

CITY OF CENTRAL, COLORADO
NOTICE OF A REGULAR MEETING of the CITY COUNCIL to be held on
Tuesday, February 19, 2013 @ 7:00 p.m.
141 Nevada Street, Central City, Colorado
AGENDA

The City Council meeting packets are prepared several days prior to the meetings and available for public inspection at City Hall during normal business hours the Monday prior to the meeting. This information is reviewed and studied by the City Council members, eliminating lengthy discussions to gain basic understanding. Timely action and short discussion on agenda items does not reflect lack of thought or analysis. Agendas are posted on the City's access channel, on the City Hall bulletin board, at the Post Office and at Washington Hall the Friday prior to the Council meeting.

7:00pm Council Meeting

1. Call to Order.
2. Roll Call.

Mayor	Ron Engels
Mayor Pro-Tem	Bob Spain
Council members	Shirley Voorhies
	Glo Gaines
	Kathy Heider
3. Pledge of Allegiance
4. Additions and/or Amendments to the Agenda.
5. Conflict of Interest.
6. Consent Agenda: The Consent Agenda contains items that can be decided without discussion. Any Council member may request removal of any item they do not want to consider without discussion or wish to vote no on, without jeopardizing the approval of other items on the consent agenda. Items removed will be placed under Action items in the order they appear on the agenda (this should be done prior to the motion to approve the consent agenda).

Regular Bill lists of February 7, 14; and
City Council minutes: February 5, 2013.

PUBLIC FORUM/AUDIENCE PARTICIPATION – *(public comment on items on the agenda not including Public Hearing items):* the City Council welcomes you here and thanks you for your time and concerns. If you wish to address the City Council, this is the time set on the agenda for you to do so. When you are recognized, please step to the podium, state your name and address then address the City Council. Your comments should be limited to **three (3) minutes per speaker**. The City Council may not respond to your comments this evening, rather they may take your comments and suggestions under advisement and your questions may be directed to the City Manager for follow-up. Thank you.

SECOND READING AND PUBLIC HEARING –

7. Ordinance No. 13-02: An ordinance amending Sections 10-21 and 10-22 of Chapter 10 of the Municipal Code regarding marijuana and marijuana accessories. (McAskin)
8. Ordinance No. 13-03: An ordinance amending Chapter 16 of the Municipal Code regarding the regulation of marijuana cultivation for personal use in residential structures. (McAskin)

ACTION ITEMS: NEW BUSINESS –

9. Volunteer Firefighter Pension Board Update (Flowers)

REPORTS –

10. Staff updates –

COUNCIL COMMENTS - limited to 5 minutes each member.

PUBLIC FORUM/AUDIENCE PARTICIPATION – for non-action items not Action or Public Hearing items on this agenda (same rules apply as outlined in the earlier Public Forum section).

ADJOURN. Next Council meeting March 5, 2013.

Posted 2/15/13

PLEASE TURN OFF CELL PHONES

Please call Reba Bechtel, City Clerk at 303-582-5251 at least 48 hours prior to the Council meeting if you believe you will need special assistance or any reasonable accommodation in order to be in attendance at or participate in any such meeting.

**CITY OF CENTRAL
CASH ON HAND
2/14/2013**

Total Beginning ENB Cash on Hand 1/31/2013	16,914.56
Deposits to ENB	16,526.73
Wires Out ENB	(19,819.64)
Cleared Checks	-
<hr/>	
1/31/2013	13,621.65
<less previously approved & outstanding>	(3,570.70)
Total ENB Cash on Hand 2/14/2013	10,050.95

Total Beginning CO Biz Cash on Hand 1/31/2013	447,429.07
Deposits to COB	167,678.37
Wires Out COB	(56,330.46)
Cleared Checks	(230,490.92)
<hr/>	
1/31/2013	328,286.06
<less previously approved & outstanding>	(109,121.87)
Total COB Cash on Hand 2/14/2013	219,164.19

Total Beginning Colotrust Cash on Hand 1/31/2013	790,260.93
Wires into Account	5,704.55
Wires out of Account-Into Evergreen National	
Total Colotrust Cash on Hand 2/14/13	795,965.48

***The City is currently in the process of switching the operating account from Evergreen National Bank to Colorado Business Bank. As such, you will see less and less activity out of Evergreen National and on the next cash flow report both of the operating accounts will be reflected. Once all transactions have cleared Evergreen National Bank, it will be removed from this sheet.

TOTAL CASH ON HAND 2/14/2013	1,025,180.62
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CASH FLOW
CHECK LISTING

2/14/2013

Inv Date	Inv #	Ck. Date	CK#	Vendor	Description	Amount	Mail Date
1/28/13	7370003071	2/7/13	126069	DPC Industries	Sodium Bisulfate	422.47	
1/29/13	12913	2/7/13	126070	Canyon Glass & Mirror	Service Call for Vehicle	85.00	
2/4/13	5751136920	2/7/13	126071	Clear Creek Supply	Oil Filter	12.34	
1/15/13	226015	2/7/13	126072	Napa Auto Parts	PW Auto Parts	295.82	
1/30/13	273823	2/7/13	126073	Neve's Uniforms	Uniforms for Officer	173.85	
1/31/13	92534	2/7/13	126074	Office Stuff	Toner and Folders	280.78	
1/25/13	12513	2/7/13	126075	Xcel Energy	Electricity	379.91	
2/5/13	20513	2/7/13	126076	Town Office Supply	Cards for Gaines and Heider	105.90	
1/31/13	21301182	2/7/13	126077	Utility Notification Center	Line Locates	13.04	
1/10/13	856280	2/7/13	126078	USA Blue Book	Dispensers for Water Plan	315.02	
2/6/13	130201	2/7/13	126079	Gilpin County Historical Society	Employee at Washington Hall	1,679.34	
1/29/13	8222	2/7/13	126080	Allen Technology	IT Maintenance, Printer for PD, PD Computer	6,319.39	
1/30/13	S12228668	2/7/13	126081	Alpha Card Systems	ID Maker-PD	2,492.95	
1/1/13	18922	2/7/13	126082	One Way Inc.	Residential Trash Service	7,928.70	
2/9/13	20913	2/7/13	126083	Skybeam	Water Plant Internet	75.34	
2/4/13	377697	2/7/13	126085	Arvada Rent Allis	PW Equipment Part	10.99	
2/3/13	4292	2/7/13	126087	Ausmus Law Firm	Prosecution for February	600.00	
2/4/13	1710601003	2/7/13	126089	Interstate All Battery	Batteries for FD	55.29	
2/1/13	20130043	2/7/13	126091	Omni-Pro Cleaning	City Hall Cleaning	300.00	
1/31/13	2176	2/7/13	126093	Finish Line Systems	Meters	2,427.33	
1/23/13	5794	2/7/13	126096	Safety & Construction	Reflectors and Delineators	246.65	
1/31/13	89607	2/7/13	126098	Intermountain Sweeper	Hydraulic Filters, Equipment Parts	1,465.94	
1/25/13	67175	2/7/13	126100	Gard Specialists CO Inc	PW Parts	194.70	
1/28/13	185570	2/7/13	126101	Rex Oil Company	Fuel	1,960.52	
1/31/13	1211013	2/7/13	126103	Hireight Inc	Backgrounds for PD Officer	117.85	
			126104	Ally	PW Trucks Lease Payment	34,095.09	
		2/15/13	126105-126107	Employee Payroll	Payroll Checks	2,729.04	
		2/15/13	126108	ICMA-401	Retirement Contributions	2,634.50	
		2/15/13	126109	ICMA-457	Retirement Contributions	1,270.14	
		2/15/13	126110	ICMA-IRA	Retirement Contributions	281.00	
		2/15/13	126111	Grossman & Grossman	Employee Garnishment	290.43	
1/31/13	9151	2/14/13	126112	American Data Group	Printer Chip and Annual Maintenance	3,105.00	
1/30/13	44202	2/14/13	126113	Front Range Fire Apparatus	FD-Pike Pole	89.10	
2/8/13	20813	2/14/13	126114	Gilpin County School	Spelling Bee Donation	100.00	
2/8/13	8131039	2/14/13	126115	Hach Company	PW-Iron	37.00	
1/29/13	21413	2/14/13	126116	Home Depot	Building and Plumbing Supplies	1,902.00	
2/7/13	2220941	2/14/13	126117	Idaho Springs Lumber	PW Supplies	44.41	
2/5/13	CTCS599963	2/14/13	126118	Medved	Repair 2006 Chevy	174.90	
2/4/13	20713	2/14/13	126119	Napa Auto Parts	Auto Parts and Supplies	390.72	
1/31/13	274133	2/14/13	126120	Neve's Uniforms	PD-Hat Badge, Color Seal	237.00	
2/1/13	20413	2/14/13	126121	Nicoletti-Flater Assoc.	Pre-Employment Officer Screening	350.00	
2/4/13	9826	2/14/13	126122	OJ Watson	Water truck Parts	488.00	

