motion recommending that LUC approve the change order to the contract for Overhead / Padmount Transformers with Western United Electric Supply Corporation to increase the not-to-exceed amount to $660,000 and authorize the City Manager to sign the contract on behalf of the City.

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 5
MEETING DATE: 10/18/2017
SUBMITTED BY: Jean Lever
STAFF TITLE: Thompson River Commissioner

ITEM TITLE:

Presentation by Jean Leaver, Thompson River Commissioner

DESCRIPTION:

Jean Lever will give a presentation on the Division of Water Resources and her role as Division 1 District 4 Water Commissioner, which includes the Big Thompson River.

SUMMARY:

Water commissioners are the field employees of the Colorado Department of Natural Resources Division of Water Resources that interact directly with water users. They oversee diversions of water from surface streams and groundwater guided by Colorado's prior appropriation system of water allocation. This activity requires a strong background in technical education and experience, an understanding of practices of water diversion and use, and knowledge of water law. The water commissioner's objective is to allow water users to maximize the beneficial use of Colorado water while ensuring the proper allocation of the water so that Colorado water rights and neighboring states receive delivery of the water they are legally entitled to.

RECOMMENDATION:

Staff item only. No action required.

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 6
MEETING DATE: 10/18/2017
SUBMITTED BY: Jim Lees
STAFF TITLE: Utility Accounting Manager

ITEM TITLE:

Quarterly Financial Report Update

DESCRIPTION:

This item summarizes the monthly and year-to date Preliminary financials for September 2017.

SUMMARY:

The September 2017 financial reports are submitted for Commission review. The following table summarizes the sales and expense results for the month of September, and the September Year-To-Date results in comparison to the same periods from 2016. The summarized and detailed monthly financial statements that compare September Year-To-Date actuals to the 2017 budgeted figures are attached.

	September				September Year-To-Date			
	2017	2016	$ Ovr/(Und) vs. 2017	% Ovr/(Und) vs. 2017	2017	2016	$ Ovr/(Und) vs. 2017	% Ovr/(Und) vs. 2017
WATER								
Sales	$1,931,652	$1,835,011	$96,641	5.3%	$11,873,976	$10,805,736	$1,068,240	9.9%
Operating Expenses	$1,243,627	$1,364,102	($120,475)	-8.8%	$14,019,661	$8,957,364	$5,062,297	56.5%
Capital (Unrestricted)	$146,279	$508,604	($362,325)	-71.2%	$1,027,560	$3,917,547	($2,889,987)	-73.8%
WASTEWATER								
Sales	$1,012,533	$900,717	$111,816	12.4%	$8,484,291	$7,529,765	$954,525	12.7%
Operating Expenses	$607,016	$571,061	$35,955	6.3%	$5,278,184	$4,723,538	$554,646	11.7%
Capital (Unrestricted)	$351,779	$191,645	$160,133	83.6%	$2,481,577	$2,002,725	$478,852	23.9%
POWER								
Sales	$6,240,327	$5,560,905	$679,423	12.2%	$47,533,039	$45,035,850	$2,497,189	5.5%
Operating Expenses	$4,762,349	$1,320,573	$3,441,777	260.6%	$42,882,498	$41,179,411	$1,703,087	4.1%
Capital (Unrestricted)	$1,085,191	$277,383	$807,808	291.2%	$10,709,012	$5,614,508	$5,094,504	90.7%

RECOMMENDATION:

Staff item only. No action required.

ATTACHMENTS: If you have attachment(s), please list them here. Otherwise, please delete this section.

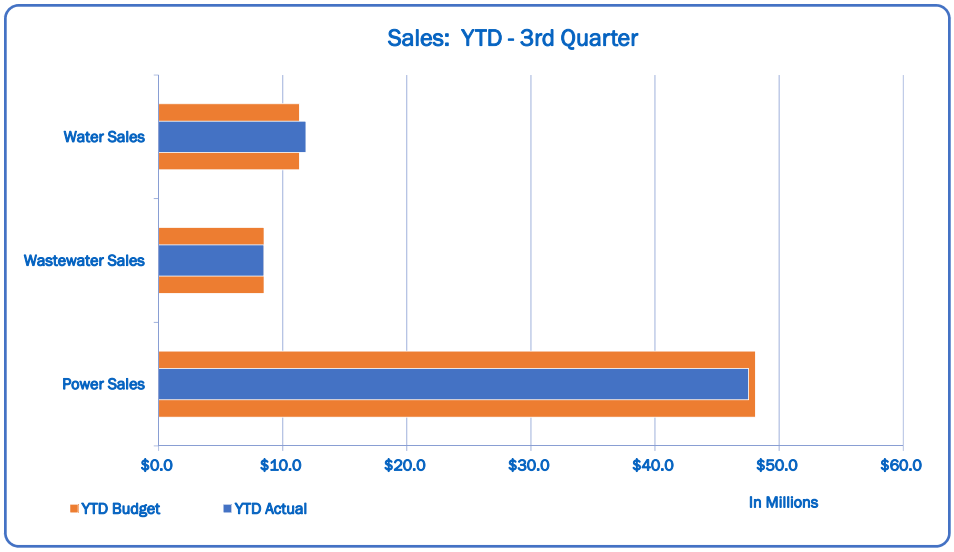
- Attachment A: 3rd Quarter 2017 Financial Presentation
- Attachment B: City of Loveland September Financial Statements
- Attachment C: September Balance Sheets

Attachment A

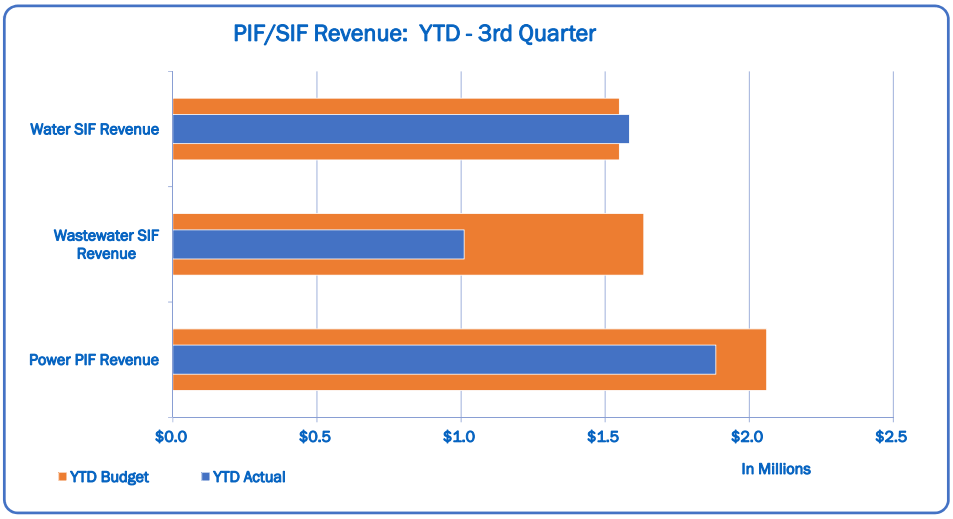
LOVELAND UTILITIES COMMISSION

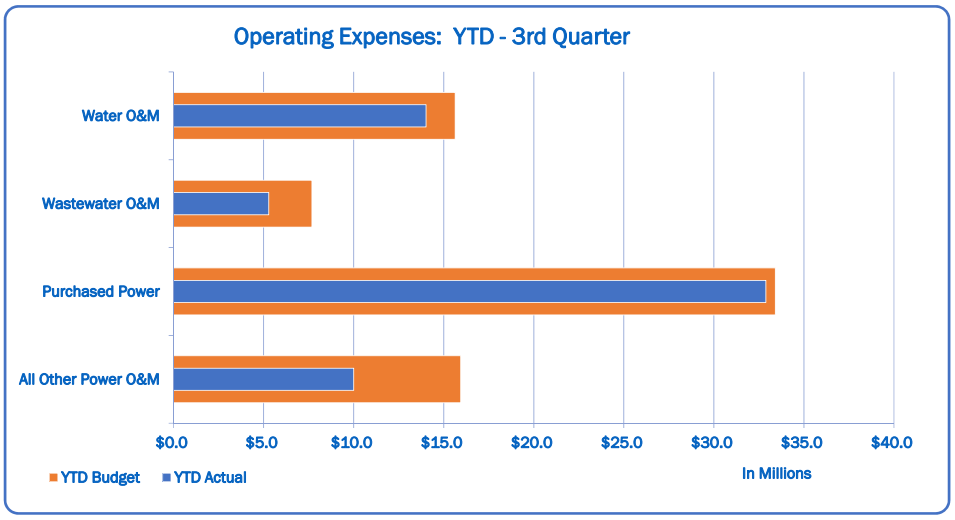
Quarterly Financial Report

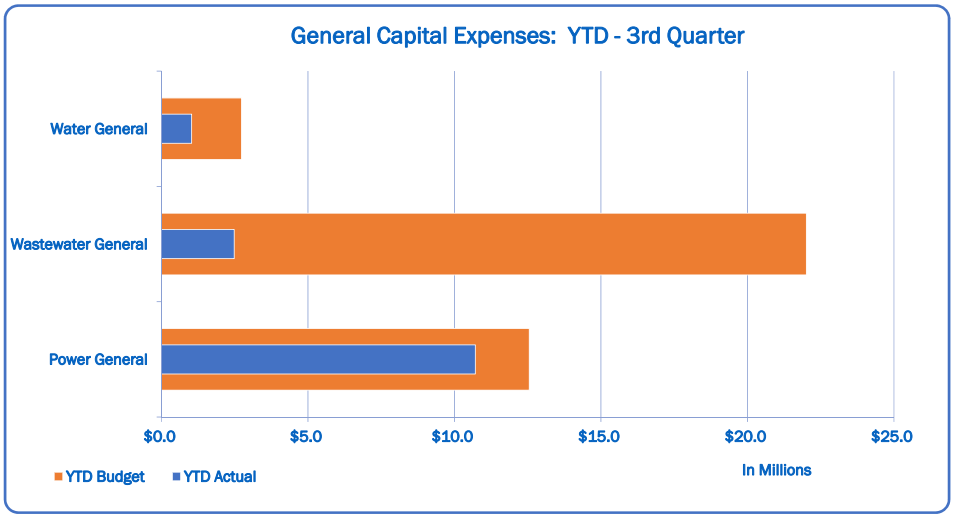
Jim Lees,
Utility Accounting Manager
October 18, 2017

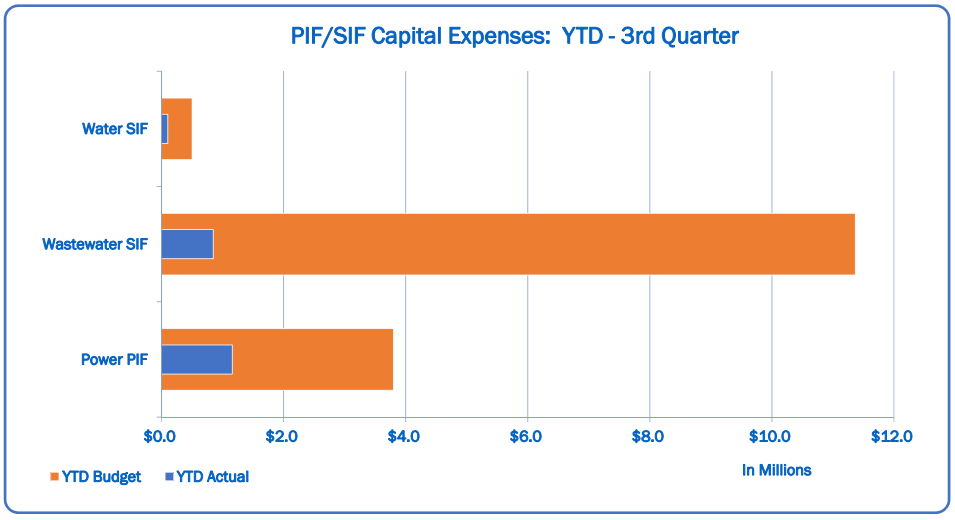


LOVELAND UTILITIES COMMISSION


PIF/SIF Revenue: YTD - 3rd Quarter
Water SIF Revenue
Wastewater SIF Revenue
Power PIF Revenue
$0.0
$0.5
$1.0
$1.5
$2.0
$2.5
YTD Budget
YTD Actual
In Millions


Operating Expenses: YTD - 3rd Quarter
Water O&M
Wastewater O&M
Purchased Power
All Other Power O&M
$0.0
$5.0
$10.0
$15.0
$20.0
$25.0
$30.0
$35.0
$40.0
YTD Budget
YTD Actual
In Millions


General Capital Expenses: YTD - 3rd Quarter
Water General
Wastewater General
Power General
$0.0
$5.0
$10.0
$15.0
$20.0
$25.0
In Millions
YTD Budget
YTD Actual


PIF/SIF Capital Expenses: YTD - 3rd Quarter
Water SIF
Wastewater SIF
Power PIF
$0.0
$2.0
$4.0
$6.0
$8.0
$10.0
$12.0
In Millions
YTD Budget
YTD Actual

LOVELAND UTILITIES COMMISSION

QUESTIONS?

Attachment B

City of Loveland
Financial Statement-Raw Water
For Period Ending 09/30/2017

		TOTAL BUDGET FYE 12/31/2017	YTD ACTUAL	YTD BUDGET	OVER <UNDER>	VARIANCE
1	**REVENUES & SOURCES**					
2	High Use Surcharge	52,500	95,434	39,420	56,014	142.1%
3	Raw Water Development Fees/Cap Rec Surcharge	411,446	268,642	310,736	(42,094)	-13.5%
4	Cash-In-Lieu of Water Rights	250,000	79,152	187,470	(108,318)	-57.8%
5	Native Raw Water Storage Fees	5,000	328,271	3,750	324,521	8653.9%
6	Loan Payback from Water	4,050,375	4,161,687	4,050,375	111,312	2.7%
7	Raw Water 1% Transfer In	434,340	356,219	334,290	21,929	6.6%
8	Interest on Investments	374,120	181,952	280,620	(98,668)	-35.2%
9	**TOTAL REVENUES & SOURCES**	**5,577,781**	**5,471,357**	**5,206,661**	**264,696**	**5.1%**
10	**OPERATING EXPENSES**					
11	Loan to Water	0	0	0	0	0.0%
12	Windy Gap Payments	7,100	7,044	5,328	1,716	32.2%
13	**TOTAL OPERATING EXPENSES**	**7,100**	**7,044**	**5,328**	**1,716**	**32.2%**
14	NET OPERATING REVENUE/(LOSS) (excl depr)	5,570,681	5,464,313	5,201,333	262,980	5.1%
15	RAW WATER CAPITAL EXPENDITURES	2,040,380	1,280,288	1,549,690	(269,402)	-17.4%
16	**ENDING CASH BALANCES**					
17	Total Available Funds		17,561,387			
18	Reserve - Windy Gap Cash		0			
19	Reserve - 1% Transfer From Rates		5,931,103			
20	Reserve - Native Raw Water Storage Interest		1,616,901			
21	**TOTAL RAW WATER CASH**		**25,109,390**			

NOTE: YTD ACTUAL DOES NOT INCLUDE ENCUMBRANCES TOTALING: 0

City of Loveland
Financial Statement-Water Rev
For Period Ending 09/30/2017

		TOTAL BUDGET FYE 12/31/2017	YTD ACTUAL	YTD BUDGET	OVER <UNDER>	VARIANCE
1	****UNRESTRICTED FUNDS****					
2	**REVENUES & SOURCES**					
3	Water Sales	14,477,980	11,873,976	11,339,952	534,024	4.7%
4	Raw Water Transfer Out	(434,340)	(356,219)	(334,290)	(21,929)	6.6%
5	Wholesale Sales	138,790	119,245	120,121	(876)	-0.7%
6	Meter Sales	54,710	61,121	40,850	20,271	49.6%
7	Interest on Investments	152,410	66,246	114,300	(48,054)	-42.0%
8	Other Revenue	950,250	352,543	887,370	(534,827)	-60.3%
9	Federal and State Grants	0	75,804	0	75,804	0.0%
10	Internal Loan Monies Received	751,356	751,017	751,356	(339)	0.0%
11	External Loan Monies Received	0	0	0	0	0.0%
12	**TOTAL REVENUES & SOURCES**	**16,091,156**	**12,943,732**	**12,919,659**	**24,073**	**0.2%**
13	**OPERATING EXPENSES**					
14	Source of Supply	2,478,490	1,430,170	2,013,220	(583,050)	-29.0%
15	Treatment	3,466,452	2,193,544	2,638,640	(445,096)	-16.9%
16	Distribution Operation & Maintenance	3,674,830	2,331,643	2,826,490	(494,847)	-17.5%
17	Administration	686,857	274,025	454,563	(180,538)	-39.7%
18	Customer Relations	398,899	236,992	263,400	(26,408)	-10.0%
19	PILT	983,050	806,243	745,152	61,091	8.2%
20	1% for Arts Transfer	99,837	7,238	87,217	(79,979)	-91.7%
21	Services Rendered-Other Departments	1,309,058	983,003	983,003	0	0.0%
22	Internal Loan Debt Expense	4,856,625	4,908,116	4,856,625	51,491	1.1%
23	External Loan Debt Expense	1,013,988	848,687	760,491	88,196	11.6%
24	**TOTAL OPERATING EXPENSES**	**18,968,086**	**14,019,661**	**15,628,801**	**(1,609,140)**	**-10.3%**
25	NET OPERATING REVENUE/(LOSS)(excl depr)	(2,876,930)	(1,075,929)	(2,709,142)	1,633,213	-60.3%
26	CAPITAL EXPENDITURES	3,571,394	1,027,560	2,734,195	(1,706,635)	-62.4%
27	ENDING CASH BALANCE		**6,084,022**			100
28	WATER DEBT FUNDS ENDING CASH BALANCE		**198,887**			100
29	MINIMUM BALANCE (15% OF OPER EXP)		2,845,213			
30	**OVER/(UNDER) MINIMUM BALANCE**		**3,238,809**			
31	****RESTRICTED FUNDS****					
32	**REVENUES & SOURCES**					
33	SIF Collections	2,755,460	1,584,354	1,549,210	35,144	2.3%
34	SIF Interest Income	33,180	20,184	24,320	(4,136)	-17.0%
35	SIF Federal and State Grants	0	75,804	0	75,804	0.0%
36	Internal Loan Monies Received	0	0	0	0	0.0%
37	**TOTAL SIF REVENUES & SOURCES**	**2,788,640**	**1,680,342**	**1,573,530**	**106,812**	**6.8%**
38	SIF Capital Expenditures	727,198	103,284	500,437	(397,153)	-79.4%
39	1% for Arts Transfer	1,049	562	780	(218)	-27.9%
40	Legal Agreements & Settlements	53,700	17,885	53,700	(35,815)	-66.7%
41	**SIF ENDING CASH BALANCE**		**2,893,557**			**100**
42	**TOTAL ENDING CASH BALANCE**		**8,977,579**			
	NOTE: YTD ACTUAL DOES NOT INCLUDE ENCUMBRANCES TOTALING:					
43	Water Treated at WTP (in million gallons)		3,768			
44	Water Sold To Customers (in million gallons, includes Ranch Water & Hydrant Sales)	3,561	3,034	2,848	186	6.5%