CASH FLOW
CHECK LISTING

2/14/2013

2/4/13	20113	2/14/13	Xcel Energy	126123	Electricity	16,610.91
2/4/13	9057882335	2/14/13	Grainger	126124	Water Parts/PW Parts	430.53
2/14/13	5714593X	2/14/13	National Fire Codes	126125	2013 FD Dues	1,165.50
2/3/13	2013020482	2/14/13	Anthem BCBS	126126	Health Insurance Premiums	15,304.31
1/24/13	1173	2/14/13	AAA Trophies	126127	FD-Brass Plates	10.00
1/31/13	21322	2/14/13	Widner Michow & Cox	126128	General Counsel and Litigation	11,022.01
2/8/13	20813	2/14/13	Sickbert & Assoc.	126129	Hillside Parking Work	3,000.00
1/31/13	13190	2/14/13	Adarand Construction	126130	Repairs to Guardrail-Reimbursed	9,000.00
2/1/13	589818	2/14/13	FSH Communications	126131	Payphone Service	70.00
2/1/13	21313	2/14/13	Cindy Moore	126132	Mileage Expense Reimbursement	144.08
1/24/13	56424795	2/14/13	A&E Tire	126133	Tire Repairs	388.74
2/4/13	20313	2/14/13	Sprint	126134	Long Distance Fax	8.28
2/12/13	21213	2/14/13	Gloria Gaines	126135	Expense Reimbursement for Conference	130.59
1/28/13	1159757496	2/14/13	Verizon Wireless	126136	Cell Phone Service	781.99
2/1/13	Feb-13	2/14/13	USA Communications	126137	Internet for FD	46.94
2/5/13	D234503	2/14/13	Accutest Mountain States	126138	Water Testing	130.00
2/11/13	21113	2/14/13	APWA	126139	FD-Award Placques	75.00
2/1/13	1768649376	2/14/13	Waste Management of Denver	126140	Dumpster Pickup	858.30
2/5/13	186393	2/14/13	Rex Oil Company	126141	Fuel	2,357.31
1/31/13	14547	2/14/13	Union Medical	126142	Medical Exam-Officer New Hire	110.00
2/5/13	20513	2/14/13	Cardmember Services	126143	PW Training, Fleet Safety Guide, PW Lunch	1,629.35
2/8/13	460238	2/14/13	Boral Aggregates	126144	Salt & Sand	7,104.23
2/13/13	21313	2/14/13	I-70 Coalition	126145	2013 Dues	840.00
7/24/12	10104	2/14/13	CO Dept of Public Health	126146	Water Permit	715.00
1/31/13	4595	2/14/13	Colorado Code Consulting	126147	Building Inspections June-Dec	6,453.33
11/26/12	110004	2/14/13	UMB Bank	126148	Bond Fees	600.00
1/28/13	44668	2/14/13	JVA Inc.	126149	Hillside, PW Facility, Standards, Chase	39,192.34
12/3/12	1150604	2/14/13	Black & Veatch	126150	Water System Project Completion	4,249.90
Total Issued:						311,876.11
Approved & Sent Checks:						112,692.57
Clrd & Pending Approval:						-
Voided Checks:						-
Total Pending Approval 2/19/13						199,183.54

Outstanding through ENB 3,570.70
Outstanding through COB 109,121.87

**CITY OF CENTRAL
DEBIT CARD PURCHASES
2/1/13 thru 2/14/13**

<u>Date</u>	<u>Vendor</u>	<u>Description</u>	<u>Amount</u>
2/1/2013	Subway	Dinner for Work Session	28.36
2/1/2013	Johnny Z's Casino	Firefighter Meal for Structure Fire	89.80
2/4/2013	Hurrican Electric	Internet for City Hall	9.95
2/5/2013	American Fitness	Weight Room Equipment	79.78
2/6/2013	Seido	Cell Phone Case-PD	62.50
2/8/2013	Zagg	Screen Protector-PD	17.98
2/11/2013	Earthlink.net	Internet for PW	21.95
2/11/2013	Colorado Municipal League	Finance Director Registration	20.00
2/11/2013	Century	Manager/H. Gaines Breakfast	25.24
2/13/2013	Annie Oakley's	Drinks for Parking Meeting	14.01
TOTAL			369.57

**CITY OF CENTRAL
CITY COUNCIL MEETING
February 5, 2013**

CALL TO ORDER

A regular meeting of the City Council for the City of Central was called to order by Mayor Engels at 7:05 p.m., in City Hall on February 5, 2013.

ROLL CALL

Present: Mayor Engels
Alderman Spain
Alderman Voorhies
Alderman Gaines
Alderman Heider

Absent: None

Staff Present: Manager Lanning
City Clerk Bechtel
Finance Director Flowers
Operations Director Kisselman
Utilities Superintendent Griffith
Police Chief Krelle
Fire Chief Allen

The Pledge of Allegiance was recited by all present.

ADDITIONS AND/OR AMENDMENTS TO THE AGENDA

The agenda was approved as presented.

CONFLICTS OF INTEREST

No Council Member disclosed a conflict regarding any item on the agenda.

CONSENT AGENDA

Alderman Spain moved to approve the consent agenda containing the regular bill lists for January 17, 24, and 31, 2013 and the City Council minutes of January 15, 2013. Alderman Voorhies seconded. Alderman Gaines stated she would like to have all the debit card purchases identified with what and when the charges were made. When Mayor Engels called the question, the motion carried unanimously.

PUBLIC FORUM/AUDIENCE PARTICIPATION

No one requested time to address the Council.

NEW BUSINESS

Resolution No. 13-04: *A resolution of the City Council of the City of Central, Colorado extending the City of Central's employee insurance benefits to elected officials under certain conditions.*

Finance Director Flowers explained that the City Council determined at the work session on January 15 that they would like to allow elected officials to participate in the City's employee insurance plans provided that the elected official pays 100% of the premium costs associated with participation. There are no fiscal impacts to the City. The proposed resolution officially adopts this Council policy and allows elected officials to begin to participate in the City's insurance plans.

Alderman Gaines clarified that per the resolution, each elected official choosing to participate in the City Group Insurance Plans may elect to do so: (a) within thirty (30) calendar days from the effective date of this Resolution; (b) within thirty (30) calendar days from the time that an elected official takes his or her oath of office and is seated as a member of City Council; or (c) within the general open enrollment period applicable to the City Group Insurance Plans.

Alderman Spain moved to approve Resolution No. 13-04: A resolution of the City Council of the City of Central, Colorado extending the City of Central's Employee Insurance Benefits to elected officials under certain conditions. Alderman Voorhies seconded, and without discussion, the motion carried unanimously.

SECOND READING AND PUBLIC HEARING

Ordinance No. 13-01: An ordinance amending Section 1-46 and Section 2-21 of the Municipal Code concerning posting of meetings and ordinances.

Manager Lanning explained that this ordinance proposes to amend two sections of the Municipal Code concerning posting places for ordinances and meetings of Council. This ordinance will also change posting of adopted ordinances to be required to be posted at City Hall only, and meetings of Council will be posted "as designated by Council Resolution" which states that notice of all meetings will be posted at City Hall and the Post Office.

Mayor Engels opened the public hearing at 7:05 p.m. and invited comment. Hearing none, he closed the public hearing at 7:06 p.m.

Alderman Gaines moved to adopt Ordinance No. 13-01: An ordinance amending Section 1-46 and Section 2-21 of the Municipal Code concerning posting of meetings and ordinances. Alderman Voorhies seconded, and without discussion, the motion carried unanimously.

Ordinance No. 13-02: An ordinance amending Sections 10-21 and 10-22 of Chapter 10 of the Municipal Code regarding marijuana and marijuana accessories.

Alderman Spain moved to open and continue the Public Hearing on Ordinance No. 13-02: An ordinance amending Sections 10-21 and 10-22 of Chapter 10 of the Municipal Code regarding marijuana and marijuana accessories to February 19, 2013 at 7:00 p.m. Alderman Voorhies seconded, and without discussion, the motion carried unanimously.

Ordinance No. 13-03: An ordinance amending Chapter 16 of the Municipal Code regarding the regulation of marijuana cultivation for personal use in residential structures.

Alderman Spain moved to open and continue the Public Hearing on Ordinance No. 13-03: An ordinance amending Chapter 16 of the Municipal Code regarding the regulation of marijuana cultivation for personal use in residential structures to February 19, 2013 at 7:00 p.m. Alderman Gaines seconded, and without discussion, the motion carried unanimously.

STAFF REPORTS

Manager Lanning reported the following:

February 21st work session for visioning – set by Council consensus

Alderman Gaines asked if it is possible to put the Operations Director's staff report into the water bills each month since they are a good summary of the projects being done and good PR.

Alderman Voorhies asked to have Channel 20 updated for information such as the recent problem with the water color.

COUNCIL COMMENTS

Alderman Heider thanked the City for making it possible to go to the Saving Places conference.

PUBLIC FORUM/AUDIENCE PARTICIPATION

Jim Voorhies, 325 Spring Street, stated that the Navy Veterans Conference will be held in Denver September 4 to September 8, 2013. He requested a proclamation to honor the servicemen as well as a banner to welcome them to Central City.

Joe Behm, Director of the BID, suggested that perhaps we will have an option to ask CDOT for something due to the month long closure of the eastbound ramp to the Parkway such as use of one of the CDOT signs and radio stating that the Central City Parkway is open.

Hearing no further business, Mayor Engels adjourned the meeting at 7:36 p.m.
The next Council meeting is scheduled for February 19, 2013 at 7:00 p.m.

Ronald E. Engels, Mayor

Reba Bechtel, City Clerk



AGENDA ITEM # 7 & 8

CITY COUNCIL COMMUNICATION FORM

TO: Mayor Engels and Members of City Council

FROM: Marcus McAskin, Deputy City Attorney

THROUGH: Linda Michow, City Attorney

DATE: January 31, 2013

ITEMS: Ordinance No. 13-02 Amending Sections 10-21 and 10-22 Concerning Marijuana and Marijuana Accessories;

Ordinance No. 13-03 Regarding the Regulation of Marijuana Cultivation for Personal Use in Residential Structures

ORDINANCE
 MOTION
 INFORMATION

- I. **REQUEST OR ISSUE:** The City Council is being asked to consider two ordinances regarding necessary changes to the Municipal Code to implement the provisions of Amendment 64 regarding personal possession of marijuana and marijuana accessories.
- II. **RECOMMENDED ACTION / NEXT STEP:** Consider Ordinance Nos. 13-02 and 13-03 on second reading following a public hearing. Currently, it is anticipated that the public hearings scheduled on Ordinance Nos. 13-02 and 13-03 will be continued from February 5, 2013 to February 19, 2013.
- III. **FISCAL IMPACTS:** As the proposed Ordinances concern personal use, rather than the retail sales of marijuana, there is likely no financial gain to the City in terms of the collection of fees or taxes. It is not known at this time if the legalization of small amounts of marijuana will negatively affect the City in terms of enforcement.

IV. BACKGROUND INFORMATION:

In the November, 2012 general election, Colorado voters approved an amendment to the state Constitution, Article XVIII, Section 16 of the Colorado Constitution that makes the personal possession and use of one ounce or less of marijuana for adults twenty-one (21) years of age or older legal in Colorado ("Amendment 64"). Amendment 64 also allows the possession of up to six (6) marijuana plants for limited home-grow in residential homes by adults 21 years or older and authorizes licensed retail establishments to sell marijuana subject to the Department of Revenue's adoption of licensing regulations. Retail sales of marijuana cannot occur before the State adopts a licensing scheme on or before July 1, 2013. Moreover, the City is authorized to ban retail sales by ordinance or local vote, similar to medical marijuana.

The purpose of Ordinance Nos. 13-02 and 13-03 is to address the personal possession of marijuana by conforming existing Municipal Code provisions to Amendment 64.

The proposed Ordinances do not address retail sale of marijuana as the State has not adopted licensing regulations yet.

Ordinance No. 13-02 amends the current provisions regarding marijuana possession and drug paraphernalia to:

- Define marijuana and marijuana accessories consistent with Amendment 64;
- Legalize possession of one ounce or less of marijuana by adults 21 years or older;
- Prohibit possession of more than one ounce and but no more than six ounces of marijuana (Under state law, up to 6 ounces of marijuana possession is a class 2 petty offense);
- Prohibit purchase or possession of marijuana for consumption by any person under 21 years of age;
- Exempt "marijuana accessories" from drug paraphernalia so as to allow possession of marijuana accessories;
- Prohibit possession/consumption of any amount of marijuana in a public place; and define public place.