City of Loveland-LIVE

Financial Stmt-Wastewater Rev

For Period Ending 09/30/2017

		TOTAL BUDGET FYE 12/31/2017	YTD ACTUAL	YTD BUDGET	OVER <UNDER>	VARIANCE
1	****UNRESTRICTED FUNDS****					
2	**REVENUES & SOURCES**					
3	Sanitary Sewer Charges	11,325,240	8,484,291	8,495,347	(11,056)	-0.1%
4	High Strength Surcharge	360,690	346,230	275,417	70,813	25.7%
5	Interest on Investments	164,020	100,781	123,030	(22,249)	-18.1%
6	Other Revenue	12,920	353,654	10,460	343,194	3281.0%
7	Bond Proceeds	16,000,000	0	16,000,000	(16,000,000)	-100.0%
8	Federal Grants	0	0	0	0	0.0%
9	State Grants	0	0	0	0	0.0%
10	**TOTAL REVENUES & SOURCES**	**27,862,870**	**9,284,956**	**24,904,254**	**(15,619,298)**	**-62.7%**
11	**OPERATING EXPENSES**					
					0	0.0%
12	Treatment	3,998,641	2,546,419	3,034,406	(487,987)	-16.1%
13	Collection System Maintenance	2,879,659	1,366,525	2,184,490	(817,965)	-37.4%
14	Administration	422,986	180,275	330,599	(150,324)	-45.5%
15	Customer Relations	45,509	29,279	34,935	(5,656)	-16.2%
16	PILT	818,020	618,136	613,512	4,624	0.8%
17	1% for Arts Transfer	234,793	17,630	215,563	(197,933)	-91.8%
18	Services Rendered-Other Departments	633,529	476,044	476,044	0	0.0%
19	Debt Service	1,051,432	43,877	788,580	(744,703)	-94.4%
20	**TOTAL OPERATING EXPENSES**	**10,084,569**	**5,278,184**	**7,678,129**	**(2,399,945)**	**-31.3%**
21	NET OPERATING REVENUE/(LOSS)(excl depr)	17,778,301	4,006,772	17,226,125	(13,219,353)	-76.7%
22	CAPITAL EXPENDITURES	25,257,533	2,481,577	22,009,486	(19,527,909)	-88.7%
23	ENDING CASH BALANCE (126% OF OPER EXP)		**12,716,552**			100
24	WASTEWATER DEBT FUNDS ENDING CASH BALANCE		3,427			100
25	MINIMUM BALANCE (15% OF OPER EXP)		1,512,685			
26	OVER/(UNDER) MINIMUM BALANCE		**11,203,867**			
27	****RESTRICTED FUNDS****					
28	**REVENUES & SOURCES**					
29	SIF Collections	2,039,750	1,010,940	1,634,070	(623,130)	-38.1%
30	SIF Interest Income	134,730	70,868	101,070	(30,202)	-29.9%
31	SIF Bond Proceeds	8,900,000	0	8,900,000	(8,900,000)	-100.0%
32	**TOTAL SIF REVENUES & SOURCES**	**11,074,480**	**1,081,808**	**10,635,140**	**(9,553,332)**	**-89.8%**
33	SIF Capital Expenditures	13,672,962	846,495	11,365,239	(10,518,744)	-92.6%
34	1% for Arts Transfer	125,668	4,751	117,198	(112,447)	-95.9%
35	Debt Service	584,859	26,892	438,642	(411,750)	-93.9%
	SIF ENDING CASH BALANCE		**8,764,240**			100
	TOTAL ENDING CASH BALANCE		**21,480,792**			

NOTE: YTD ACTUAL DOES NOT INCLUDE ENCUMBRANCES TOTALING

36	Wastewater Treated at WWTP (in million gallons)	N/A	1,695	N/A		
37	Wastewater Billed To Customers (in million gallons)	1,767	1,328	1,327	1	0.1%

City of Loveland
Financial Statement-Power
For Period Ending 9/30/2017

		TOTAL BUDGET		YTD ACTUAL	YTD BUDGET	OVER <UNDER>	VARIANCE
	****UNRESTRICTED FUNDS****						
1	REVENUES & SOURCES:						
2	Electric revenues	$62,342,360		$47,533,039	$48,088,060	($555,021)	-1.2%
3	Wheeling charges	$244,650		$211,253	$183,488	$27,765	15.1%
4	Interest on investments	$229,810		$136,594	$172,358	($35,763)	-20.7%
5	Aid-to-construction deposits	$1,830,000		$1,301,467	$1,372,500	($71,033)	-5.2%
6	Customer deposit-services	$310,000		$163,167	$232,500	($69,333)	-29.8%
7	Late Payment Penalty Fees	$415,000		$366,882	$311,250	$55,632	17.9%
8	Connect Fees	$160,000		$130,851	$120,000	$10,851	9.0%
9	Services rendered to other depts.	$0		$1,800	$0	$1,800	0.0%
10	Other revenues	$333,100		$901,916	$249,825	$652,091	261.0%
11	Federal Grants	$0		$2,607,397	$0	$2,607,397	0.0%
12	State Grants	$0		$433,271	$0	$433,271	0.0%
13	Year-end cash adjustments	$0		$0	$0	$0	0.0%
14	**TOTAL REVENUES & SOURCES**	**$65,864,920**		**$53,787,637**	**$50,729,980**	**$3,057,657**	**6.0%**
15	OPERATING EXPENSES:						
16	Hydro oper. & maint.	$6,407,916		$578,989	$4,929,166	($4,350,177)	-88.3%
17	Solar oper.& maint.	$90,000		$37,232	$69,231	($31,999)	-46.2%
18	Purchased power	$43,470,597		$32,882,748	$33,409,588	($526,840)	-1.6%
19	Distribution oper. & maint.	$5,184,771		$3,346,648	$3,988,285	($641,638)	-16.1%
21	Customer Relations	$1,470,771		$437,689	$1,131,362	($693,673)	-61.3%
22	Administration	$840,662		$468,137	$646,663	($178,526)	-27.6%
23	Payment in-lieu-of taxes	$4,328,980		$3,291,935	$3,285,696	$6,239	0.2%
24	1% for Arts Transfer	$147,470		$53,912	$111,930	($58,018)	-51.8%
25	Services rendered-other depts.	$2,376,665		$1,785,208	$1,782,499	$2,709	0.2%
26	**TOTAL OPERATING EXPENSES (excl depn)**	**$64,317,832**		**$42,882,498**	**$49,354,420**	**($6,471,922)**	**-13.1%**
27	NET OPERATING REVENUE/(LOSS) (excl depn)	$1,547,088		$10,905,139	$1,375,560	$9,529,579	$0
28	CAPITAL EXPENDITURES:						
29	General Plant/Other Generation & Distribution	$14,410,913		$9,098,494	$11,059,678	($1,961,184)	-17.7%
30	Aid-to-construction	$1,630,000		$1,287,170	$1,253,846	$33,324	2.7%
31	Service installations	$310,000		$323,348	$238,462	$84,886	35.6%
32	**TOTAL CAPITAL EXPENDITURES**	**$16,350,913**		**$10,709,012**	**$12,551,986**	**($1,842,974)**	**-14.7%**
33	**ENDING CASH BALANCE (26% of Oper Exp)**			**$16,459,877**			
34	MINIMUM BAL. (23% of OPER EXP excl depn/chg 201			$14,793,101			
35	OVER/(UNDER) MINIMUM BALANCE			$1,666,776			
36	****RESTRICTED FUNDS****						
37	PIF Collections	$2,747,630		$1,884,459	$2,060,723	($176,263)	-8.6%
38	PIF Interest Income	$25,030		$26,471	$18,773	$7,698	41.0%
39	Water Loan Payback	$806,250		$791,700	$806,250	($14,550)	-1.8%
40	Federal Grants	$0		$143,438	$0	$143,438	0.0%
41	State Grants	$0		$23,906	$0	$23,906	0.0%
42	**TOTAL REVENUES**	**$3,578,910**		**$2,869,974**	**$2,885,745**	**($15,771)**	**-0.5%**
43	PIF Feeders	$2,441,998		$1,033,336	$1,878,460	($845,124)	-45.0%
44	PIF Substations & Solar	$2,565,882		$125,283	$1,924,412	($1,799,129)	-93.5%
45	**TOTAL EXPENDITURES**	**$5,007,880**		**$1,158,619**	**$3,802,872**	**($2,644,253)**	**-69.5%**
46	**ENDING PIF CASH BALANCE**			**$2,992,138**			
47	**TOTAL ENDING CASH BALANCE**			**$19,452,015**			

NOTE: YTD ACTUAL does NOT include encumbrances totalling $4,722,063

48	Energy Purchased (in million kWh) from PRPA	737	550	557	(7)	0.3%
49	Energy Sold to Customers (in million kWh)	715	538	549	(11)	-1.9%

Attachment C

City of Loveland

Statement of Net Assets - For Fund Water fund - Proprietary consolidated
For Period Ending 9/30/2017

Assets		
Current Assets		
Equity in Pooled Cash	$	(1,819,861.46)
Equity in Pooled Investments		7,847,122.37
Receivables, Net		2,225,128.09
Interfund Loan Receivable		-
Accrued Interest		69,683.47
Inventory, at Cost		231,001.23
Total Current Assets		8,553,073.70
Restricted Assets		
Future Raw Water Projects		24,972,000.61
Restricted Cash		198,886.77
System Impact Fees		2,875,996.84
Windy Gap Commitment		-
Total Restricted Assets		28,046,884.22
Property, Plant & Equipment		
Land		508,866.43
Intangible Assets/Easements		3,013,102.58
Buildings		3,467,553.01
Equipment		2,076,127.27
Improvements Other Than Buildings		175,203,548.86
Water Rights		65,848,046.61
Construction in Progress		4,003,336.26
Total Property, Plant & Equipment		254,120,581.02
Accumulated Depreciation		(48,344,224.97)
Net Property, Plant & Equipment		205,776,356.05
Total Non-Current Assets		233,823,240.27
Total Assets	$	242,376,313.97
Liabilities		
Current Liabilities		
Accounts Payable	$	197,477.44
Accrued Liabilities		287,512.00
Bond Interest Payable		65,922.50
Deferred Revenue		-
Current Portion of Long-Term Debt		227,252.80

Total Current Liabilities		778,164.74
Long-Term Liabilities		
Compensated Absences		185,934.11
External Loan Payable		12,600,000.00
Interfund Loan Payable		3,000,000.00
Total Long-Term Liabilities		15,785,934.11
Total Liabilities	$	16,564,098.85
Net Position		
Net Investment in Capital Assets	$	205,776,356.05
Restricted for Future Capital Improvements		28,046,884.22
Unrestricted		(8,011,025.15)
Total Net Position	$	225,812,215.12

NOTES:

Some items on the balance sheet are only changed at the end of the year, such as capital assets and accumulated depreciation.

City of Loveland

Statement of Net Assets - For Fund Wastewater fund - Proprietary consolidated
For Period Ending 9/30/2017

Assets

Current Assets		
Equity in Pooled Cash	$	1,031,584.14
Equity in Pooled Investments		11,562,716.26
Receivables, Net		1,490,993.51
Accrued Interest		51,995.21
Inventory, at Cost		3,392.90
Total Current Assets		14,140,682.02
Non-current Assets		
Interfund Loan Receivable		-
Restricted Assets		
Restricted Cash		3,426.82
Cash with Fiscal Agent		1,056.19
System Impact Fees		8,674,999.60
Total Restricted Assets		8,679,482.61
Property, Plant & Equipment		
Land		365,147.60
Intangible Assets/Easements		3,039,071.07
Buildings		3,441,799.26
Equipment		2,969,252.06
Improvements Other Than Buildings		80,006,372.20
Construction in Progress		6,062,700.61
Total Property, Plant & Equipment		95,884,342.80
Accumulated Depreciation		(28,981,427.55)
Net Property, Plant & Equipment		66,902,915.25
Total Non-Current Assets		75,582,397.86
Total Assets	$	89,723,079.88

City of Loveland

Statement of Net Assets - For Fund Wastewater fund - Proprietary consolidated
For Period Ending 9/30/2017

Liabilities

Current Liabilities		
Accounts Payable	$	112,780.84
Accrued Liabilities		205,618.64
Bond Interest Payable		3,419.18
Deferred Revenue		-
Current Portion of Long-Term Debt		186,148.77
Total Current Liabilities		507,967.43
Long-Term Liabilities		
Compensated Absences		152,303.54
External Loan Payable		550,000.00
Total Long-Term Liabilities		702,303.54
Total Liabilities	$	1,210,270.96

Net Position

Net Investment in Capital Assets	$	66,902,915.25
Restricted for Future Capital Improvements		8,679,482.61
Unrestricted		12,930,411.06
Total Net Position	$	88,512,808.92

NOTES:

Some items on the balance sheet are only changed at the end of the year, such as capital assets and accumulated depreciation.

City of Loveland

Statement of Net Assets - For Fund Power fund - Proprietary consolidated
For Period Ending 9/30/2017

Assets

Current Assets		
Equity in Pooled Cash	$	(1,789,611.00)
Equity in Pooled Investments		17,913,514.34
Receivables, Net		8,655,465.66
Accrued Interest		50,705.61
Inventory, at Cost		2,781,868.42
Total Current Assets		27,611,943.03
Non-current Assets		
Interfund Loan Receivable		3,000,000.00
Restricted Assets		
System Impact Fees		2,970,138.50
Property, Plant & Equipment		
Land		1,407,823.89
Intangible Assets/Easements		3,214,002.47
Buildings		3,654,046.86
Equipment		4,179,730.80
Improvements Other Than Buildings		141,706,780.15
Construction in Progress		29,966,609.14
Total Property, Plant & Equipment		184,128,993.31
Accumulated Depreciation		(56,196,497.27)
Net Property, Plant & Equipment		127,932,496.04
Total Non-Current Assets		133,902,634.54
Total Assets	$	161,514,577.57

City of Loveland

Statement of Net Assets - For Fund Power fund - Proprietary consolidated
For Period Ending 9/30/2017

Liabilities

Current Liabilities		
Accounts Payable	$	4,268,661.89
Accrued Liabilities		344,089.30
Deposits		4,784,569.12
Current Portion of Long-Term Debt		278,916.23
Total Current Liabilities		9,676,236.54
Long-Term Liabilities		
Compensated Absences		228,204.18
Interfund Loan Payable		-
Total Liabilities	$	9,904,440.72

Net Position

Net Investment in Capital Assets	$	127,932,496.04
Restricted for Future Capital Improvements		2,970,138.50
Unrestricted		20,707,502.31
Total Net Position	$	151,610,136.85

NOTES:

Some items on the balance sheet are only changed at the end of the year, such as capital assets and accumulated depreciation.

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 7
MEETING DATE: 10/18/2017
SUBMITTED BY: Michelle Erickson
STAFF TITLE: Technical Specialist

ITEM TITLE:

2016 Water Loss Audit

DESCRIPTION:

This item reviews the results of the Water Loss Audit of 2016, including ways to improve data validity of future audits, the progress made to improve the water tracking methods, and the actions taken or identified to better manage or reduce non-revenue water.

SUMMARY:

The Water and Power Department completed its second annual Water Loss Audit using AWWA's methodology presented in the Water Audits and Loss Control Programs, Manual of Water Supply Practices M36 by gathering information from existing records, procedures, and databases to categorize where water entered and exited the LWP distribution system during the 2016 calendar year. A water loss audit tracks all sources and uses of water within a water system over a specified period and is summarized in a Water Balance Table (see Attachment A). The Water Balance Table is based on the theory that all water placed into a distribution system would equal all the water taken out of a distribution system. The sum of each column of components in the Water Balance Table are equal and therefore "balance".