Ordinance No. 13-03 amends the zoning regulation the City Council previously adopted concerning residential cultivation of medical marijuana to expand the limitations on number of plants to apply to marijuana, medical or recreational.

For health and safety reasons, as discussed in additional detail below, it is recommended that City Council restrict the number of marijuana plants that may be cultivated within residences located within the City. While it is understandable that City Council would be reluctant to condone any activity that is considered illegal under federal law, the state constitution now specifically allows some growing to occur within a private dwelling. It is advised that restrictions be placed on this allowance, however, to make the activity as safe as possible, especially given the age of the private dwellings

within the City and their historical significance. Such restriction is within the City's police powers.

It is recommended that Ordinance No. 13-03 be adopted in order to restrict the number of plants that may be cultivated, whether for medical or recreational use to twelve (12) plants, to ensure the safety of Central City residents and mitigate negative impacts to neighbors and the surrounding community.

ADDITIONAL BACKGROUND INFORMATION AND DISCUSSION

Indoor marijuana grow operations enable a year-long growing season in which conditions (light, water, nutrients, CO2) may be tightly controlled, resulting in plants with higher THC content. Indoor marijuana cultivation may present significant hazards to persons living in the home as well as City fire department personnel including but not limited to the following:

- **Mold.** A 2012 study coordinated by the Colorado Drug Investigators Association and performed by National Jewish Health determined that because residential structures are not designed to function as greenhouses, contamination by pesticides and fertilizers is more difficult to control, moisture can cause damage to building materials, and excessive mold growth can result¹. The National Jewish Health study concentrated on airborne hazards to law enforcement personnel. Scientists studied mold levels at 24 different Colorado indoor grow operations and found that even smaller grows (11 plants) had elevated levels of Penicillium mold spores². Once mold starts to grow in insulation or wallboard, the only way to deal with the problem is by removal and replacement, according to the CDC. Other hazards that were identified included allowing the distribution of chemicals (e.g. fertilizers and pesticides) to be disbursed through ventilation systems, as well as fires from faulty wiring, overloaded circuits, or heat from high intensity grow lights.
- **Fire.** The most common types of lights used indoor with marijuana are High Intensity Discharge (HID) lights such as High Pressure Sodium (HPS) and Metal Halide (MH) lights. When fully lit, a 1000 watt MH lamp may reach a temperature of 2000 degrees Fahrenheit³. If anything touches the bulbs, fire may easily result. During the first stage of growing indoors, lights are very rarely, if ever, shut off as the plants require light between 18 to 24 hours per day. Often, ventilation of heat and odor are achieved by unauthorized alteration to the building's support structures; for example, cutting into foundations or through firewalls⁴. According to some sources, homes containing an indoor marijuana

¹ **Health Effects Associated with Indoor Marijuana Grow Operations.** 2012 John W. Martyny, PhD, Mike V. Van Dyke, PhD, CIH, CSP, Josh Schaeffer, M.S., Kate Serrano, MPH. This project was designed to quantify the chemical and biological exposures associated with marijuana grow operations in Colorado.

² This mold has been associated with asthma and hypersensitivity pneumonitis according to the Centers for Disease Control and Prevention (CDC).

³ <http://www.osstf.on.ca/Default.aspx?DN=ed5ab163-10f6-403c-b3c4-15bf882e25ac>

⁴ Responding To Unhealthy Properties: Developing A Centralized, Consistent Process For

grow are 24 times more likely to catch fire than homes that do not contain an indoor marijuana grow⁵.

- **Danger to City Fire Department Personnel.** Large indoor cultivation operations create not only the danger of fire, but pose more danger to firefighters who can easily get tangled in the electrical cords, pulleys that raise and lower the lights or tables, and yards of ventilation tubing used to ventilate both the plants and the HID lights. Restricting the size of the residential grow to no more than twelve (12) plants will significantly reduce the amount of potential entanglements and may also assist in reducing the overall risk of fire.

Ordinance No. 13-03 amends Chapter 16 of the Municipal Code in order to clarify that the restriction on the number of marijuana plants applies regardless of whether the plants are being grown for medical or recreational use.

V. LEGAL ISSUES: The City is authorized to enact the proposed Ordinances pursuant to its home rule authority, its general police and zoning powers, and in accordance with the Colorado Constitution.

VI. CONFLICTS OR ENVIRONMENTAL ISSUES: N/A

VII. SUMMARY AND ALTERNATIVES: City Council has the following options:

- (1) Adopt Ordinance No. 13-02 and 13-03 on second reading, following public hearing, as may or may not be amended;
- (2) Direct staff to make revisions to Ordinance No. 13-02 and/or 13-03 and schedule consideration of the Ordinance(s) on a future City Council agenda; or
- (3) Reject or deny one or both of Ordinance No. 13-02 and 13-03.

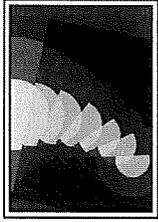
Attachments

Note – the attachments referenced below have been submitted to the City Clerk and are incorporated by reference into this City Council Communication Form:

- Study, "Health Effects Associated with Indoor Marijuana Grow Operations" 2012, reference footnote one above.
- Police Chief Magazine Article, "Indoor Marijuana Growing Operations" 2005

Community Safety, L. Garis, J. Clare (April, 2011)

⁵ Marihuana Growing Operations in British Columbia Revisited 1997-2003, by Dr. Darryl Plecas, Aili Malm, and Bryan Kinney (2005), The Centre for Criminal Justice Research at the University of the Fraser Valley.



Colorado Code Consulting, LLC

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4610 S Ulster, Ste. 150
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(303) 400-6564
Fax: (303) 693-0630

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1080 Mesa Road
Colo. Springs, CO 80904
719-492-3990

Mountain Office
152 Larson Lane
PO Box 1261
Frisco, CO 80443
(303) 591-9258

January 29, 2013

Mayor Engels and Members of City Council
Central City
P.O. Box 249
141 Nevada Street
Central City, CO 80427

Re: Proposed Ordinance No. 13-03: An Ordinance Amending Chapter 16 of the Municipal Code Regarding the Regulation of Marijuana Cultivation for Personal Use in Residential Structures

Dear Mayor Engels and Members of City Council:

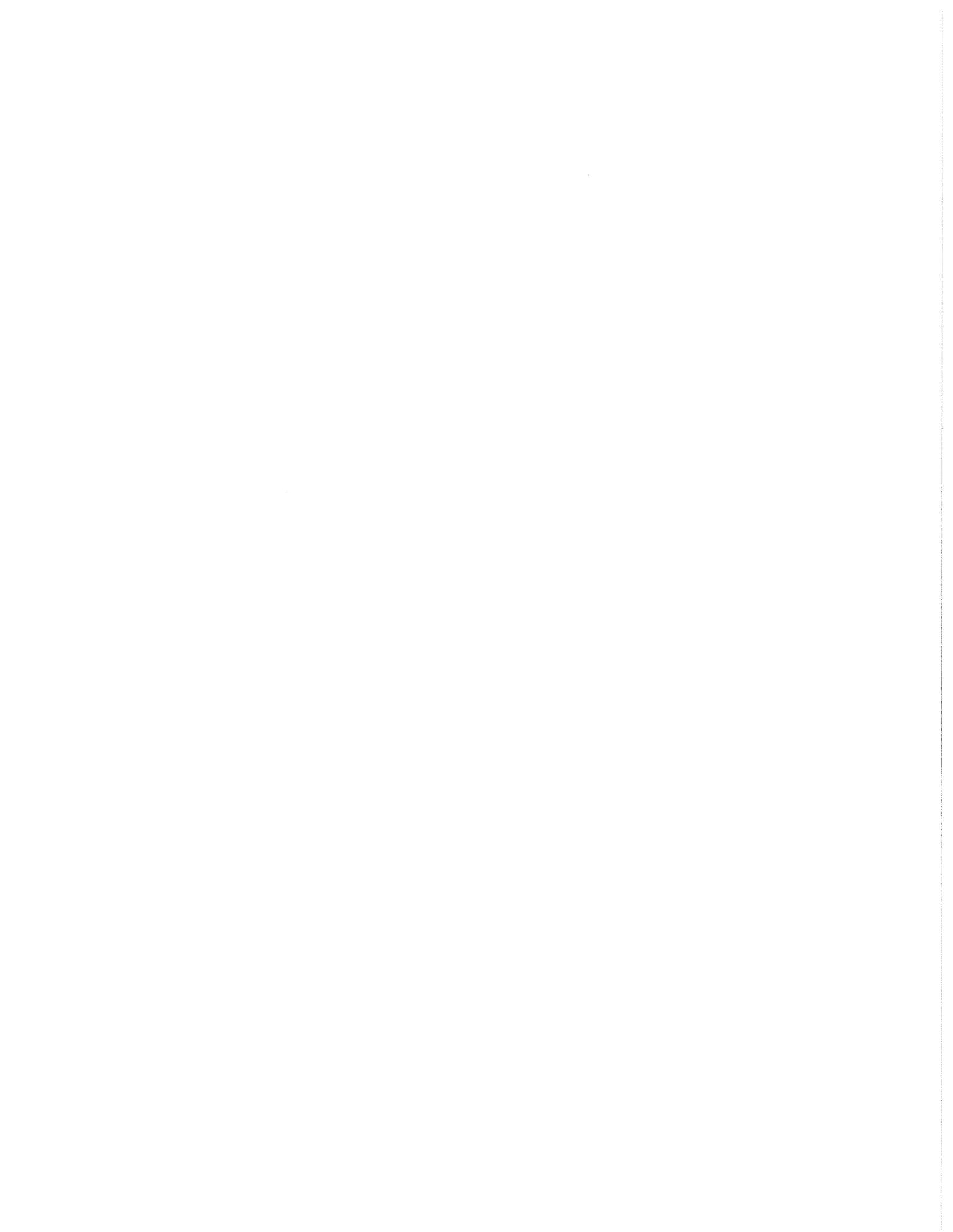
As you know, Colorado Code Consulting, LLC ("CCC"), provides plan review and building inspection services for Central City, Colorado (the "City"), and in that capacity we function as the designated Building Official for the City with respect to enforcing provisions of the International Building Code ("IBC"), the International Residential Code ("IRC"), and related codes, as adopted by the City.

CCC has reviewed the above-referenced ordinance and understands that, if adopted by City Council on second reading, the ordinance will prohibit the cultivation of more than twelve (12) marijuana plants within any single dwelling unit.

If adopted on second reading, CCC will enforce the 12 plant limit, to the extent that the same is within our jurisdiction as the designated City Building Official, and will work with City Staff and members of the community toward ensuring that building improvements associated with indoor residential grows that are permitted on or after the effective date of the ordinance, including but not limited to electrical and ventilation related improvements, are properly permitted and that the same comply with the applicable provisions of the IBC, IRC or other life/safety codes duly adopted by the City.

Sincerely,

Stephen L. Thomas, CBO
President



Indoor Marijuana Growing Operations

By Armand P. La Barge, Chief of Police, and Karen Noakes, Detective Sergeant, York Regional Police, Ontario, Canada



Photographs courtesy York Regional Police

In 1999 law enforcement in the province of British Columbia identified a phenomenon involving indoor marijuana grow operations that were largely controlled by organized crime. It was estimated that one out of every eight homicides in the province was a grow-related murder. By 2001 police in the province of Ontario had identified the same

alarming phenomenon.

It has been estimated that between 2000 and 2002 the number of grow operations in Ontario had increased by at least 250 percent and that in 2002 there may have been as many as 15,000 grow operations active in the province. During 2001 police services across southern Ontario executed 650 search warrants in relation to indoor marijuana grow operations, compared to 160 in 2000.

Indoor marijuana grow operations are major funding sources for a variety of organized criminal activities. It is estimated that between the years 2000 and 2003 Ontario police services could seize more than 1.2 million plants from grow operations. In that same time period, these operations are capable of producing 1.2 million kilograms (2.6 million pounds) of marketable marijuana with a revenue generation of \$10.1 billion.¹

York Regional Police

Population: 870,000

Sworn Officers: 1,133

Civilians: 345

Serving an area immediately north of Toronto, the York Regional Police was formed in 1971 when 14 local police services were amalgamated.

Canada now has the dubious distinction of being a main source country for marijuana exportation. There has been a dramatic increase in the amount of marijuana being seized at Canada's border with the United States. In 1998 authorities seized 369 kilograms (813 pounds) of marijuana; in 2002 they seized 9,477 kilograms (20,893 pounds). It is suspected that the majority of marijuana being grown in Canada is being exported to the United States and in some cases exchanged for cocaine that is brought to Canada for resale. As cannabis has become more powerful and more addictive, the demand for this product has increased. Organized crime groups have found in marijuana a product that provides them with a low-risk yet lucrative business.

During 2001 several police services and agencies across Ontario began collaborating and identified the need for a formal multiagency strategy. Operation Green Sweep was the beginning. This operation involved police services throughout Canada executing search warrants on indoor marijuana grow operations on the same day (January 30, 2002). Operation Green Sweep involved almost 1,000 officers executing 189 search warrants and seizing 56,000 plants valued at more than

\$44.6 million in one day.

This one-day operation was a catalyst for York Regional Police to solidify efforts to combat the constant threat that indoor marijuana grow operations posed to the community.

Everyone Pays for Marijuana Grow Operations

Marijuana plants grown using hydroponics require light, oxygen, nutrients, minerals, water, and carbon dioxide in their environment. The highly oxygenated, nutrient-enriched surrounding allows the plants to flourish and can yield a marijuana crop every three to four months. Some of the nutrient solutions include phosphorous, sulfur, and calcium. Hydroponic equipment can be easily purchased. Initial start-up costs for equipment and supplies for a grow operation is estimated at \$25,000. Other costs associated with the operation could include such things as rent, maintenance, electricity, renovations to accommodate the operation, and various supplies for each crop.