The water audit can help reveal and clarify inefficiencies in water delivery and revenue generation and answer questions such as: How much water entered the water system? For what purposes was the water used? What types of water loss occurred? How much water was lost? What was the financial cost of water loss? What was the volume and the financial cost of non-revenue water? Our goals in performing these water audits are to identify areas in which we can reduce water losses, improve data validity and decrease non-revenue water where practical and feasible.

Water Supplied: In 2016, the Water Division supplied 4,622 million gallons (MG) of water to the distribution system. Because the large diameter source water meter has not been tested or calibrated we verified the amount metered going into the distribution system against what entered the water treatment plant less the water removed during the treatment process. During this verification process, we discovered that the WIMS computer program that calculates the water entering the water treatment plant from the reservoir and the river was using a daily averaging function rather than a summing function of the meter readings. This error was corrected in August 2016. In order to have accurate data for this audit, we pulled the raw data from SCADA records from January through July 2016 and used the WIMS records from August through December. There was a 4.3% difference between the metered water entering the water treatment plant less the process water verses what was metered water exiting the plant and delivered to the distribution system. We already track the water removed in the treatment process that comes from either backwashing the filters or from the sludge removed from the sedimentation basins. Starting in September 2017, we began tracking an additional portion of the water removed during the treatment process.

AWWA recommends that source water meters be tested annually. Small errors on the source meters can result in large swings in other areas of the water audit. The configuration of our Water Treatment Plant does not allow the treated water source meter to be removed for testing; however, we have noted that the electronic components of the treated water and raw water source meters should be calibrated on a regular

bases as well as performing some type of flow test such as a drawdown flow test to improve the data validity of what is measured going into the distribution system.

Billed Metered Consumption: Billed metered consumption for 2016 was 3,884 MG. This makes up 84% of the 4,622 MG water supplied into the distribution system. We have noted in the billed unmetered, unbilled metered and unbilled unmetered sections below the additional locations that were changed to be both billed and metered during either 2016 or 2017.

Billed Unmetered Consumption: In 2016, we had 3,891 gallons of billed unmetered usage, which decreased by 189,000 gallons from 2015. This category includes the vehicles in the Public Works Department with unmetered water tanks for which we estimate the water usage based on the volume of tank capacity per vehicle and load counts. LWP then bills Public Works based on the estimated water usage. During 2016, two additional water meters were installed on street sweeper vehicles and only four vehicles remain that are billed based on load counts.

Unbilled Metered Consumption: In 2016, we had 11.9 MG of unbilled metered usage, which decreased 284,000 gallons from 2015. Below is a summary of what is included in this figure as well as the progress made to get this consumption billed or tracked more accurately.

- ***Wastewater Utility:*** The Wastewater Treatment Plant had three meters that were not set to bill. In 2016, about 13 million gallons of water went through these meters. We began billing the wastewater utility for this water usage starting September 30, 2016 for all three of these meters. (10.7 MG of unbilled metered usage in 2016)
- ***Detention Ponds:*** We are working to bill the irrigation water provided to two detention ponds located off of 1st Street to either the Stormwater Utility or the Parks Department. (788,589 gallons in 2016)
- ***Storm Water Ditch Syphon:*** The irrigation water of the landscaping around the Louden Siphon is not set to bill, and we are working to get this usage charged to Stormwater. This was probably due to an oversight when Stormwater left LWP and became part of the Public Works Department. (255,663 gallons in 2016)
- ***HOA:*** The water used to irrigate the landscaping around one of our lift stations was not set to bill. In researching the subdivision plans and working with our City Attorney's office, we were able to begin billing the HOA for this water usage beginning in 2017. (69,895 gallons in 2016)
- ***Events of Authorized Unbilled Water Usage:*** Any event in which water is not billed, requires the prior approval of the Director of Water and Power. We track the usage for these instances through hydrant meters. For 2016, this included water for the Corn Roast Festival, Loveland Loves BBQ event and a Boys and Girls Club event at the Promenade Shopping Center. (27,987 gallons in 2016)
- ***Downtown Watering:*** The Parks Department had been filling up a portable storage tank to water several beds in the downtown area with water from a meter that was not set to bill. Starting on January 23, 2017, this water usage from this meter is now set to bill the Parks Department. (952 gallons in 2016)

Unbilled Unmetered Consumption: In 2016, we estimated we had 31.8 MG of authorized unbilled unmetered water usage. The costs for some of these uses of water are shared by all water customers, such as the water used to maintain the distribution system and water used in fire training and firefighting. When economically feasible, we are working to get this water usage metered and billed. When that is not economically feasible, we are working to improve the methods used to estimate and track water usage. Below outlines what falls into this category and the progress made in tracking this usage.

- ***Sanitary Sewer Jetting:*** In 2016, 38% of the unbilled unmetered consumption was used for sanitary sewer jetting. Because this maintenance task is used to maintain the wastewater collection system and not for the water distribution system, this water usage should be charged to the wastewater utility.

We will begin budgeting for this expense in our normal spring budget setting process starting in the spring of 2018. We have worked with utility accounting on the procedure to do quarterly fund transfers from the wastewater utility to the water utility to account for this water usage going forward. (Estimated 12.0 MG in 2016)

- ***Maintenance of Water Distribution System:*** We use water to maintain our water distribution system. As part of the audit, we reviewed the calculations used to estimate the water usage and are working with staff to maintain detailed and accurate logs of this water usage. For 2016, we estimated this water usage as follows:

Gallons Used	Water Distribution System Maintenance Activity
1,416,250	Fire hydrant flushing
202,401	Scheduled main shutdown Non-Emergency De-Watering (Usually for construction projects)
94,381	Transmission Line Flushing
3,015,937	Water Storage Tank Cleaning
5,642,137	Drain tanks

- ***Disinfection & Construction Projects:*** We use water to disinfect water pipes and for non-emergency de-watering of lines. Both of these primarily occur during construction projects and for new developments. We reviewed the calculations used to estimate the water usage and are working with staff to maintain more detailed and accurate logs. (Estimated 8.5 MG in 2016)
- ***Fire Training Grounds:*** There are nine unmetered fire hydrants used for fire training purposes at the Loveland Fire Training Grounds. We previously investigated installing a water meter and pit at both ends of the Fire Training Grounds, but found the project to be cost prohibitive. The Fire Authority now maintains a log of water usage when they or other parties hook up to the on-site hydrants for fire training exercises. Starting with this audit, the Fire Authority submits this log annually as part of the audit. (Estimated 580 thousand gallons in 2016)
- ***Off-Site Fire Training:*** The Fire Authority performs off-site fire training in which they hook up to fire hydrants throughout the City. The Fire Authority now maintains a log of which water district's fire hydrants they hook up to and estimates the water used during these off-site training exercises Starting with this audit, the Fire Authority submits this log annually as part of the audit. (Estimated 221 thousand gallons in 2016)
- ***Fire Fighting:*** The Fire Authority tracks and logs the water used for each fire incident. Starting with this audit, the Fire Authority submits this log annually as part of the audit. (Estimated 57 thousand gallons in 2016)
- ***Wastewater Treatment Plant:*** There are two swamp coolers on the roof of the Blower Building and an eyewash station and hose hookup in the UV Building at the Wastewater Treatment Plant that had unmetered water usage. We installed meters at both locations and began billing the wastewater utility for this water usage starting February 16, 2017. (Estimated 42 thousand gallons in 2016)
- ***Parks:*** North Lake Park had unmetered water usage for the train depot concession stand sink. We installed a meter and began billing Parks for this usage starting August 31, 2017. (Estimated 5 thousand gallons in 2016)
- ***Fire Sprinkler Systems:*** We have not previously tracked or estimated the water used for fire sprinkler systems. Because the majority of the water used for fire sprinkler systems is during the initial installation with very minimal amounts required during annual inspections, we will be focusing our efforts on estimating the water used during the initial installation of new structures with fire sprinklers. We hope to have this in place for the next audit. Fire sprinkler systems use unmetered treated water in the following circumstances:
    - Initial installation: *Flow Tests (*determine the pressures in the area), *BacT Tests (*sanitize the lines), *Velocity Flush (*clear any debris in the lines), *Initial Fill/Leak Repair* (fill the sprinkler system with water and fix any leaking zones before the system goes live)

- **Fire Sprinkler System Inspections** (Performed at least annually and use at minimum 100 to 200 gallons per zone tested)
- **Sprinkler System Activation:** When the system is triggered by building temperatures reaching at least 155 degrees or when activated due to high water pressure incidences.

To better account for water used during flow tests, we are working on creating a form to be filled out onsite during the flow test which will help to estimate the water used. We hope to begin using this form by 2018. Our Inspectors already estimate the water used for the BacT tests. We are working with the Fire Authority and our Cross Connection Control Technicians to document pressures, building square footage and fire line sizes of all new buildings with fire sprinklers to help estimate the water used for velocity flushes and to initially fill fire sprinkler systems.

- ***Fire Pumps:*** We have not previously tracked or estimated the water used for fire pumps. Fire pumps are needed when the water system cannot provide sufficient pressure to meet the hydraulic design requirements of the fire sprinkler system such as for tall buildings, systems with relatively high terminal pressure at the fire sprinklers in order to provide a large volume of water, such as in storage warehouses or when the water supply is provided from a ground level water storage tank. Fire pumps are certified annually and each test generally uses several thousands of gallons of water. We are in the process of working with the Fire Authority and our Cross Connection Control Technicians to document the locations of fire pumps throughout our system to help estimate the water usage used for the annual certification tests. We hope to have this in place for the next audit.

<u>Apparent Losses</u>**:** These losses are the nonphysical losses that occur when water is successfully delivered to the customer but is not measured or recorded accurately. These losses include unauthorized consumption, metering inaccuracies and systematic data handling errors. These losses are valued at the full rate the utility would have received had they been billed. Because apparent losses are valued at the customer retail cost, controlling apparent losses can offer substantial revenue recovery opportunities for utilities.

- **Unauthorized Consumption:** Consumption not explicitly or implicitly authorized by the utility, commonly known as water theft. These include water from illegal connections, open bypasses, buried or otherwise obscured meters, misuse of fire hydrants and fire-fighting systems, vandalized or bypassed consumption meters, tampering with meter reading equipment, etc. For the water audit, we used the AWWA default estimate of 0.25% of water supplied. This percentage has been found to be representative of this component of loss in water audits compiled worldwide. (Estimated 11.6 MG in 2016)

- **Customer Meter Inaccuracies:** Water meters are essentially the cash registers for the water utility and it is important that they accurately record water usage, particularly for customers with high water use, so that the utility is adequately compensated for the water that customers use and so that each customer pays their fair share of the cost of the utility. Below outlines our testing procedures:
  - **Account Anomalies:** 5/8", 3/4" and 1" meters are tested when there is some type of anomaly recorded such as a large change in consumption or a problem with the actual meter (high bill, meter stuck, non-consumption read, meter malfunction, etc.).
  - **1" Meters:** Because many of the 1" meters had not been tested in several years, the Water Metering group decided to test a larger portion of the 1" meters in 2016.
  - **Large Meters:** 1-1/2" and greater sized meters are tested every 5 years.

LWP's Water Metering group tested 760 water meters in 2016 and replaced close to 570 of those meters. Water meters are replaced rather than rebuilt when it is more cost effective (particularly for smaller meters), parts to rebuild the meter have been discontinued, meters with lead components removed for testing may not be reinstalled at a different location, which often results in replacing the meter, and often when meters tested are not Advanced Meter Infrastructure (AMI) compatible. The

following table summarizes the meter test results, the quantity of meters in the field in 2016 and the estimated total number of gallons we estimate were under registered based on the test results by meter size for 2016.

Size of Meter	Quantity Tested in 2016	Average Test Results	Quantity in meter Population	Estimated Under Registration (Millions of Gallons)
5/8" or 3/4"	412	90.5%	25,138	226.714
1"	208	97.7%	881	7.370
1.5"	47	96.0%	408	14.826
2"	68	96.3%	317	15.347
3"	15	91.4%	64	20.,207
4"	5	98.8%	25	1.259
6"	5	98.8%	6	0.723
Totals	760	92.64% Weighted Average	26,840	286.446

The AWWA audit uses a weighted average of the meter test results applied to the entire meter population for each type of meter. Because only the small meters flagged for problems were tested in 2016, the average test result of 90.5% for 5/8" and 3/4" meters is suspected to be lower than the performance of the average small meter in the field. To improve the meter test validity, we would need to perform a random sampling and testing of the small meter population rather than just testing meters flagged for problems. Each small meter tested, takes a 1-man or 2-man crew approximately 3 to 4 hours to complete. Additional water meter staffing would be required to substantially increase the number of meter tests performed per year. (Estimated under registration 286.5 MG for 2016)

- Systematic Data Handling Errors: These refer to errors in the processes that transmit, archive, and report customer consumption totals from the time when a meter is read to the time when that consumption is billed. For the water audit, we used the AWWA default estimate of 0.25% billed metered authorized consumption. (Estimated 9.7 MG in 2016)

  The City has contracted with Water Company of America to review unbilled or misbilled water, wastewater, power, stormwater and solid waste utilities. The consultant is currently working to comb through data and perform field work to find areas in which we can recapture revenue such as when a City rate structure was misapplied, finding billing system inaccuracies, detecting unknown connections, finding account coding errors, flagging chronic meter reading errors, etc. Some of this work may lead to corrections in the actual number of the gallons of water consumed to help us more accurately reflect our true water consumption. One of the findings so far for water is that a fire hydrant and fire protection tap fee was not being charged to all the customers located outside of the City that are served by a fire hydrant within 1000' of their water service. Although, this does not affect the gallons of water used, it will allow us to capture additional revenue from the customers in which this fee applies.

Real Losses: Physical water losses of treated, energized water from the water distribution system from breaks, leaks and overflows. Our real losses for 2016 were estimated at 386 MG, a decrease of 194 MG from 2015. In this audit, real losses are calculated as what remains after authorized consumption, and apparent loss volumes are deducted from the water supplied volume.

When our Water Operations crews respond to a reported leak, they estimated the amount of water lost for each of these incidents occurring in 2016 as outlined in the table below:

Gallons Lost	Water Distribution System Maintenance Activity
96,039	Replace service
571,958	Repair service

958,469	Repair/replace valve
10,000	Replace main
28,906,849	Repair main

Reported leakages are easy to see, and they account for about 9% of the total estimated leakage from our system in 2016. The rest of the leakage is either hidden (i.e. leaking into a river, ditch, ground water, etc.) or goes unreported. The volume of real water loss is dependent on the number of leaks, the size of the leaks, the operating pressures of the system and the total time the leaks are permitted to run. Improvements in each of these areas can help reduce real losses. Keeping up with deteriorating waterlines requires time and money to address problems that we are aware of as well proactive measures to find and fix the hidden or unreported leaks.

- **Number of Leaks:** The following are two approaches to determine the approximate amount of reinvestment needed to keep up with Loveland's aging and deteriorating infrastructure.
  - In 2016, we had 1 leak for every 27,728 feet of pipe (88 leaks total on 2,440,101 feet of pipe). To decrease the number of leaks that occur in a year, we would need to replace on average about 27,728 feet of pipe for each leak we want to prevent from occurring.
  - Assuming a system design life of 100-years, 1% or 24,401 feet of waterlines should be replaced or rehabilitated per year. With a weighted average cost of $316.86 per foot ($275.53/foot for materials + 15% for engineering and construction), we would need about $6.7 Million budgeted per year for waterline replacements.
- **Operating Pressures:** As a system's pressures increases, the amount of water that escapes from each leak increases as well. Lowering the operating pressures of a system will decrease the leakage from a system. Loveland's average operating pressure is at 65 psi, which falls within AWWA's recommended range of 60 psi to 80 psi for normal working pressures in water distribution systems.
- **Size of Leaks/Run Times:** The faster a utility is aware of a leak, the faster a utility can respond to fix the leak and thus reduce the run-time of the leaks and the amount of water lost per leak. LWP has employed some acoustic leak detection technologies in the past; however, these efforts have not been consistent due to time and budgetary constraints. Our Water Operations crews are constantly occupied fixing reported leaks and maintaining the rest of the system. Improvement in this area would require increased staffing dedicated to preventative maintenance work such as employing leak detection technologies that help to pinpoint leaks and then working to fix those leaks that would have otherwise gone undetected.

Performance Indicators & Focus Areas: The AWWA water audit software provides performance indicators, an overall audit validity score and focus areas to improve the validity of future audits, which are summarized in the tables below:

Financial Impact of Losses	Annual Cost
Apparent losses	$1,877,048
Real losses	$ 361,759

Financial Performance Indicator	Percent
Non-revenue water as percent by volume of water supplied	16.0%
Non-revenue water as percent by cost of operating system	31.3%

Note: Apparent losses valued at the retail unit cost, which is the lost volumetric water and wastewater revenue. Real losses and unbilled authorized consumption are valued at the variable production costs, which are the costs to supply the next unit of water to the system.

Operational Efficiency Performance Indicators	Number	Units
Apparent losses per service connection per day	31.91	Gallons
Real losses per service connection per day	40.07	Gallons
Real losses per service connection per day per psi pressure	0.62	Gallons
Current annual real losses (CARL)	386.37	MG
Unavoidable annual real losses (UARL) *Based on key system characteristics of lengths of mains, number of service connections, and average system operating pressure*	154.34	MG
Infrastructure Leakage Index (CARL/UARL) *The ILI is useful in benchmarking operational performance with other utilities. In 2016, Loveland's real losses were 2.5 times the technical minimum.*	2.50	ratio

Loveland's 2016 water audit received a validity score of 65 out of 100 based on the data inputs and accuracy gradings for each input value. See below for the areas needing the most attention to improve the validity score of future audits:

Priority Areas and Ways to Improve Validity Score
1. Volume from own sources
Ideally, treated water source meters should be flow tested and calibrated on a regular basis. Because Loveland's treated water source meter is configured in a way that does not allow us to remove it from operation to be tested, we have been verifying the metered flows against the raw water source meters' flow from the river and the reservoir less the water removed during the treatment process. However, none of these source meters have been tested or calibrated in several years. At a minimum, we should at least calibrate the electronic components of these meters and perform drawdown flow tests to help verify the accuracy of the measured flows of the treated water source meter on a regular basis.
2. Unbilled metered
In 2016, 10.7 MG of the 11.9 MG of unbilled metered usage was for the process water used at the Wastewater Treatment Plant. We began billing the wastewater utility for this water starting 4th Quarter of 2016, which will eliminate the majority of the unbilled metered water usage from future water audits.
3. Customer metering inaccuracies
Due to staffing constraints, we have generally only performed meter tests on small meters flagged for problems. Because we are testing only the meters suspected of already having issues, the average test results for the small meters are suspected to be much lower than the performance of the average small meter in service. To improve validity in this area, we would need additional staffing to perform random sampling and testing of small 5/8", 3/4" and 1" meters on a yearly basis rather than only testing small meters flagged for problems.

RECOMMENDATION:

Staff item only. No action required.

ATTACHMENTS:

- Attachment A: 2016 Loveland Water & Power Water Balance Table
- Attachment B: Presentation slides

Attachment A

Water Balance Table

Loveland Water & Power • 2016 Calendar Year

Volume in Million Gallons • Dollar Value

Volume from Own Sources 4,608.496	System Input Volume 4,644.060	Water Exported 21.888	Billed Water Exported 21.888			Revenue Water 21.888
			Authorized Consumption 3,958.630	Billed Authorized Consumption 3,884.434	Billed Metered Consumption 3,884.430	Revenue Water 3,906.322
					Billed Unmetered Consumption 0.004	
				Unbilled Authorized Consumption 43,653 $40,872	Unbilled Metered Consumption 11.889 $11,132	Non-Revenue Water (NRW) 737.738 $2,279,679
					Unbilled Unmetered Consumption 31.764 $29,740	
		Water Supplied 4,622.172	Water Losses 663.542	Apparent Losses 307.712 $1,877,048	Unauthorized Consumption 11.555 $70,488	
					Customer Metering Inaccuracies 286.446 $1,747,322	
					Systematic Data Handling Errors 9.711 $59,238	
Water Imported 35.564				Real Losses *Includes Leakage/Overflows on:* • *Transmission & Distribution Mains* • *Water Storage Tanks* • *Service Connections up to the point of Customer Metering* 386.372 $361,759		

Apparent losses valued at the retail unit cost (the lost volumetric water and wastewater revenue). Real losses and unbilled authorized consumption are valued at the variable production costs (the costs to supply the next unit of water to the system).

LOVELAND UTILITIES COMMISSION

Water Loss Audit of 2016

Michelle Erickson, Technical Specialist

October 18, 2017

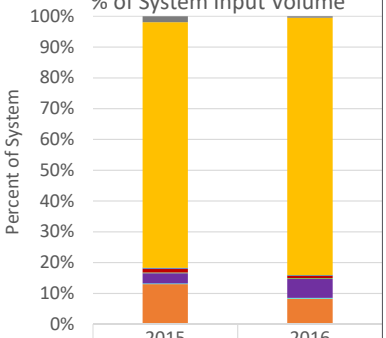
Agenda

1. Water Balance Table Overview
2. Audit Results by Category
3. Overall Audit Quality & Key Focus Areas
4. Performance Indicators

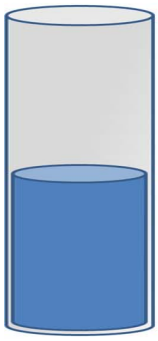
LOVELAND UTILITIES COMMISSION

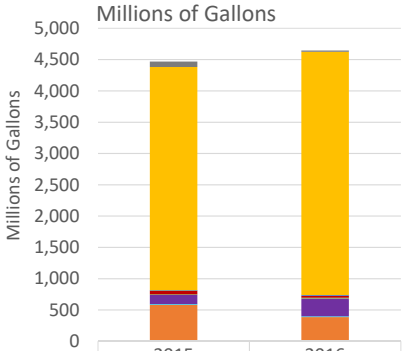
Water Balance Table • Loveland Water & Power • 2016 Calendar Year • Volume in Million Gallons • Dollar Value NRW

Volume from Own Sources	System Input Volume	Water Exported	Billed Water Exported			Revenue Water
		21.888	21.888			21.888
4,608.496	4,644.060	Water Supplied 4,622.172	Authorized Consumption 3,958.630	Billed Authorized Consumption 3,884.434	Billed Metered Consumption 3,884.430	Revenue Water 3,906.322
					Billed Unmetered Consumption 0.004	
				Unbilled Authorized Consumption 43,653 $40,872	Unbilled Metered Consumption 11.889 • $11,132	Non-Revenue Water (NRW) 737.738 $2,279,679
					Unbilled Unmetered Consumption 31.764 • $29,740	
			Water Losses 663.542	Apparent Losses 307.712 $1,877,048	Unauthorized Consumption 11.555 • $70,488	
					Customer Metering Inaccuracies 286.446 • $1,747,322	
Water Imported 35.564					Systematic Data Handling Errors 9.711 • $59,238	
				Real Losses 386.372 • $361,759		



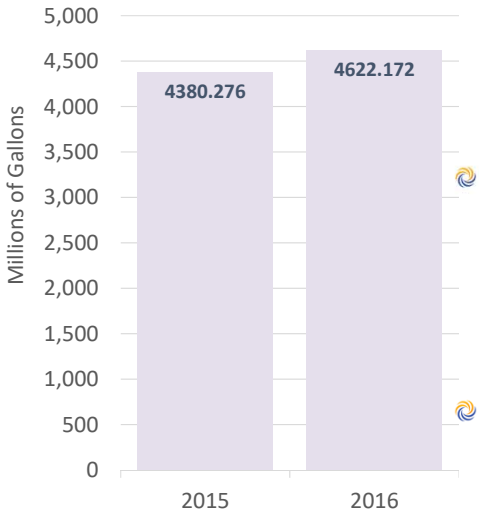
	2015	2016
Water Exported	1.9500%	0.4713%
Billed Metered	79.7781%	83.6430%
Billed Unmetered	0.0043%	0.0001%
Unbilled Metered	0.2725%	0.2560%
Unbilled Unmetered	1.2256%	0.6840%
Unauthorized Consumption	0.2451%	0.2488%
Customer Metering Inaccuracies	3.3354%	6.1680%
Systematic Data Handling Errors	0.1994%	0.2091%
Real Losses	12.9894%	8.3197%
System Input Volume	100%	100%





	2015	2016
Water Exported	87.113	21.888
Billed Metered	3564.000	3884.430
Billed Unmetered	0.193	0.004
Unbilled Metered	12.173	11.889
Unbilled Unmetered	54.753	31.764
Unauthorized Consumption	10.951	11.555
Customer Metering Inaccuracies	149.007	286.446
Systematic Data Handling Errors	8.910	9.711
Real Losses	580.289	386.372
System Input Volume	4,467.389 MG	4,622.172 MG

Water Supplied

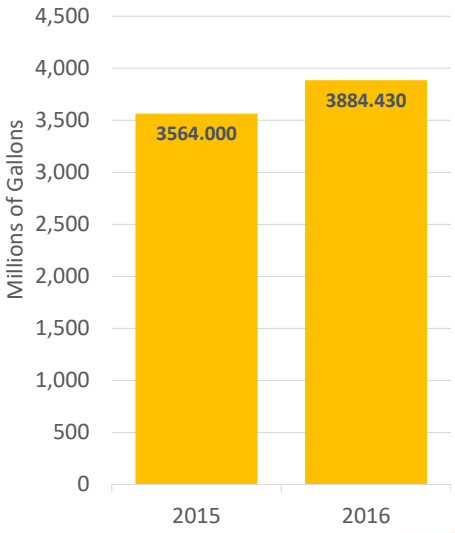


- **Improved Tracking & Verification:**
  - Corrected a source meter calculating error mid-2016
  - Included evaporative losses from WTP
  - Began tracking water that returns to the river from the cold water pumps starting September 2017
- **Future Improvement Identified:** Calibration of source meter electronics, draw down flow tests

4,608.496 MG Volume from Own Sources (Produced at WTP)
+ 35.564 MG Water Imported (Bought from Other Water Districts)
- 21.888 MG Water Exported (Sold to Other Water Districts)
4,622.172 MG Water Supplied

LOVELAND UTILITIES COMMISSION

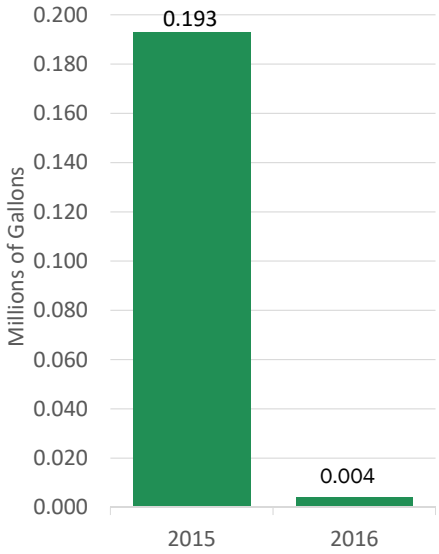
Billed Metered Consumption



- **Includes:** Metered and billed water usage of sites and vehicles
- 83.6% of water supplied in 2016
- 9% more in 2016 from 2015
- **Improvement:** Began billing Wastewater Utility for WWTP process water (2.2 MG in 4th Qtr. 2016)

LOVELAND UTILITIES COMMISSION

Billed Unmetered Consumption



- **Includes:** Water usage that is estimated and billed based on load counts
- **Improvements:** Installed 2 meters on street sweeping trucks with water tanks in 2016. Only 4 Public Works vehicles remaining with unmetered water tanks.

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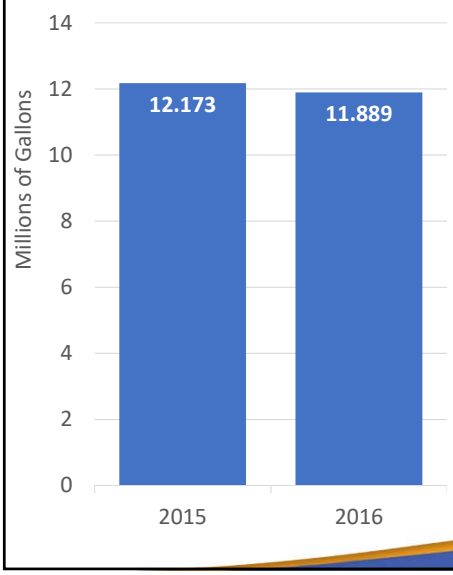
Unbilled Metered Consumption



- **Includes:** 3 WWTP meters; landscape irrigation of 1 lift station, 2 detention ponds, & 1 ditch siphon; downtown tank watering, & director approved events/incidents
- **Reductions:** Changed to billed metered status
  - WWTP process water charged to WW Utility
    - Starting 4th Qtr. 2016 (10.7 MG 1st-3rd Qtr. 2016)
  - Lift station landscape irrigation charged to HOA
    - Starting Jan. 2017 (68,895 Gallons in 2016)
  - Downtown watering charged to Parks Department
    - Starting Jan. 2017 (952 Gallons in 2016)
- **Future Improvements:** Bill irrigation water at 2 detention ponds & ditch syphon

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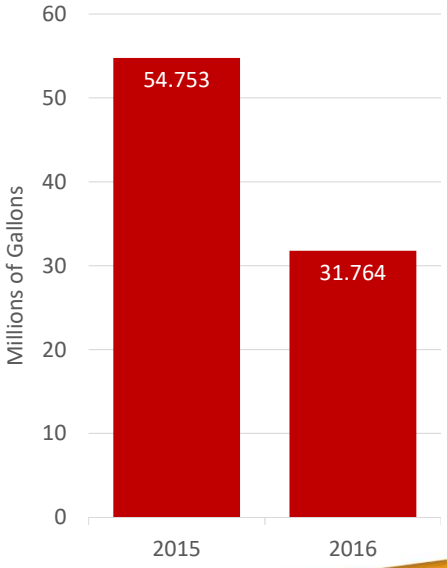
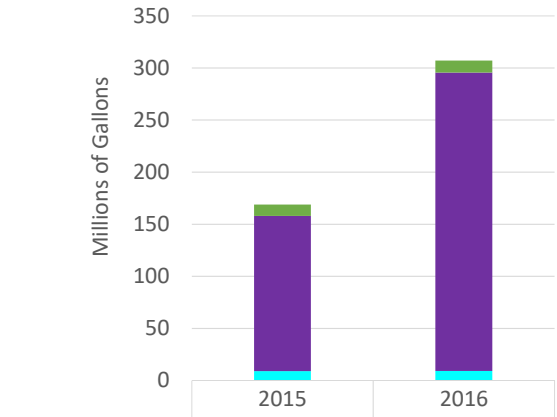
Unbilled Unmetered Consumption



- **Includes:** Estimated water use for fire training & fighting, water distribution system maintenance, water pipe disinfection, & sanitary sewer jetting
- **Reductions:** Installed meters and began billing:
  - Starting Sept. 2017 - North Lake Park Train Depot
  - Starting Feb. 2017 - WWTP Swamp Coolers and UV Building
- **Improved Tracking:** Fire Authority use
- **Future Improvements Identified:**
  - Charge Wastewater Utility for sanitary sewer jetting
  - Estimate water usage for fire sprinklers and fire pumps

LOVELAND UTILITIES COMMISSION

Apparent Losses

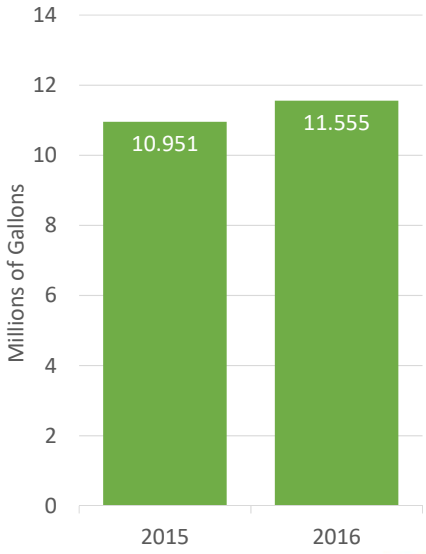


	2015	2016
Unauthorized Consumption	10.951	11.555
Customer Metering Inaccuracies	149.007	286.446
Systematic Data Handling Errors	8.910	9.111
Apparent Losses	**168.868 MG**	**307.712 MG**

- **Includes:** Nonphysical losses when water is successfully delivered to a customer, but not measured or recorded accurately.
- **Apparent Loss Categories:**
  - Unauthorized consumption
  - Customer metering inaccuracies
  - Systematic data handling errors
- **Valued** at retail unit cost

LOVELAND UTILITIES COMMISSION

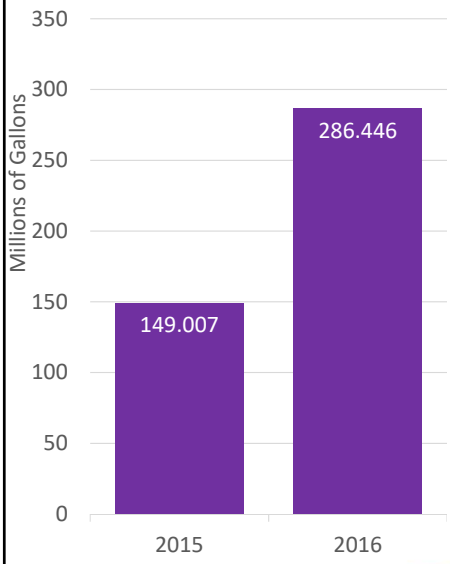
Unauthorized Consumption



- **Includes:** Consumption not explicitly or implicitly authorized by the utility, commonly known as water theft
- **Examples:**
  - Illegal connections
  - Open bypasses
  - Buried or otherwise obscured meters
  - Misuse of fire hydrants or fire-fighting systems
  - Vandalized or bypassed consumption meters
  - Tampered with meter reading equipment
- **Estimate:** Based on AWWA default setting of 0.25% Water Supplied

LOVELAND UTILITIES COMMISSION

Customer Metering Inaccuracies



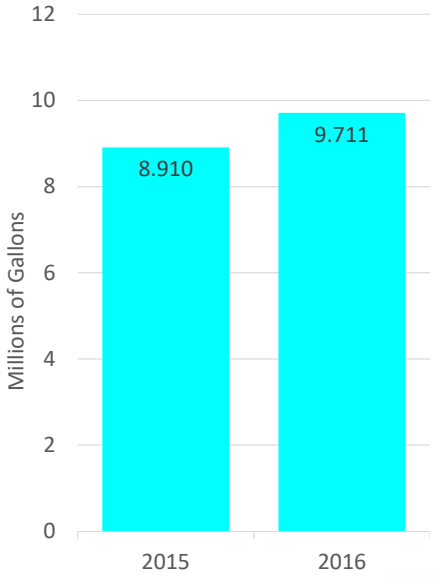
- **Includes:** Inaccuracies in registering water consumption by customer meters
  - *Usually meters under-register water due to wear-and-tear or inappropriate meter sizing*
- **Estimate:** Weighted average of meter test results applied to the corresponding meter population starting in 2016. (Previously used a straight average of all meter test results applied to all meters.)
- **Future Improvement Identified:** Perform random sampling and testing of the small meters either in the field and/or prior to installation rather than only testing small meters when flagged for problems

LOVELAND UTILITIES COMMISSION

Customer Metering Inaccuracies

Size of Meter	Quantity Tested in 2016	Average Test Results	Total Meter Population	Total Gallons Registered by Meter Size (MG)	Estimated Under Registration (MG)
5/8" or 3/4"	412	90.5%	25,138	2,386.460	226.714
1"	208	97.7%	881	320.448	7.370
1.5"	47	96.0%	408	370.654	14.826
2"	68	96.3%	317	414.789	15.347
3"	15	91.4%	64	234.970	20.207
4"	5	98.8%	25	104.880	1.259
6"	5	98.8%	6	60.229	0.723
Totals	760 (Replaced about 570)	92.64%	26,840	3,892.433	286.446

Systematic Data Handling Errors



- **Includes:** Errors in the process to transmit, archive and report customer consumption
  - Includes errors from the point the meter is read to when the customer is billed
- **Estimate:** Based on AWWA default setting of 0.25% billed metered consumption
- **Audit:** Water Company of America performing a thorough review of unbilled or misbilled utilities.