The most cost-prohibitive element of an indoor marijuana grow operation is the cost of the electricity required to run the lighting systems. Grow operations often steal electricity by tampering with meters or, more commonly, by diverting the electricity from the main supply line with a bypass. At one point, a regional hydroelectric utility company reported that an overwhelming amount of residences were stealing power to operate these grow operations. The average bypass steals electricity worth between \$1,100 and \$1,600 per month.

In 2002, a York Region utility serving a population of about 300,000 disconnected 191 grow operations that stole electricity worth roughly \$1 million, and the utility estimates that 450 grow operations in the region stole a total of \$2.5 million in electricity in 2002. In 2003 the same York Region utility disconnected 373 sites. Hydroelectric companies throughout Ontario have employees who specialize in disconnecting hydroelectric services, repairing structural damage, and recovering lost revenue from electricity bypass thieves. Eventually the cost of the stolen electricity is passed on to the consumer. The York Region utility claimed that in 2002 each paying customer paid an additional \$40 to cover the utility's losses from hydro theft, repair costs, and administrative fees.

Grow Operations Endanger Everyone

The Electrical Distributors Association indicates that grow operations can consume upwards of 300 kilowatt-hours per day, which is 10 times the average household electricity consumption. This is obviously a concern, as transformers are often unequipped to handle such high loads. The Electrical Safety Authority has warned that grow operations may be responsible for contributing to summertime shortages of electricity in Ontario, and may raise the risk of reducing the available voltage or blackouts.

Electrocution: The potential for electrocution is real. The process of creating a hydroelectric bypass to steal electricity involves the digging and exposing of a 10,000-watt wire that is attached to the hydroelectric meter. Ballasts are then used to convert the 10,000-watt wire into the 60,000 watts often required to run the growing lights. The wire outside of the home is exposed and not grounded. This can result in the possibility of the surrounding grounds being charged, making them dangerous and even lethal to an innocent person passing by or to any emergency response service, including police, fire, and ambulance. Even after hydroelectric power is cut, the interior of the dwelling can still pose a serious risk because the ballast and capacitor used to boost the wattage can still retain an electrical charge.

Fire: During 2001 and 2002, 4 percent of grow operations in Ontario experienced fire. This rate is consistent with the rate in British Columbia, where 3.5 percent of grow operations experienced fire between 1997 and 2000. The likelihood of fire in a grow operations is 40 times greater than a private dwelling. Chemicals that are often stored at grow operations include liquid nutrients, fertilizers, pesticides, and fungicides that could create toxic smoke if ignited, and chemical spills at grow operations also create a risk of land and water pollution. The typical loss resulting from a residential fire is \$29,000. Most of this cost is assumed by insurance companies and is ultimately passed on to the general public through increased premiums.

The potential for explosions in grow operations is very real. Grow operations provide an environment that contains oxygen, high volumes of nitrogen, and accelerants. A spark from a badly wired hydroelectric bypass is all that is required to cause an explosion. Quite often, flammable chemicals are found in close proximity to electrical wiring.

Carbon Dioxide: Carbon dioxide enhances plant growth but poses serious health risks to humans. High concentrations can displace oxygen in the air, resulting in oxygen deficiency, combined with the effects of carbon dioxide toxicity. Operators will sometimes disconnect furnace piping to vent the pungent smell of the marijuana plants, resulting in the release of carbon monoxide. Some operators mistakenly believe that the carbon monoxide enhances plant growth; acting on that belief could result in carbon monoxide poisoning.

Molds: Grow operations contain a high level of humidity and are prone to the build-up of various molds. These molds can be damaging to human health, causing or aggravating immunological diseases such as hay fever, allergies, asthma, infections, and even cancer. Residents of the active grow operation risk this exposure.

Quite often, during the execution of search warrants, York Regional Police have observed medication for upper respiratory problems belonging to the residents. Upon execution of a search warrant at a grow operation, police secure the residence and then immediately open doors and windows to get a fresh flow of oxygen through the home. Headaches, dizziness, and nausea are common complaints upon initial entry into an indoor grow operation due to the poor air quality.

The long-term effects of exposure to mold and various chemicals that are often present are yet to be determined. What is concerning is that these grow operations are often repaired with a layer of plaster and paint over the mold, thereby endangering future renters or buyers. It is estimated that the cost to repair a house that has hosted an indoor grow operation and return it to habitable conditions is \$32,000 to \$40,000.

Booby Traps: Rivals sometimes vandalize or otherwise interfere with indoor marijuana grow operations to gain a business advantage. To protect their investments, operators have been known to take defensive measures and set up boobytraps such as points of entry rigged to cause electrical shocks to anyone entering a dwelling, noxious compounds set up to be released upon entry to a dwelling, jars of nitric acid placed in areas to spill on intruders, and a plank of wood and metal parts rigged to detonate a shotgun shell. These traps pose a serious threat to first responders and any community member. In British Columbia, between 1997 and 2000, 2 percent of grow operations were found to contain hazards such as boobytraps and explosives.

York's Operational Strategy

One of the goals of the York Regional Police 2002-2004 business plan is to "continue to increase our knowledge and understanding of hydroponic marijuana grows, including the development of appropriate and safe enforcement strategies." This goal and the absolute need for ongoing participation with the community resulted in the development of the York Regional Police Indoor Marijuana Grow Operation Strategy.

The operational strategy has many elements. For enforcement there is a street-level grow enforcement team; and recently an investigative team was formed to target grower hierarchy. There is a community outreach program to educate residents about the problem and tell them how they can detect a marijuana grow operation, and there is a mechanism enabling community members to report suspicious locations. The news media are regularly updated to keep the information in front of the community.

York Regional Police also work closely with the region's hydroelectric utilities. Investigations have revealed that electricity is the major component required to grow marijuana indoors. Without the electricity, growers are not capable of producing large quantities of marijuana.

Over the last several years, the hydroelectric utilities have proactively sought and identified the theft of power, and as a result more marijuana growers have started to pay for the power. The growers believe that the hydroelectric utility will not notify the police if they pay for the power consumed. The fact that the power is being paid for does not reduce the safety concerns, as these grow houses are usually improperly wired.

The hydroelectric utilities work closely with York police. The utilities help identify possible indoor grow operations where large amounts of power are being used and notify police when they discover utility theft.

The Electrical Safety Authority (a provincial agency) has the power to inspect the premises when notified by the electrical utility that suspicious electrical activity is taking place inside the premises.

If they inspect the premises and discover an unsafe electrical situation, they disconnect the premises from electrical service. If they discover marijuana, they notify the police, who can then obtain and execute a search warrant and seize the marijuana.

Among the other partners the agency hopes to work more closely with in the future are insurance companies, real estate boards, and financial institutions. At this time these agencies can contact the York Regional Police Freedom of Information Bureau to determine whether a residence has housed a grow operation that was investigated by the police service.

Ongoing Effort

The York Regional Police Indoor Marijuana Grow Operation Strategy is an ongoing effort of the police, community, and businesses. New partnerships continue to flourish among the businesses, the community, and the police. Feedback continues to be a critical component of York's strategic direction and the indoor marijuana grow operations continues to be policing priority in York.

In 2003, members of the Drugs and Vice Enforcement Bureau executed 173 warrants, laying 345 charges against 136 people and seizing marijuana worth nearly \$40 million. In 2004, 132 warrants were executed, with 120

people facing 247 charges and marijuana worth more than \$30 million seized.

Of growing concern is the fact police are finding more and more children living in these toxic residences. In 2003 in York Region, 22 children were discovered living in marijuana grow operations; in 2004, that number had risen to 39. ■

¹ All monetary amounts expressed in U.S. dollars.

Signs of an Indoor Marijuana Growing Operation

Property	Behavior
<ul style="list-style-type: none">• Evidence of tampering with the electric meter (damaged or broken seals) or the ground around it• Houses that are made to look lived-in but have very few people coming in and out• Water lines or electrical cords running to a basement or outbuilding• An unusual number of roof vents in a house or exhaust fan noises coming from an outbuilding• An outbuilding with air conditioners• A house rooftop with no snow on it when the roofs of surrounding houses are snow-covered• Excessive condensation around windows• Little or no garbage being put out• Excessive security such as guard dogs, Keep Out signs, high fences, heavy chains, and locks on gates• The presence of a greenhouse or tin barn on property where these structures would normally not be used	<ul style="list-style-type: none">• People making only late-night or very short visits• People bringing excessive amounts of potting soil or other grow mediums into the house• People continually bringing items and taking items away in garbage bags• People arriving at the house to put out the garbage, shovel the snow, or cut the lawn and then leaving immediately• People coming and going from the house only once a week• New neighbors never bringing furniture or groceries into the house

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Health Effects Associated with Indoor Marijuana Grow Operations

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Introduction:

During the 1970's, most marijuana was grown in outdoor areas that were hard to find and were not readily visible to law enforcement. However, with new law enforcement techniques, including aircraft for surveillance, these large outdoor operations have become more vulnerable to detection and in much of the country growth is seasonally limited by temperature and light. In addition, restricting the pollination of the female plants in the outdoors is more difficult thereby limiting the 8-9-tetrahydrocannabinol (THC) content of the buds. These factors have contributed to an increase in indoor marijuana grow operations.

Indoor marijuana grow operations (MGO's) enable a year-long growing season in which conditions can be tightly controlled, resulting in plants with higher THC content per plant. A number of environmental factors must be monitored and kept in balance including the amount of light, the day-night periodicity, the carbon dioxide level, the humidity level and the temperature. In addition, the plants must be provided with adequate nutrition and pests must be kept under control.

Although these production factors could be provided in a greenhouse, such a growth area is very likely to be spotted by law enforcement officials or individuals wishing to steal the crop. In order to prevent detection, MGO's are frequently established in a house or a portion of a house that can be easily confined. Since a residential structure is not designed to function as a greenhouse, contamination by pesticides and fertilizers is more difficult to control, moisture can cause damage to building materials and result in excessive mold growth, and the risk of fire is significantly increased.

In order to provide the best growth environment for marijuana, temperature and humidity must be regulated. Temperature is normally kept between 21 degrees C. and 32 degrees C. (although some references indicate that the optimum temperature may be as high as 35 degrees C). The relative humidity is normally kept between 50% and 70% according to most sources although there have been some reports of relative humidity exceeding 90%. Typically, the relative humidity is dependent upon the amount of ventilation that can be provided and not the humidity that the plant needs. The allowable ventilation is likely determined by the need for secrecy, which may result in relatively high levels of humidity. The elevated relative humidity coupled with the elevated temperatures and the need for irrigation, frequently enables fungal growth within the structure. Increased fungal growth within the structure results in elevated mold exposures, of special concern when children are involved, as well as the possibility of actual structural damage to the residence.

Airborne levels of mold spores within these structures may subject the occupants, emergency personnel and other individuals to significant health hazards. Persons residing in these homes are likely to have levels of exposure that can cause hypersensitivity pneumonitis, allergic rhinitis, asthma, and other respiratory diseases. Emergency personnel and law enforcement officers entering these facilities on a regular basis have reported upper respiratory irritation, skin rashes, and other symptoms

associated with these exposures. Officers with pre-existing conditions such as asthma have reported an exacerbation of their existing conditions while dismantling indoor MGO's.

A factor that is very important in determining the THC content of plants is an elevated carbon dioxide level. The normal carbon dioxide level in the outside air ranges from 300 ppm to 400 ppm. In MGO's it is desirable to have levels of carbon dioxide that exceed 700 ppm with 2000 ppm being the highest desirable level. Most marijuana operations attempt to keep carbon dioxide levels at between 700 ppm and 1500 ppm. While these levels of carbon dioxide are not of public health concern, they do cause ancillary problems. First, in order to keep carbon dioxide levels high, ventilation rates normally need to be reduced often leading to excess moisture. Secondly, if the carbon dioxide is generated by the use of fossil fuel combustion, carbon monoxide and oxides of nitrogen can be produced. Both of these compounds can be very dangerous and cause significant health effects in exposed individuals.

Chemicals are also utilized as fertilizers and pesticides. Although these chemicals may not usually cause a high degree of concern when used by qualified individuals, the use by individuals unaware of the dangers may result in risk to the neighborhood, children involved with the residence, and anyone unknowingly residing in the residence after its use as an MGO.

Exposure to the fore-mentioned hazards may result in a community public health concern. Although the greatest risk is borne by the individuals residing in the residence, others may also be impacted. MGO's located in multi-family buildings may allow the distribution of the chemicals used and/or produced into the ventilation system creating an exposure situation in other residences. Exposures to children living in these operations also present a public health hazard since the exposures may result in injury or death to an innocent child. Fires and explosions may cause damage to not only the MGO but also to surrounding houses. Lastly, these operations may go undetected putting an unsuspecting family buying the residence at a later date at risk of adverse health effects.

This project was designed to quantify the chemical and biological exposures associated with MGO's in Colorado and, from this information, to determine the procedures and personal protective equipment necessary for entry into indoor marijuana grow operations.

Methodology:

As noted above, there are a number of concerns associated with MGO's. Concerns include chemical contamination, carbon monoxide and other combustion products, as well as excessive fungal contamination due to the high humidity in the home. Some MGO's have carbon dioxide generators that utilize fossil fuel combustion potentially resulting in the production of carbon monoxide and nitrogen oxides. Fungal and bacterial growth may also be of great concern due to the high humidity and presence of organic materials in the house. We were also interested in the amount of THC present in the air and on surfaces within these MGO's.

Based on these concerns, we conducted an extensive sampling effort in 30 MGO operations. These operations were identified by law enforcement and were sampled shortly after the entry of law enforcement personnel.

The first step was to survey the facility to determine the chemicals utilized, including any pesticides, fertilizers, etc. Real-time levels of carbon monoxide, carbon dioxide, temperature, and relative humidity within the MGO were collected using portable, data-recording equipment. Gas Chromatograph/Mass Spectrometer samples for organics using EPA Method TO-17 were collected for analysis at a commercial laboratory. Airborne THC levels were collected using a fiberglass filter and surface THC levels were collected using a cotton swipe.