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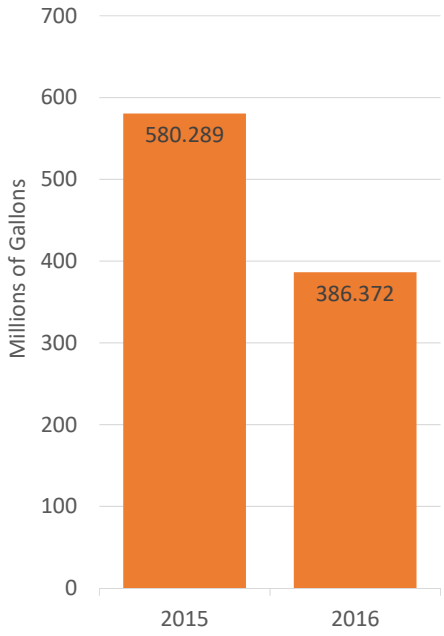
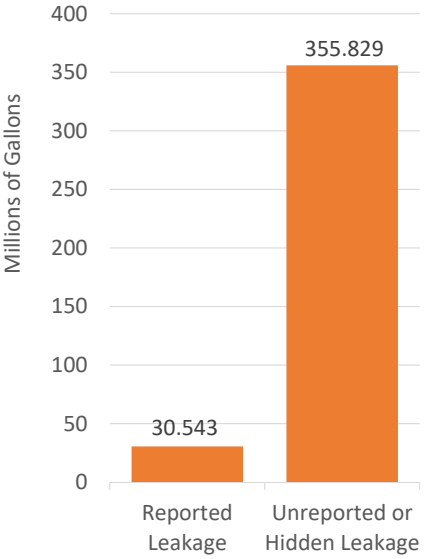


Real Losses

- **Includes:** Physical losses of treated, energized water from the distribution system, commonly known as water leaks and overflows
- **Estimate:** Based on what remains after authorized consumption and apparent losses are deducted from Water Supplied volume
- **Volume of Loss Affected By:**
  - Number of leaks
  - Magnitude of leaks
  - Operating pressures
  - Total time leaks are permitted to run

LOVELAND UTILITIES COMMISSION



Breakout of Real Losses

- 88 reported leaks in 2016 (1 leak for every 27,728 feet of pipe)
- 65 psi average operating pressure
- Reported leakage account for 9% of the total estimated leakage in 2016
- Proactive leak management strategies needed to reduce real losses – *new leak detection technologies are currently being evaluated*

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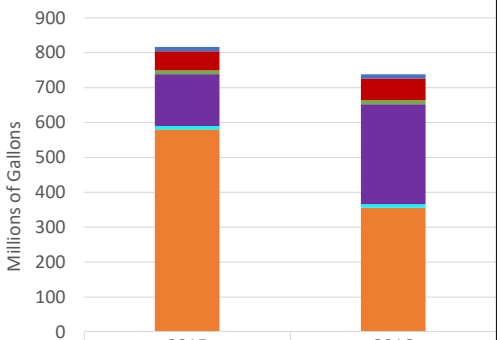
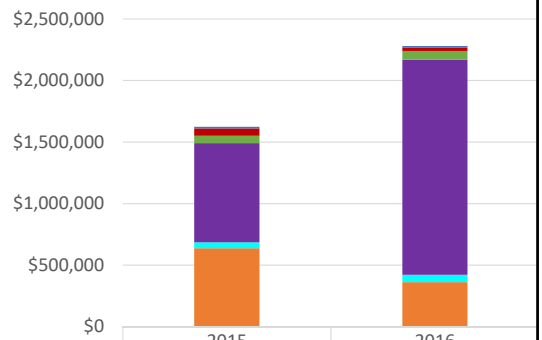
Volume of Non-Revenue Water



	2015	2016
Unbilled Metered	12.173	11.889
Unbilled Unmetered	54.753	62.307
Unauthorized Consumption	10.951	11.555
Customer Metering Inaccuracies	149.007	286.446
Systematic Data Handling Errors	8.910	9.711
Real Losses	580.289	355.829
Totals	**816.083**	**737.738**

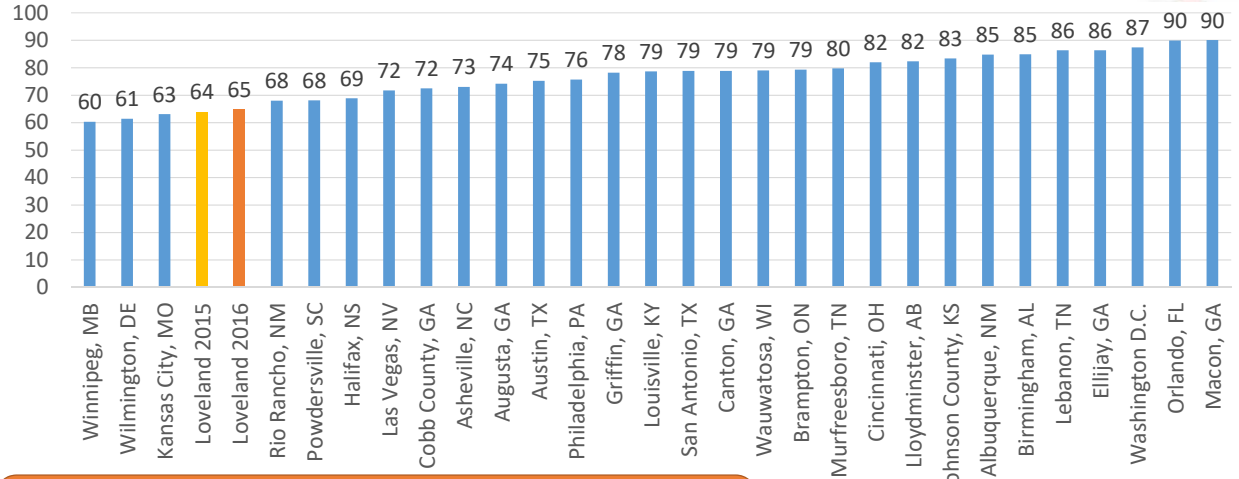
Cost of Non-Revenue Water



	2015	2016
Unbilled Metered *	$13,356	$11,132
Unbilled Unmetered *	$60,075	$29,740
Unauthorized Consumption **	$59,245	$70,488
Customer Metering Inaccuracies **	$806,128	$1,747,322
Systematic Data Handling Errors **	$48,203	$59,238
Real Losses *	$636,695	$361,759
Totals	**$1,623,702**	**$2,279,679**

* Valued at variable production cost ** Valued at retail unit cost

Water Audit Data Validity Score



- The score is a volumetrically-weighted average, in which a lower score reflects less confidence in the accuracy of data.
- It is better to have a lower score that accurately reflects the quality of data than a higher score that is less accurate.

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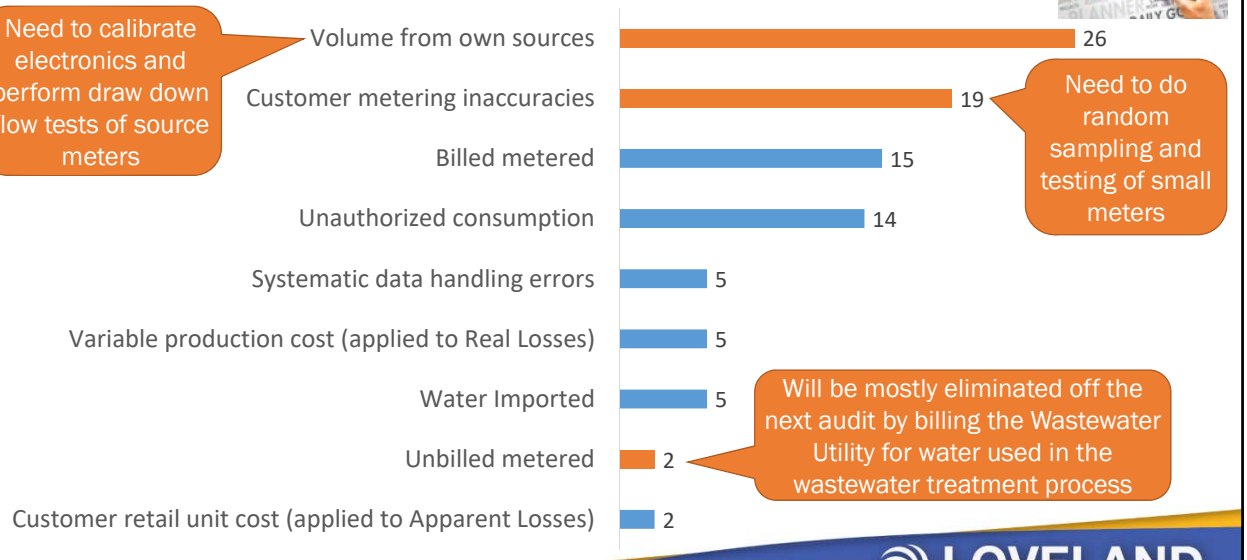
Top Priorities for Improvement

Need to calibrate electronics and perform draw down flow tests of source meters



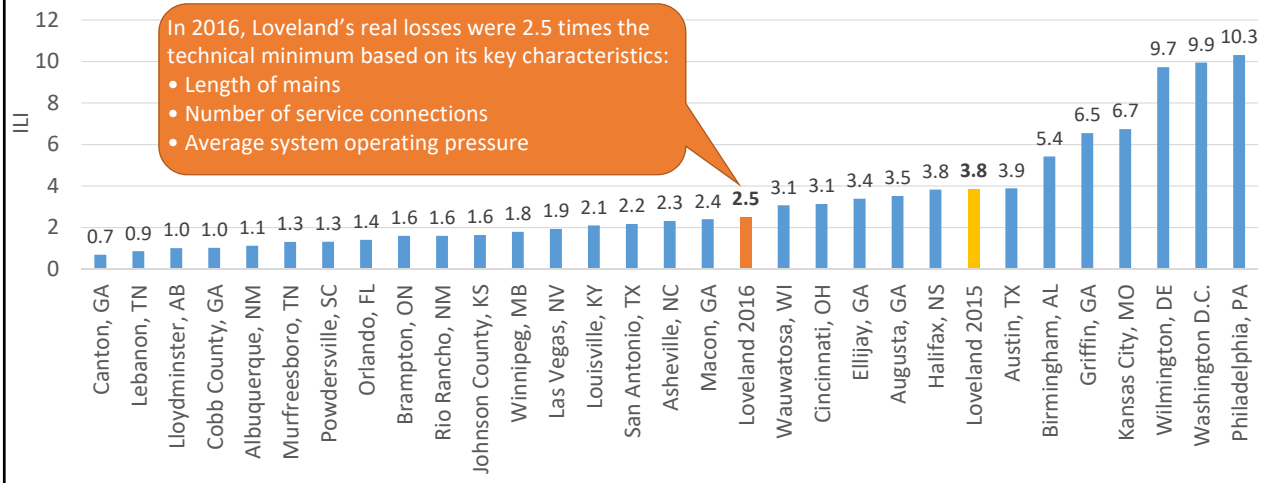
Need to do random sampling and testing of small meters

Will be mostly eliminated off the next audit by billing the Wastewater Utility for water used in the wastewater treatment process

LOVELAND UTILITIES COMMISSION

Infrastructure Leakage Index (ILI)

In 2016, Loveland's real losses were 2.5 times the technical minimum based on its key characteristics:
- Length of mains
- Number of service connections
- Average system operating pressure



Note: Infrastructure Leakage Index (ILI) is the ratio of the Current Annual Real Losses to the Unavoidable Annual Real Losses. The ILI is useful in benchmarking operational performance with other utilities.

LOVELAND UTILITIES COMMISSION

LOVELAND UTILITIES COMMISSION

QUESTIONS?

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 8
MEETING DATE: 10/18/2017
SUBMITTED BY: Tanner Randall
STAFF TITLE: Senior Civil Engineer

ITEM TITLE:

HDR contract for Final Design of the Boyd Parallel Interceptor and Morning Drive 30" Waterline Phase 2

DESCRIPTION:

This item is for the approval of the final design contract amendment to HDR for the Boyd Parallel Interceptor (W1601H) and Morning Drive 30" Waterline Phase 2 (W1705D) project. HDR is currently finishing the Preliminary Design phase services for both of the projects. In addition to the contract a brief overview of each of the projects will be provided to familiarize the LUC of these critical needs.

SUMMARY:

The City's largest sanitary sewer basin drains to one main interceptor which the City refers to as the Old Boyd Basin Interceptor. The existing 24" Interceptor is currently out of capacity and a parallel 24" sanitary sewer has been planned to convey a portion of the existing basin flows along with flows from all future basin development. The proposed new interceptor will be approximately 6,700 linear feet (LF) and will commence north of E. Eisenhower Blvd. on the south side of the Greeley Loveland Canal. The sanitary sewer will cross the Canal and proceed in a northerly direction through Cheyenne St., W. 17th St., Boise Ave., Silver Leaf Dr., and Madison Ave where it terminates south of 29th St (see attached map in Figure 1 for proposed route). The design and subsequent construction is complicated by the Canal crossing, tight corridors, other utilities, and affects to traffic.

The City continues to see increased water demand. Evidence of this are production records at the WTP as well as longer run times on pumps and tank fluctuation levels. The City's gravity pressure zone is fed from two water storage tanks. One of these water tanks, the 4 MG 29th St. water tank also serves as the suction source of water for the City's largest pressure zone (P1). Additionally in the coming years it will also serve as the suction source of water for the P2 pressure zone. Given that a great deal of the City's water demand is met through this water tank and nearby pump station it is important that a consistent water supply network be in place. Therefore a 30" diameter master planned waterline is to be extended from near the Morning Dr. Pump Station to the 29th St. tank. This waterline will provide redundancy as well as be utilized to meet high flow demand.

HDR is the design engineer that has been selected to finalize each of the above referenced projects. The final design efforts of the two projects, when combined with the current Preliminary Design services work pushes the total contract to $532,400.

Per Municipal Code 3.12.060A and 3.12.060B, the LUC must approve Water and Power contracts above $500,000 or any change order that causes a contract to equal or exceed $500,000 and which, when combined with all previous change orders, equals or exceeds 20% of the original contract amount.

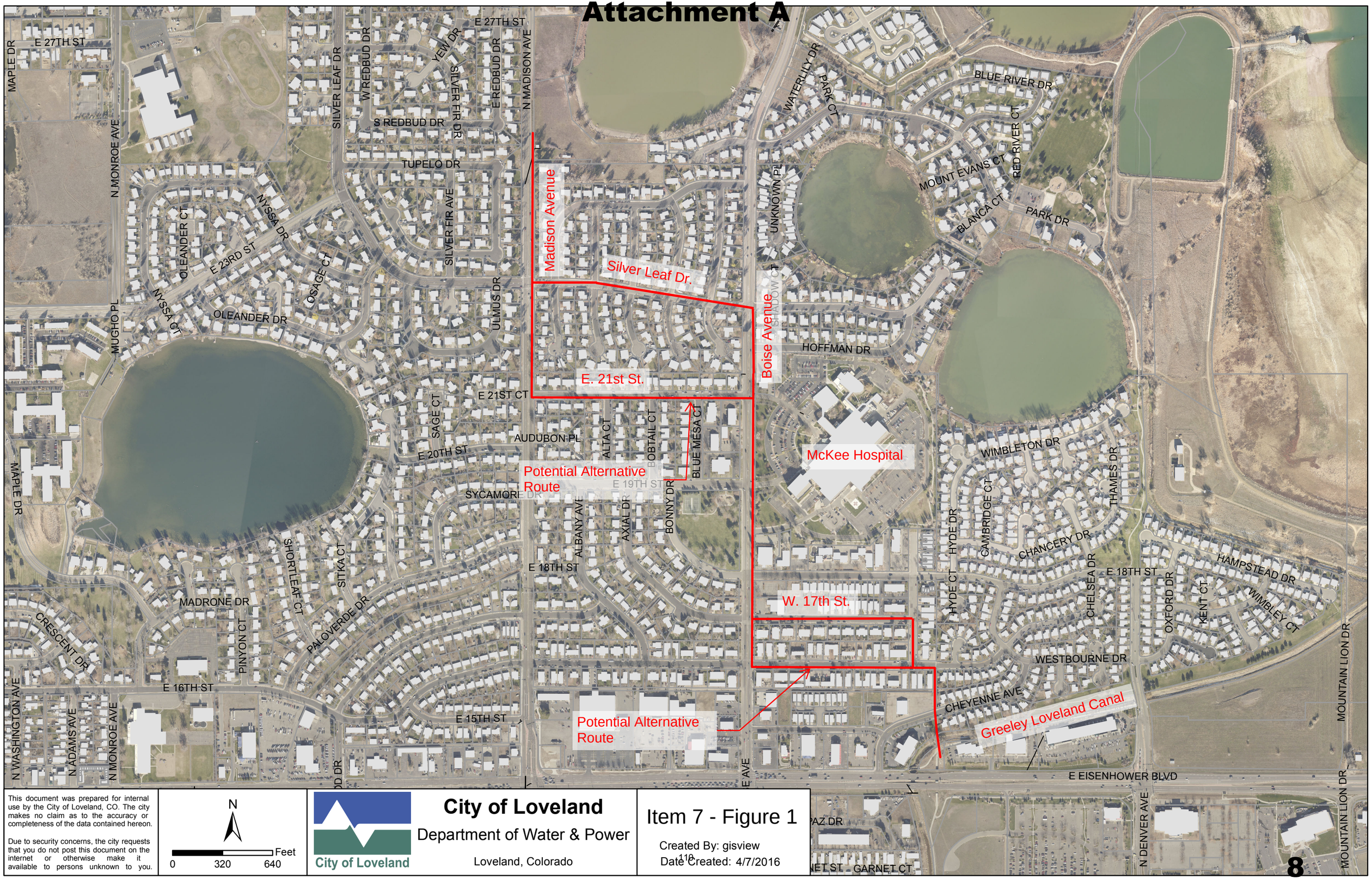
RECOMMENDATION:

Adopt a motion recommending that the LUC approve the change order to the contract for *Final Design of the Boyd Parallel Interceptor and Morning Drive 30" Waterline Phase 2* with HDR to increase the not-to-exceed amount to $532,400 and authorize the City Manager to sign the change order on behalf of the City.

ATTACHMENTS:

- Attachment A: Item 7 – Figure 1: 24” Boyd Parallel Sanitary Sewer Route
- Attachment B: Item 7 – Figure 2: 30” Morning Drive Waterline Extension Route
- Attachment C: HDR Final Design Scope and Fee

Attachment A



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City of Loveland

City of Loveland

Department of Water & Power

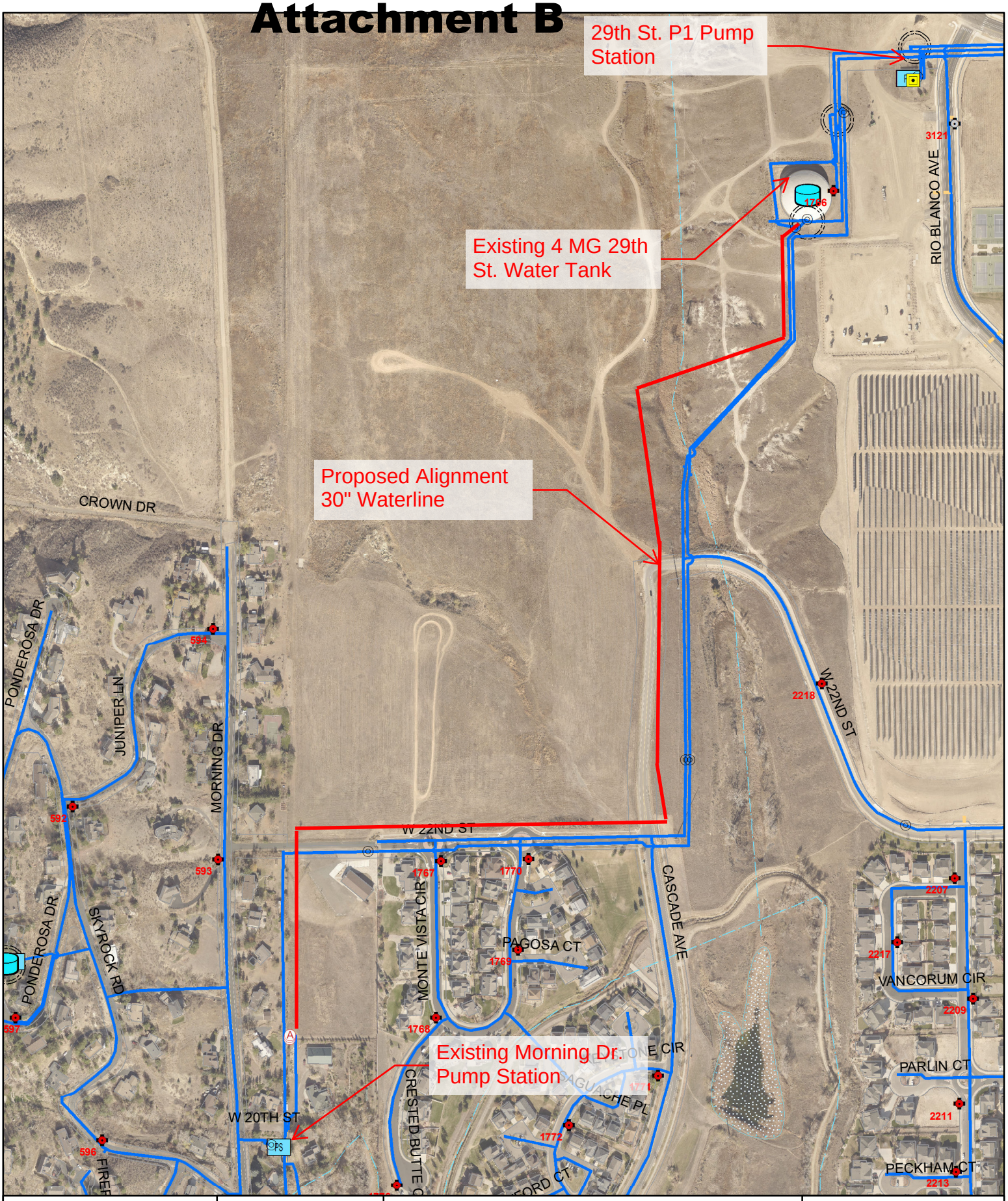
Loveland, Colorado

Item 7 - Figure 1

Created By: gisview

Date Created: 4/7/2016

Attachment B



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City of Loveland

Department of Water & Power

Loveland, Colorado

Item 7- Figure 2

Created By: gisview

Date Created: 10/9/2017

Attachment C

SCOPE OF WORK
Amendment 1

CITY OF LOVELAND
AND HDR ENGINEERING, INC.

Boyd Parallel Interceptor and Morning Drive 30" Waterline (Phase 2) Project

PROJECT BACKGROUND AND OBJECTIVES
The City's largest collection basin (Boyd) is at capacity in certain segments due to recent development and unplanned connections in the northwest part of the City. A parallel Boyd Interceptor is planned to alleviate the capacity limitations. The parallel interceptor will be approximately 24-inches in diameter and 6,300 feet long. A diversion structure will be utilized to split flow, provide operational flexibility, and assist with future maintenance.

The City utilizes a 24-inch steel pipeline to convey flow from the Morning Drive Pump Station to the 29th Street Steel Tank. This pipeline was installed in the early 1960's and is not sufficient for planned flows to the proposed developments. A parallel 30-inch diameter waterline is proposed to meet the upcoming demands. The City previously installed a segment of 30-inch pipe in 2011 however there wasn't sufficient funding to complete the project. This project will extend the previous segment of pipe to the 29th Street Tank which is approximately 4,200 feet in length. A secondary part of the project will be to install cathodic protection on the existing 24-inch line.

HDR is to provide preliminary design, final design and construction phase services for the Boyd Parallel Interceptor and Phase 2 of the Morning Drive 30" Waterline. The project will be broken into three phases: Phase I– Preliminary Design, Phase II – Final Design and Bidding, and Phase III – Construction. The following scope of work presents the services that HDR will provide. This amendment to the initial scope of work will add in the Phase II services.

PHASE I – PRELIMINARY DESIGN
See the original contract for the scope of work and required deliverables for the Phase I (Preliminary Design)

PHASE II – FINAL DESIGN
The following summarizes the scope of work, deliverables, and assumptions for the Final Design Phase of the project:

TASK SERIES 400 – PROJECT MANAGEMENT AND COORDINATION

Task 401 &402 - Team Coordination Meetings
Team coordination meetings with City staff, HDR and the CMaR will be held biweekly at a City location as directed by the City's Project Manager. The purpose of the meetings will be to discuss project status, exchange information requirements, for the Consultant to provide updates on the design status and for the team to provide information and review comments. In addition to the biweekly in-person meetings, weekly conference calls between the City's PM and HDR's

PM will be held. Select key team members will participate in the calls as necessary. Meeting minutes along with a list of action items and decisions made will be provided by HDR after each coordination meeting.

This task includes the time required to prepare meeting minutes and also includes the hours associated with monthly internal Design team meetings held at HDR.

Task 403 – Manage Work to Plan
Monitor project progress, including work completed, work remaining, budget expended, schedule, estimated cost of work remaining, estimated cost at completion, and out of scope items. Manage activities and sub-consultants within established budgets. Process sub-consultant invoices and prepare and submit a brief monthly progress memorandum and invoice.

Task Series 400 Deliverables

- Tasks 401– Meeting minutes, action items log, and decisions log for each coordination meeting will be prepared by HDR and distributed to team members.
- Task 402 – Monthly invoices and progress memos.

Task Series 400 City Provided Services and/or Information

- Attendance and input at meetings.
- Provide available data and information as requested by HDR.

Task Series 400 Assumptions

- The design duration is assumed to be six (6) months in length - a total of twelve (12) progress coordination meetings are anticipated to be attended by HDR.
- Weekly update conference calls will be held on the off weeks between in-person meetings

TASK SERIES 500 – BOYD FIELD INVESTIGATIONS

Task 501 – Supplemental Surveying
HDR will utilize a subconsultant to perform the survey to supplement the design and construction of the pipelines. The survey will include private utility locating at various locations along the alignments to determine horizontal locations of utilities. It is anticipated that additional utilities verifications will be required on the Boyd Interceptor and the final scope of survey is undefined at this point. For budgeting purposes, an allowance of $3,000 has been established for subconsultant surveying services. Individual task orders will be issued to the Survey subconsultant to obtain firm price quotes before the work is conducted.

Task 502 – Field Investigations and Site Visits
Perform miscellaneous site visits and field investigations to collect data and measurements to supplement the design. Assist in surveying and pothole activities as required to complete the work. Perform a soil resistivity survey and corrosion testing on the soil samples collected during predesign to assist in the Cathodic Protection design. It is understood that the final scope of activities is undefined at this point. For budgeting purposes, a total of 68 hours has been

assumed. If this budget is exhausted then additional work related to this task shall be considered as additional services.

Task Series 500 Deliverables

- Electronic CAD files of the completed survey.

Task Series 500 City Provided Services and/or Information

- Locating for City utilities (water, electric, storm, sewer)

Task Series 500 – Key Assumptions

- None

TASK SERIES 600 – BOYD INTERCEPTOR FINAL DESIGN

Task 601 – ROW Assistance

HDR will utilize the Surveying Subconsultant to prepare exhibits and legal descriptions for land acquisition. It is anticipated that two (2) temporary easements will be required for staging areas and a permanent and temporary easement will be required on the hotel property to the north of the Greeley/Loveland Canal. The City will provide land owner coordination, submission of easement documents to be recorded, and payment for the easement(s) that will be required for the project.

Task 602 – Construction Permitting Assistance

Assist the CMaR with supporting information and figure development for the construction dewatering permit and storm water management plan. An exhibit will also be developed to facilitate the Greeley/Loveland Canal crossing agreement. It is understood that the actual level of effort for this task is still undefined. A total of 80 hours has been budgeted for this task; if this budget is exhausted then additional work related to this task shall be considered as additional services.

Task 603 through 605 – Plans and Specification Development

Prepare construction documents for the recommended improvements for review and comment by the City and CMaR at the 30%, 60%, and For Construction completion milestones. Preliminary plans will be routinely discussed and reviewed at the regularly scheduled coordination meetings. It is anticipated that the plans and specifications will be construction ready at or near a typical 90% design level.

The project is anticipated to be delivered in two construction packages. The first package will be for the canal crossing to facilitate a winter open cut crossing and the second package will be for the remainder of the work. The City's stormwater group is contracting with another Engineer (Respec) for the design of the stormwater improvements from 17th and Boise Ave. to the outfall at the Greeley/Loveland Canal. In addition to the stormwater improvements, the City also plans on running a new power feed to the Mckee Medical center. It is anticipated that the electrical improvements will be shown on the HDR sewer plans and details will be provided by the City's Power department (no electrical design is included in the scope). The following drawings are assumed to be required for the packages:

Boyd Parallel Interceptor Package 1:

- Cover/Site Location/Index
- Site Plan
- Plan and Profile 1 – Sewer (existing MH stub to Cheyenne Ave)
- Storm water management plan (SWMP/GESC)
- Canal Crossing Details
- Trench, Manhole and Misc. Details

Boyd Parallel Interceptor Package 2:

- Cover/Site Location/Index
- Overall Plan and Sheet Layout
- Plan and Profile 1 – Sewer
- Plan and Profile 2 – Sewer
- Plan and Profile 3 – Sewer
- Plan and Profile 4 – Sewer
- Plan and Profile 5 – Sewer
- Plan and Profile 6 – Sewer
- Stormwater management plan 1
- Stormwater management plan 2
- Stormwater management plan 3
- Trench, Manhole and Misc. Details
- Diversion Structure MH Details
- Electrical Details (provided by City)

Not shown in the above sheet lists are the storm sewer plan and profile sheets and details provided by Respec. These are assumed to be provided to the CMaR in a separate volume.

Task Series 600 Deliverables

- HDR will provide an electronic copy of the design documents at each milestone (30%, 60% and For Construction).
- Land Acquisition Exhibits (three temporary and one permanent) and associated legal descriptions.

Task Series 600 City Provided Services and/or Information

- Attendance and Input at Meetings
- Provide written review comments compiled into a single document at the 30% and the 60% review milestones.

Task Series 600 – Key Assumptions

- The design will be complete and ready for construction within 6 months.
- No hydraulic modeling is required – the City will provide the design flows for the interceptor
- No electrical design is required.

- The Greeley/Loveland canal will be crossed by open cut methods (trenchless construction design is not included)
- CDPHE Permitting and Site Application are not required (the ID of the interceptor will be smaller than 24")
- Traffic Control will be provided by the CMaR
- A maximum of four (4) land acquisition exhibits will be required
- Existing survey data can be relied upon for design and construction
- The City's version of the 2013 EJCDC standard front end documents will be utilized for the specifications.
- With the exception the legal exhibits and legal descriptions prepared by HDR, all other Right-of-way acquisition and temporary construction easement acquisition will be conducted by the City.
- The structures and manholes are assumed to be precast. Structural engineering is not required.
- Permit and review fees will be paid for by the City.
- HDR accepts no liability for the accuracy of work performed by other consultants or subs not directly contracted through HDR. It is assumed their work will be provided on-time as requested by The City. The City's other subconsultants will collaborate with HDR and share the necessary electronic files to coordinate the design of the pipelines.

TASK SERIES 700 – MORNING DRIVE 30" WATERLINE (PHASE 2) FINAL DESIGN

Task 701 – ROW Assistance
HDR will utilize the Surveying Subconsultant to prepare exhibits and legal descriptions for land acquisition. It is anticipated that two (2) temporary easements will be required for staging areas, a temporary easement will be required on the Church property and a permanent and temporary easement will be required on the Hunter's Run property (5 exhibits total). The City will provide land owner coordination, submission of easement documents to be recorded, and payment for the easement(s) that will be required for the project.

Task 702 – Construction Permitting Assistance
Assist the CMaR with supporting information and figure development for the construction dewatering permit, power line crossing agreement, and storm water management plan. It is understood that the actual level of effort for this task is undefined. A total of 38 hours has been budgeted for this task; if this budget is exhausted then additional work related to this task shall be considered as additional services.

Task 703 through 705 – Plans and Specification Development
Prepare construction documents for the recommended improvements for review and comment by the City and CMaR at the 30%, 60%, and For Construction completion milestones. Preliminary plans will be routinely discussed and reviewed at the regularly scheduled coordination meetings. It is anticipated that the plans and specifications will be construction ready at or near a typical 90% design level.

The project is anticipated to be delivered in two construction packages. The first package will be for the power line / drainage swale crossing and the second package will be for the remainder of the work. The following drawings are assumed to be required for the packages:

Morning Dive 30" Waterline (Phase 2) Package 1:

- Cover/Site Location/Index
- Site Plan
- Plan and Profile 1
- Stormwater management plan 1 (SWMP/GESC)
- Crossing and Misc. Details

Morning Dive 30" Waterline (Phase 2) Package 2:

- Cover/Site Location/Index
- Site Plan
- Plan and Profile 1
- Plan and Profile 2
- Plan and Profile 3
- Plan and Profile 4
- Stormwater management plan 1 (SWMP/GESC)
- Stormwater management plan 2 (SWMP/GESC)
- Blowoff, hydrant and CAV details
- Cathodic Protection Schedule and Details
- CP Details
- Trench and Misc. Details
- Misc. Details

Task Series 700 Deliverables

- HDR will provide an electronic copy of the design documents at each milestone (30%, 60% and For Construction).
- Land Acquisition Exhibits (four temporary and one permanent) and associated legal descriptions.

Task Series 700 City Provided Services and/or Information

- Attendance and Input at Meetings
- Provide written review comments compiled into a single document at the 30% and the 60% review milestones.

Task Series 700 – Key Assumptions

- The design will be complete and ready for construction within 6 months.
- No hydraulic modeling is required – the City will provide the design flows for the pipeline.
- Trenchless construction design is not anticipated or included
- A maximum of five (5) land acquisition exhibits will be required.
- Existing survey data can be relied upon for design and construction.
- 2013 EJCDC standard front end documents will be utilized for the specifications.

- With the exception the legal exhibits and legal descriptions prepared by HDR, all other Right-of-way acquisition and temporary construction easement acquisition will be conducted by the City.
- The structures (CAV/blowoff) are assumed to be precast. Structural engineering is not required.
- Cathodic protection design is limited to the new 30" line. The CP design for the existing 24" parallel line and 29th St Tank are not included with these services.

PHASE III – CONSTRUCTION PHASE SERVICES

To be negotiated at a later date in 2018.

SUPPLEMENTAL SERVICES

REQUIRING ADDITIONAL COMPENSATION

The City may direct Engineer to provide services in addition to those detailed herein. Compensation for additional services shall be negotiated and agreed upon before any additional services are provided. Additional services may include, but are not limited to, the following:

- Participate in presentations to City Council.
- Additional meetings with local, State or Federal agencies to discuss the project.
- Preparation for litigation, arbitration or other legal or administrative proceedings; and appearances in court or at arbitration sessions in connection with bid protests, change orders or construction incidents.
- Value Engineering reviews and services.
- Revisions of design, drawings, and specifications arising from Value Engineering review which cause changes in the general scope, extent or character of the project, including but not limited to changes in size, complexity, The City's schedule, character of construction or method of financing.
- Services resulting from significant delays, changes or price increases caused directly or indirectly by shortages of materials, equipment or energy.
- Supplemental/additional services as identified earlier in this scope of services

City of Loveland Boyd Interceptor Parallel and Morning Drive 30" Waterline (Phase 2) Final Design		QA/QC (Glover)	Technical Specialist (Gossett)	Project Manager (Pool)	Interceptor Lead (Lessig)	Waterline Lead (Limke)	Staff Engineer (Khanzadeh)	CP Engineer (Smith)	CADD (Hicks)	Project Accountant	Admin Assistant	HDR Hours	HDR Labor	Printing & Supplies	Lab Testing	Vehicle Mileage / Travel	HDR Total Expenses	HDR Fee	King Surveying	Total Fee (includes sub-consultants)
	Hourly Billing Rate	$ 250	$ 250.00	$ 190.00	$ 115.00	$ 140.00	$ 100.00	$ 150.00	$ 135.00	$ 100.00	$ 85.00									
TASK SERIES 400 - PROJECT MANAGEMENT AND COORDINATION																				
401	Boyd Team Coordination Meetings		14	60	60	20	8	4	8			174	$ 27,080	$ 200		$ 1,800	$ 2,000	$ 29,080		$ 29,080
402	Morning Drive Team Coordination Meetings		2	12		40						54	$ 8,380				$ -	$ 8,380		$ 8,380
403	Manage Work to Plan	4		24						36	4	68	$ 9,500				$ -	$ 9,500		$ 9,500
	Sub-total	**4**	**16**	**96**	**60**	**60**	**8**	**4**	**8**	**36**	**4**	**296**	**$ 44,960**	**$ 200**	**$ -**	**$ 1,800**	**$ 2,000**	**$ 46,960**		**$ 46,960**
TASK SERIES 500 - BOYD FIELD INVESTIGATIONS																				
501	Supplemental Surveying			16	8	8						32	$ 5,080			$ 300	$ 300	$ 5,380	$ 3,000	$ 8,680
502	Field Investigations and Site Visits		4	16	12	12	8	16				68	$ 10,300		$ 1,500	$ 300	$ 1,800	$ 12,100		$ 12,100
	Sub-total	**0**	**4**	**32**	**20**	**20**	**8**	**16**	**0**	**0**	**0**	**100**	**$ 15,380**	**$ -**	**$ 1,500**	**$ 600**	**$ 2,100**	**$ 17,480**	**$ 3,000**	**$ 20,780**
TASK SERIES 600 - BOYD INTERCEPTOR FINAL DESIGN																				
601	ROW Assistance			8	12	2	2		20		12	56	$ 7,100	$ 100			$ 100	$ 7,200	$ 3,500	$ 11,050
602	Construction Permitting Assistance			8	24	4	8		24		12	80	$ 9,900	$ 100			$ 100	$ 10,000		$ 10,000
603	30% Plans and Specification Development	20	16	60	120	20	80		160		24	500	$ 68,640	$ 250			$ 250	$ 68,890		$ 68,890
604	60% Plans and Specification Development	20	16	60	120	20	80		160		24	500	$ 68,640	$ 250			$ 250	$ 68,890		$ 68,890
605	For Construction Plans and Specifications	20	16	60	100	20	50		120		24	410	$ 57,940	$ 250			$ 250	$ 58,190		$ 58,190
	Sub-total	**60**	**48**	**196**	**376**	**66**	**220**	**0**	**484**	**0**	**96**	**1,546**	**$ 212,220**	**$ 950**	**$ -**	**$ -**	**$ 950**	**$ 213,170**	**$ 3,500**	**$ 217,020**
TASK SERIES 700 - MORNING DRIVE 30" WATERLINE (PHASE 2) FINAL DESIGN																				
701	ROW Assistance			4		6	2		8		2	22	$ 3,050	$ 50			$ 50	$ 3,100	$ 1,500	$ 4,750
702	Construction Permitting Assistance			4		12	4		8		2	30	$ 4,090	$ 50			$ 50	$ 4,140		$ 4,140
703	30% Plans and Specification Development	8	4	30		60	30		80		8	220	$ 31,580	$ 200			$ 200	$ 31,780		$ 31,780
704	60% Plans and Specification Development	8	4	30		60	30	40	120		8	300	$ 42,980	$ 200			$ 200	$ 43,180		$ 43,180
705	For Construction Plans and Specifications	8	4	20		40	20	20	80		8	200	$ 28,880	$ 200			$ 200	$ 29,080		$ 29,080
	Sub-total	**24**	**12**	**88**	**0**	**178**	**86**	**60**	**296**	**0**	**28**	**772**	**$ 110,580**	**$ 700**	**$ -**	**$ -**	**$ 700**	**$ 111,280**	**$ 1,500**	**$ 112,930**
	Hours	**88**	**80**	**412**	**456**	**324**	**322**	**80**	**788**	**36**	**128**	**2,714**	**$ 383,140**							
	Fee (rounded)	**$22,000**	**$20,000**	**$78,280**	**$52,440**	**$45,360**	**$32,200**	**$12,000**	**$106,380**	**$3,600**	**$10,880**		**$ 383,140**	**$ 1,850**	**$ 1,500**	**$ 2,400**	**$ 5,750**	**$ 388,890**	**$ 8,000**	**$ 397,690**
	Sub-consultant Budget w/ Mark-up																		**$ 8,800**	
																				$ 397,690

NOTES

1 See scope of services for fee assumptions
2 Sewer Total = Task 401 + (60% x Task 403) + Task Series 500 + Task Series 600
3 Water Total = Task 402 + (40% x Task 403) + Task Series 700

Boyd Total (Sewer) $ 272,580
Morning Drive Total (Water) $ 125,110

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 9
MEETING DATE: 10/18/2017
SUBMITTED BY: Larry Howard
STAFF TITLE: Water Resource Manager

ITEM TITLE:

Augmentation Water Agreement Request

DESCRIPTION:

Proposed trade of 12 CBT units for up to 6.0 acre-feet of annual augmentation and replacement supply to be used in augmentation plan for Sylvan Dale Ranch, Case No. 14CW3016 (Water Div. 1).

SUMMARY:

Sylvan Dale Ranch seeks to adjudicate water rights and an augmentation plan for the Sylvan Dale Waterway ("Waterway") at the guest ranch, and Big Pump Lake and Little Pump Lake ("Ponds"), used for irrigation in Big Valley Ranch. Sylvan Dale Ranch has leased fully consumable augmentation water from the City of Loveland for the past several years, on a yearly basis, to operate these structures. The Ranch has proposed that the City enter into an agreement to supply permanent augmentation releases to support its proposed decreed augmentation plan. This plan may require up to a total of 6 acre-feet of water annually. Sylvan Dale offers to convey to the City ownership of two units of Colorado-Big Thompson water for each acre-foot of water needed for augmentation or replacement, which is a total of 12 units. Sylvan Dale further agrees that in the event the annual quota for CBT water is less than 50%, resulting in an annual yield less than 6.0 acre-feet for 12 units, the Ranch will provide additional water to the City so the City will always have at least 6.0 acre-feet of water to provide the required augmentation. The augmentation water would come from the City's fully consumable water supplies.

By agreeing to provide augmentation and replacement water, the City would permanent responsibilities in handling, delivering, and accounting for this water and providing accounting information to the state. A payment of $1200 annually to be paid by Sylvan Dale Ranch to the City for these costs is recommended as part of the agreement. This amount should be made subject to review and adjustment in the future based on actual costs of administering the water.

RECOMMENDATION:

Adopt a motion recommending that the City Manager approve the attached Agreement with Sylvan Dale Ranch, LLLP, conveying ownership of 12 units of CBT water to the City in exchange for the City's agreement to deliver up to 6.0 acre-feet of augmentation water annually, and initiating an annual payment of $1200 to be made by Sylvan Dale Ranch to the City for administrative costs related to handling and accounting for this water.

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 10
MEETING DATE: 10/18/2017
SUBMITTED BY: Joe Bernosky
STAFF TITLE: Director

ITEM TITLE:

Commission & Council Report

SUMMARY:

Discuss events that the Loveland Utility Commission Board members attended, special topics and any City Council items related to the Water and Power Department from the past month.

- City Council Report

RECOMMENDATION:

Commission/Council report only.

LOVELAND UTILITIES COMMISSION

AGENDA ITEM: 11
MEETING DATE: 10/18/2017
SUBMITTED BY: Joe Bernosky
STAFF TITLE: Director

ITEM TITLE:
Director's Report

GENERAL & PREVIOUS LUC MEETING FOLLOW UP ITEMS:
At the October 3, 2017 meeting, the Loveland City Council approved the following:

Re-appointed Eugene Packer to the Loveland Utilities Commission for a term effective until June 30, 2020.
Re-appointed Larry Roos to the Loveland Utilities Commission for a term effective until June 30, 2020.
Re-appointed Sean Cronin to the Loveland Utilities Commission for a term effective until June 30, 2020.
Re-appointed Stephanie Fancher-English as an alternate member to the Loveland Utilities Commission for a term effective until June 30, 2020.

EVENTS:
Please note the following events that LUC members may wish to attend:

South Platte Forum: October 25th & 26th at the Loveland Embassy Suites. For more information, visit www.southplatteforum.org.

Northern Water Fall Water Users meeting – November 15, 2017, UNC, Greeley. Please contact Courtney Whittet for registration information.

RMEL Introduction to the Electric Utility Workshop – January 18, 2018, Denver Marriott South, Lone Tree. This one-day course is designed to acquaint non-technical utility employees and board members with the basics of their industry from the generation to the distribution of electricity. Please contact Courtney Whittet for more information or registration.

Tour of Foundry Project: The Foundry, which represents the largest single downtown redevelopment project in the City's history, is well under way. If you are interested in peeking behind the fence, Economic Development is offering guided tours of the construction site on the following dates (subject to weather and other construction contingencies):

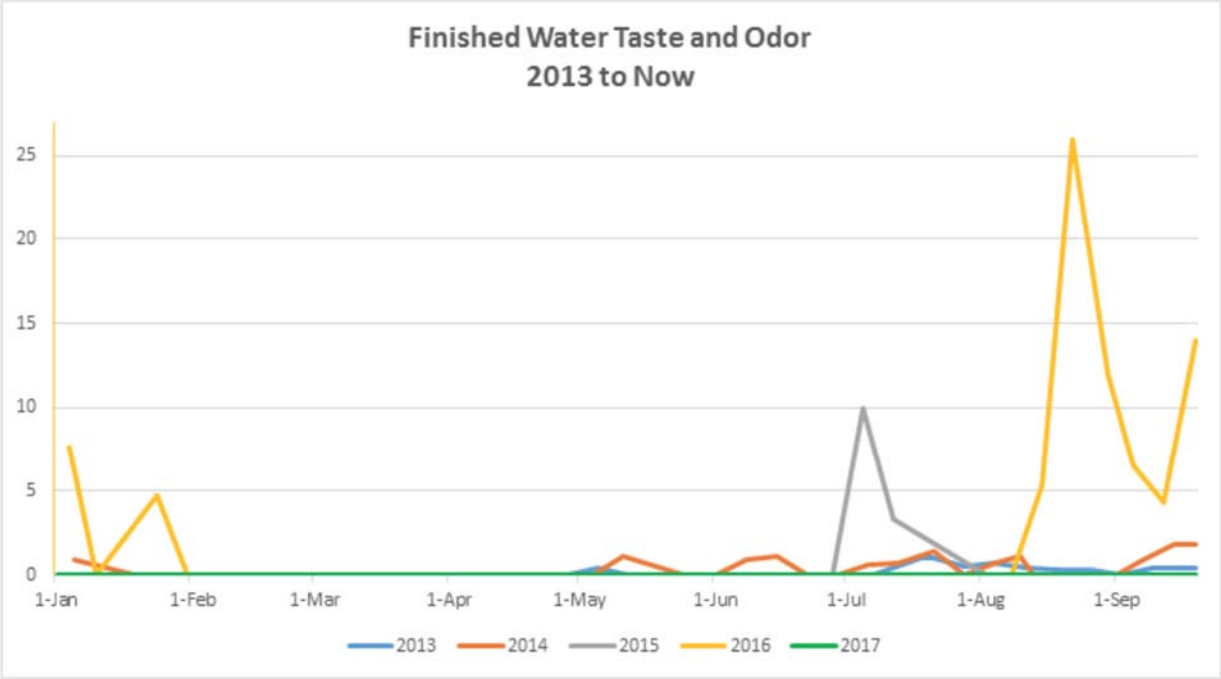
Friday, October 27, 2017
Friday, November 17, 2017
Friday, December 22, 2017
Friday, January 26, 2018
Friday, February 23, 2018
Friday, March 23, 2018
Friday, April 27, 2018
Friday, May 25, 2018

All tours start at 9 am at the back door of 320 N. Cleveland Ave. Keith Meyer, the City's onsite construction manager, will check you in, and provide you with the appropriate safety gear. He will also lead the tour. Space is limited to no more than 10 people per tour. If interested, please contact Mike Scholl at (970) 962-2607 or mike.scholl@cityofloveland.org with which tour date you are interested in attending.

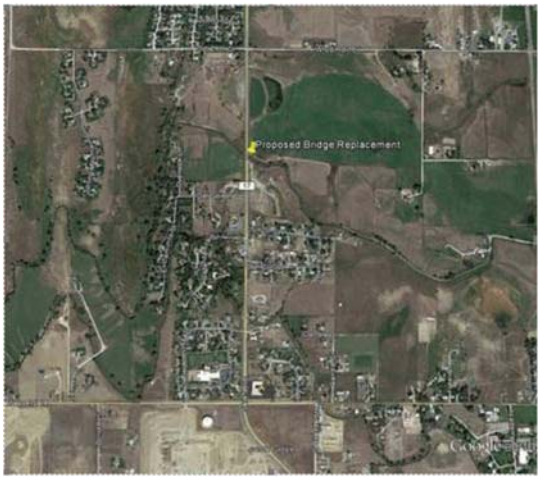
OPERATIONS:

Water Operations:

Algae Update: SolarBee reservoir mixers were installed in May 2017 to help control algal growth in Green Ridge Glade Reservoir. As of mid-September, the devices have performed well: this is the first year on record that there have been no taste and odor complaints. Geosmin (the compound that causes taste and odor issues) has not been detected in the finished water. Due to the success of these devices, this is also the first year that there has been no need to apply a chemical algaecide to mitigate algal growth. Additionally, water treatment plant and water resources staff have managed river and reservoir usage differently to optimize the intake water quality to provide the best water possible to the City. Water quality data has been utilized to select the best depth to draw water into the plant from the reservoir and in consideration of dilution ratios for river usage. Most recently, to further improve taste and removal capabilities a full-scale in plant trial of a new powdered activated carbon (PAC) was performed. This data is still being reviewed, but preliminary results suggest this could be another potential tool to continue to optimize the water treatment plant's taste and odor removal.



South Taft 24" Waterline Realignment: Larimer County is replacing and widening the existing bridge on South Taft Avenue over the Home Supply Ditch with a new concrete box culvert. The City of Loveland has an existing 24" waterline located on the west side of South Taft Avenue that will need to be relocated with the new box culvert installation. The City of Loveland has hired Stantec to perform the design work. Larimer County will be reimbursing the City for the design work and will be hiring the contractor to install the new 24" water main outside the limits of the new bridge. The construction is estimated to begin in Spring of 2018.



Cementitious Manhole Rehabilitation 2017: The City of Loveland has contracted with Ace Pipe Cleaning Inc. to rehabilitate approximately 180 sewer manholes located in the older areas of downtown Loveland. The manholes were originally constructed with bricks and mortar. The bricks over time have become loose and they are crumbling. The first step is to patch any areas where the bricks and grout are damaged or missing, a one-half inch thick coat of calcium aluminate cement is applied covering the entire manhole. The calcium aluminate cement is resistant to the hydrogen sulfide gases that are present in wastewater and cause the corrosion of concrete structures. This project is part of a continuing effort to reinvest and rehabilitate the city's sewer collection system. The photos below show the existing condition of the manhole and the manhole after Ace Pipe Cleaning Inc. completes their rehabilitation work.

Garfield Avenue Waterline: Duran Excavation out of Greeley, Colorado recently completed installing 2,000 feet of 8-inch diameter waterline along Garfield Avenue from Marmac Drive to Lake Drive. They are currently in the process of installing new water meter pits. The Water and Power Department is coordinating the replacement of the waterline in conjunction with the Public Works Department street replacement project. A large portion of the street removal and demolition work needed for the road replacement project has been completed.

2017 Cure-in-Place-Pipe (CIPP) Sewer Rehabilitation Project. This project is part of a continuing effort to reinvest and rehabilitate the city's sewer collection system. This picture shows the new pipe being cured with steam and the green tube laying on the ground is a sample of the new liner. The project was awarded to Layne Inliner Inc. for cleaning and lining approximately 25,000 feet of the smaller clay collection sewer lines that have become cracked over time and suffer from root instrusion. As the roots enter the pipe and grow, the flow in the pipe is restricted causing maintenance problems. The existing pipe is lined with a new plastic fully structural liner that creates a new pipe inside the old pipe. Once the new liner is installed, the individual services are cut open using a small robotic camera and cutting tool. This work is performed without any excavation and all access is gained through the existing manholes. The cleaning and preparation of the existing lines has begun, with the project scheduled for completion by the end of this year.

Power Operations:

Disaster Management Training for Electric Power Systems: In August, the Power Division sent employees representing Engineering, Operations and Administration to a two day training course titled Disaster Management for Electric Power Systems. This course was offered through Texas A&M Engineering Extension Service (TEEX). TEEX is a state agency that offers training programs and technical assistance to public safety workers. The Disaster Management for Electric Power System course is a FEMA funded course that provides information specific to protecting against, responding to, recovering from, and mitigating against disasters both natural and man-made as well as terrorism. The course provided training on improving security against physical damage, organizational disruption, and control system vulnerability; enhancing the electric power systems ability to plan, prevent, detect, respond, and restore facilities in emergency situations; and developing an understanding and appreciation for working with the media. The topics included threats to electric power facilities and systems; responding to disasters; recovering from disasters; handing public information requests and preparing for disasters.

Power Operations Activity Report: The power line work at the old Cottonwood Substation has allowed the voltage conversion to be completed between West Substation and the Glade Road residential area. The new build for the 12.47KV system is bringing the Canyon Circuit voltage in line with the voltage serving the rest of the Loveland electrical distribution system. Once the rebuild has been completed, the reliability of the canyon circuit will be significantly improved.

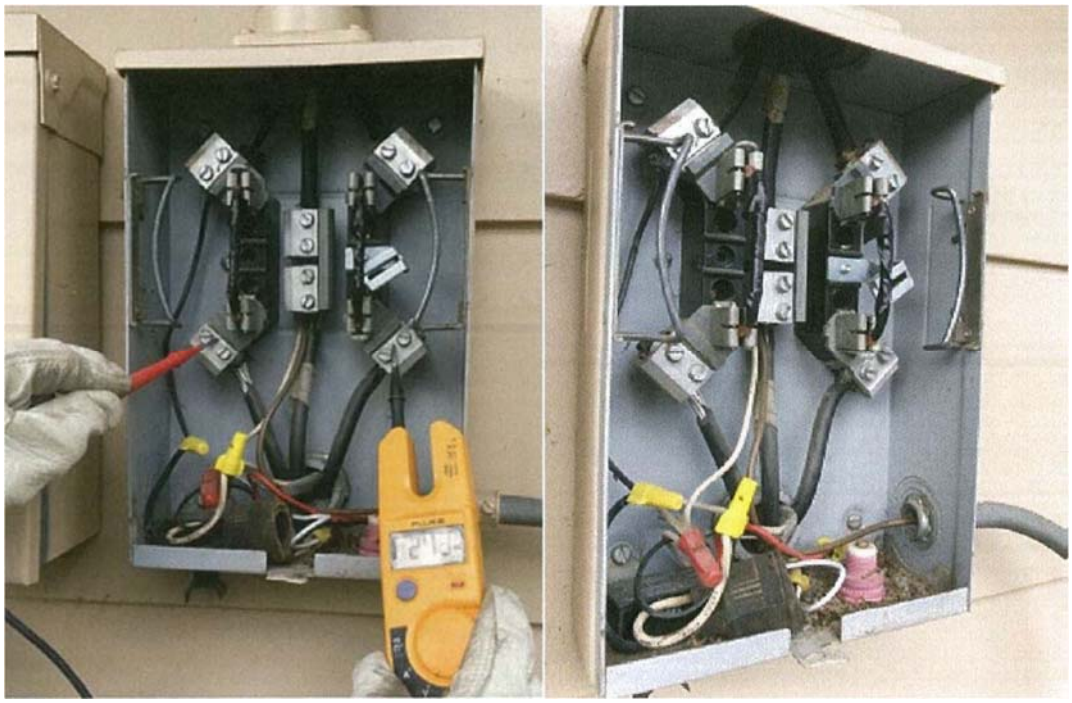
The Line Crews completed their annual pole top, vault, and bucket rescue training in September. The weather held as linemen took turns honing their rescue skills for each of these specific areas of exposure. Over the course of the last few years, additional safety devices have been added, including the buck squeeze-climbing belt. This belt is designed to prevent the un-expected fall from the pole, securing the climber in case he/she cuts-out.

Line crews decommissioned the two overhead to underground power feeds to the Southside Lift Station (wastewater). Part of this work included the take-over of the back-up electrical feed from Xcel Energy. Take a good look at each photo below. Do you see the changes?

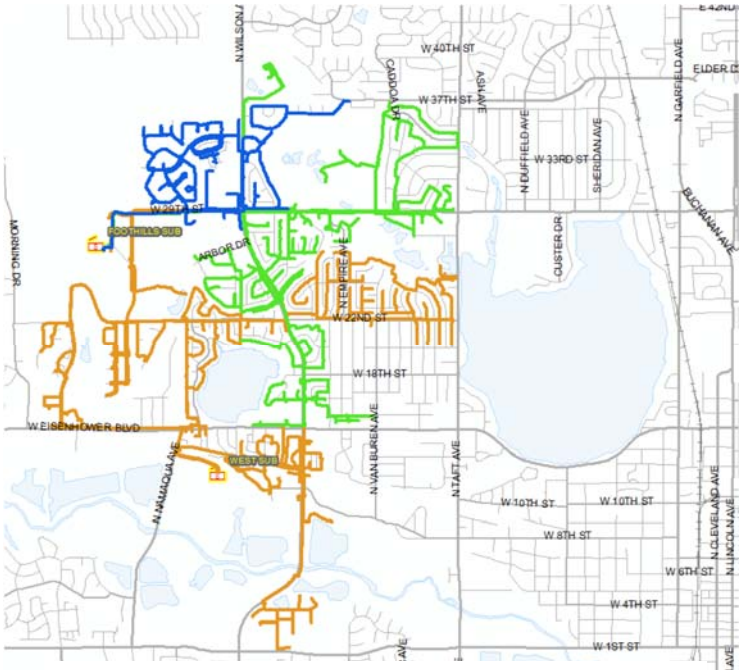
Electric Metering - Energy Theft on the Rise: The Electric Metering staff has encountered an ongoing increase in the amount of electric service overload due to energy theft via electric meters. This is often found by looking at the electric meter and noticing service conductors in the meter socket. Often we learn the culprit behind the energy theft is a residential or commercial marijuana grow operation. The additional current load on an electric service can be astronomical, causing insulation failure due to extreme heat dissipation. This becomes an even bigger issue when equipment fails and causes problems on the distribution system resulting in power outages for customers. This is often caused by customers not properly following the

permitting process for these increased loads and adjusting the meters themselves. Below are pictures of residential services visited that have been overloaded due to electric service overload. Both of these services were overloaded causing the insulation to be compromised and start melting. These photos can be linked to energy theft due to grow operations.

Below are pictures showing services that have been found recently where unmetered energy is being consumed. Homemade “jumpers” have been installed where the electric meter would usually be placed. These illegal installations are unsafe, resulting in life safety issues that can affect the occupants as well as City staff.



Foothills Project Update: The Power Division has finished an important section of the Foothills Project, tying new feeders together and allowing load to be fed from Foothills Substation. Despite extended construction timelines, the project has been finished without any major disruptions. This large capital project, which consisted of four large bores, was completed by our new substructure and boring contractor L&M Underground.



Customers transferred to Foothills Substation on September 20th

Foothills Substation Commissioning: The final stages of Foothills Substation commissioning were well underway in the month of September. Contractors worked on completing the substructure to connect that last few feet of lines. Once this was completed, crews worked on pulling and terminating cable and reconfiguring the solar field connection to it direct substation connection. On September 19, Loveland line crews worked on shifting load around allowing Platte River Power Authority to complete their final testing of all the equipment at Foothills. With the final portions of testing being completed, on September 20, 2017, Loveland Water and Power crews shifted about 5 MW worth of load from West and Horseshoe substation over to Foothills Substation, allowing the new configuration to serve the new solar field as well. In addition, other system improvements were completed at the same time by removing two triple stacks from the system and offloading West Substation transformer 1. There was a lot of work that went into this project from many different organizations and departments and we thank everyone who worked on the project. However, just like anything else in the utility world, this is only the beginning and Loveland Water and Power will continue to work to make other system improvements, of which Foothills will be a component.

GENERATION, TRANMISSION & NORTHERN COLORADO UTILITY REPORTS:

Northern Water Conservancy District: Northern Water General Manager Eric Wilkinson has announced he will be retiring in the early part of 2018. He made the announcement to the Northern Water Board of Directors during its September 14 meeting.

The minutes from the October 12, 2017 board meeting have not been posted yet. The next board meeting will be held on Thursday, November 9, 2017 at 9 am at Northern Water headquarters located at 220 Water Ave., Berthoud, CO 80513.

Platte River Power Authority (PRPA): The minutes from the September 28, 2017 meeting have not been posted yet. The next board meeting will be held on Thursday, October 26, 2017 at 9 am at PRPA headquarters located at 2000 E. Horsetooth Rd, Fort Collins, CO 80525.

Fort Collins Energy Board: The minutes from the October 12, 2017 meeting have not been posted. The next board meeting will be held on Thursday, November 9, 2017 at 5:30 pm at the Colorado River Community Room, 222 LaPorte Avenue, Fort Collins, CO.

UTILITY APPLICATION SERVICES:

CIS Replacement: We received six proposals and are currently reviewing them. The city's consultant will be on site to review final scoring in early November. Demonstrations will begin in early January 2018.

Conduit Inventory Project: With help of both the electric line and electric design groups, GIS staff has been able to capture data for 148 vaults to date.

Project & Request Tracking: One of the Technology Roadmap recommendations was to establish a tracking system for our team's work. Since the beginning of the year, we have configured CityWorks for this purpose. The big projects, tracked as work orders, are reported to be approved and prioritized by our LWP Technology Steering Committee. There are currently 32 approved projects in our queue. The smaller, maintenance-type jobs are tracked as service requests. So far this year we have completed 148 requests within an average of 3.5 days. Here they are broken down by type:

Application Requests – 1.89 days
Application Support – 12.58 days
Data Requests – 4.03 days
Hardware Support – 12.25 days
Map Requests – 5.10 days
Report Requests – 1.6 days

UTILITY ACCOUNTING:

Power Peak Demand and Energy Down In August: The Power Divisionwitnessed a dramatic decline in peak demand as well as a drop in power usage in August compared to a year ago, and, year to date, the two components are flat and down, respectively. This year, Loveland's share of PRPA's August peak was 129,086 kW, down more than 10% from the 144,512 kW of August, 2016, and down an amazing 7.5% from the average of the past five August peaks. Purchased energy was down 2.1% vs. August of 2016. Overall, in comparing the year-to-date total of the January-August monthly peak demands to the same period in 2016, this year is up 0.1%, and purchased energy is down 1.6% year-to-date.

Water Sales Lag Slightly in August: With rain and mild temperatures during the first three weeks of August, water usage for the month was down slightly. The average usage per customer for August was 23,078 gallons, which is 2.0% lower than the average of the past 5 Augusts. This year's YTD average through August is 11,707 gallons per customer. The 11,707 gallons is 2.3% lower than the August YTD average usage of the past five years, but is a marked improvement over the 5.5% lower average usage through June. The year-to-date usage has resulted in watersales being ahead of budget by $456,000 through August.

LUC Meeting: The proposed 2018 Schedule of Rates, Charges and Fees for W&P was presented to the LUC at the September meeting. The most noteworthy proposals were the overall rate increases for the three utilities. A 4.6% average rate increase is proposed for Power, and, based on the outcome of last year's cost-of-service rate study, the increase for each customer class ranges from 2.6% to 6.6%. The 4.6% rate increase is due to two factors: 1) a 1.62% pass-through rate increase to cover PRPA's projected 2.0% wholesale power rate increase; and 2) a 2.98% rate increase for In-house needs, including increased health insurance costs, increases in costs for services provide by other City departments and additional rehabilitation capital projects. A 9.0% across-the-board rate increase is proposed for Water and an 11.0% across-the-board rate increase is proposed for Wastewater. These are both in keeping with the rate track that was adopted by City Council in September of 2015. The LUC unanimously voted to recommend approval to City Council of all of the proposed rates, charges and fees for 2018.

CUSTOMER RELATIONS:

Efficiency Works Homes: The Efficiency Works Homes Audit and Rebate (Efficiency Works Homes) program is changing the administration structure and model of the Efficiency Works Homes program, starting in 2018. Platte River Power Authority and the four owner municipalities of Estes Park Light & Power, Fort Collins Utilities, Longmont Power & Communications, and Loveland Water and Power have decided to hire staff to perform many of the administrative functions currently performed by CLEAResult to bring the program and trade ally management and day-to-day administrative duties in-house. The hiring process of these two new positions will take place concurrently with issuing a new Efficiency Works Homes Home Efficiency Advisor Request For Qualifications (RFQ) for services not performed by these two new positions, such as audits and advising. Staff believes this to be a sound long-term strategy for sustaining the program into the future. This decision is not a reflection on the high quality work CLEAResult has done for the program over the past three years. The hiring process for the in-house positions has begun, with interviews occurring in the first part of October. The Advisor RFQ has been released by Platte River and will close on September 29th.

Community Solar Program: Customer Relations and Power Engineering staff have been working on the development of a community solar program for Loveland. In partnership with the four cities and Platte River, a draft copy of Tariff 7 has been developed, a draft request letter for a solar energy product has been developed and a Loveland design team assembled. Platte River has been working to obtain bids for approximately 5 MW of solar at the Rawhide Energy Station. Staff will be reviewing cost information in the coming months.

Foothills Interpretative Signage: Work on the interpretive signage that will outline the Foothills site has begun. Signs will address all LWP aspects of the site including the solar panels, electric substation, water storage tank, and pump station.

Economic Development: Staff coordinated a meeting at Nordsen Medical to allow Economic Development (ED) staff to present their programs and begin to find beneficial partnerships for the customer in the community. Power staff continues to work with Nordsen to determine the cause of power quality issues within the Nordsen plant. We are working with ED to conduct the next presentation with Heska corporation.

Rocky Mountain Utility Exchange: Our staff serves on the board for planning the regional conference in Aspen late in September

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Key Accounts: Staff continues to pay visits to key accounts so that Water and Power Director Joe Bernosky can be introduced to our most impactful customers.

ESource: Staff attended a four-day conference in Denver covering utility programs and solutions for customer needs and regulatory requirements.

McKee Medical Center: Staff worked with McKee Medical Center when a building on their campus was damaged to expedite building and occupancy permits from the development center.

Efficiency Works: Although staff added additional funding from the power division and instituted a project cap, the program continues to see successful applications and will likely completely commit the budget by mid-October. We have instituted more than 110 projects in 2017.

Aid To Construction (ATC): Staff continues to work with power and finance to educate customers and collect overdue building costs.

Community Outreach: Loveland Water and Power will be attending the following upcoming events:

- Community Stewardship Lecture Series – Birding – November 14, 2017
- Key Accounts Networking Event – November 8, 2017

Facebook Insights (August 2017):

- Reach (unique users) – 1,828 people
- Engagement (unique users) – 174 people
- Impressions (total count) – 4,068 people

Media:

- The Denver Post – September 28, 2017: Colorado's electric car boom could be busted by federal tax reform