After beginning the collection for chemical contaminants, we began sampling for bioaerosols. Bioaerosol samples were collected using an N-6 Cascade Impactor and spore traps. Using the N-6, viable fungal samples were collected using malt extract and DG-18 plates at each location. A total of 4 plates were taken for 2 minutes at each location (2 malt extract and 2 DGA-18). Two spore traps were also taken at each location for a period of 10 minutes at a calibrated flow rate of 15 liters per minute. In addition, filter samples and settled dust samples were collected for analysis using quantitative polymerase chain reaction (QPCR).

The value of each of these mold sampling techniques was as follows:

- **Viable Samples** – These samples were collected using an Anderson Cascade Impactor to sample a known amount of air onto an agar plate. Two types of plates were utilized, malt extract plates for general molds and DG-18 plates for Stachybotris sp. This sampling technique allowed us to determine the types and amounts of molds present down to the species level.
- **Non-Viable Samples** – These samples were collected using a spore trap that collects the spores present in a known amount of air and allows them to be identified, generally to genus. The advantage to this type of sampling was that the organisms did not have to be grown and therefore some species were more easily identified. In addition, the actual number of mold spores present was more accurate since the spores are counted without the necessity of a growth phase.
- **PCR Samples** – These samples were collected on a filter that was then tested using polymerase chain reaction which is able to identify a number of species that may be present by looking for the rRNA associated with that mold. This test is very specific for certain molds.
- **Dust Samples** – Samples of dust in the home were taken and analyzed using PCR technology again. The PCR is used to confirm the presence of specific molds that are associated with indoor mold growth and compare them with outside mold

species. This information was compared to an EPA database to determine the relative moldiness of the house.

As dismantling of the grow operation was expected increase exposures to law enforcement personnel, we also monitored any removal operation using the same methodologies outlined above.

Results:

Indoor MGO's Sampled

We responded and sampled a total of 24 indoor MGO's. The first MGO was a 4-plex that was essentially 4 MGO's in one and the 14th MGO was a large office building with 4 large grow rooms. The data provided will therefore contain information on a total of 30 MGO's.

Viable Mold Levels

In order to determine if mold spore levels are increased within a structure, we analyze several parameters. The first parameter that we examine is to determine if the total number of spores in the outside air is equal to the total number of spores observed within the structure. Since mold samples are grab samples and have a large distribution, we expect mold levels in problem houses to be 10 times higher than outside mold spore levels. An increase of 5 times may **suggest** that the structure has an elevated mold problem and that further data needs to be collected. In addition, we expect the species inside the house to be similar in abundance and species to the species and abundance outside. The rule of 10 times higher and 5 times higher again prevails.

Table #1 shows the relationship between the outside mold spore levels and the mold spore levels found in the different MGO's. The table provides the average mold spore levels observed in the outside air and the average mold spore levels found in the inside air. It also provides the range of mold spore levels found in each of those situations. In 5 of the MGO's sampled, the average mold spore level within the grow room was at least 10 times the average spore level in the outside air. This indicates that in those MGO's, the grow rooms were likely growing mold and may present a significant danger to individuals present within those rooms. An additional 3 MGO's had ranges where the highest range was elevated more than 10 times the levels found in the outside air again indicating that mold was growing in the structure. Table #1 also illustrates that in an additional 9 MGO's, the average level of spores was at least 5 times the outside levels suggesting that indoor mold growth was likely. Many of these samples contain results where the levels were as high as the method utilized could detect, indicating that the actual levels of mold were likely much higher.

The ranges have also been highlighted to show MGO's where the highest range within the grow room is at least 5 times the outside (yellow) or 10 times the outside levels (red).

Table #1

	Plant Number	Total Outside		Grow Rooms	
		average	range	average	range
	1A	117	324	144-414	1048 522-1620
	1B	77	324	144-414	1745 1190-2300
	1C	58	324	144-414	662 486-1080
	1D	28	324	144-414	1968 1640-2270
	2	160	945	540-1256	2247 594-5330
	3	65	464	360-738	>1366 [REDACTED]
	4	670	189	144-270	1085 612-1742
	5	232	468	342-594	[REDACTED]
	6	52	738	486-1044	3880 1638-9794
	7	37	671	324-1134	950 900-1080
	8	24	671	324-1134	752 576-918
	9	86	671	324-1134	423 234-594
	10	28	851	648-1116	911 504-1688
	11	30	575	238-1026	386 323-468
	12	11	1142	360-1886	360 306-450
	13	290	554	342-756	441 216-918
	14A	446	140	90-180	95 72-144
	14B	323	140	90-180	[REDACTED]
	14C	107	140	90-180	[REDACTED]
	14D	84	140	90-180	[REDACTED]
	15	56	518	342-648	146 108-234
	16		126	90-162	871 [REDACTED]
	17	188	401	252-594	>3150 [REDACTED]
	18	75	414	198-684	628 72-1134
	19	64	824	504-1188	>3189 288->6430
	20 100+		3086.5*	2182-4028*	>3613 1422->10836
	21	240	438	252-756	[REDACTED]
	22	236	869	576-1242	>3582 846->6264
	23	84	293	72-468	914 630-1188
	24	168	1993	180-3740	>6728 >5436->8404

* - This outside level appears to be contaminated with inside mold

> - Greater than

These data indicate that the number of MGO's with elevated spore levels appear greatest when the number of plants exceeds 50. There are, however, some MGO's with larger numbers of plants that did not indicate elevated mold spore levels. Sample #20 includes an outside air sample that was taken on the steps of the MGO and was likely contaminated with indoor mold since the primary species (*P. brevicompactum*) was the main fungal contaminate inside and is not routinely found in high numbers on outside samples.

In some structures, the total mold spore counts were relatively similar between indoors and outdoors but the species of mold spores present was radically changed. We therefore looked not only at total mold spore levels but also mold species that were occurring within the MGO at levels exceeding outside levels. We found that *Penicillium* species typically occurred within the MGO's at much higher concentrations than are present in the outside air. Table #2 illustrates this difference.

Table #2

Grow	Plant Number	Pen. Outside		Grow Rooms	
		Average	Range	Average	Range
1A	117	14	0-36	18	0-36
1B	77	14	0-36		
1C	58	14	0-36	77	0-126
1D	28	14	0-36	23	0-36
2	160	14	0-54		
3	65	14	0-54	56	
4	670	36	0-108		
5	232	171	0-378		
6	52	95	0-342		
7	37	108	18-198	81	54-126
8	24	108	18-198	612	324-882
9	86	108	18-198	95	54-198
10	28	36	18-90		
11	30	125	54-272	320	255-378
12	11	5	0-18		54-126
13	290	5	0-18		
14A	446	5	0-18	45	18-108
14B	323	5	0-18	23	0-54
14C	107	5	0-18		
14D	84	5	0-18		36-126
15	56	50	18-90	25	0-72
16		14	0-36	63	0-234
17	188	18	0-72		
18	75	108	36-180	178	0-396
19	64	9	0-36		
20	100+	2601*	2110-3146*	>4403	1188->5400
21	240	27	0-36		
22	236	42	0-108	171	90-270
23	84	14	0-54		
24	168	477	162-972		>5400->5400

* - This outside level appears to be contaminated with inside mold
 > -Greater than

Twenty-one of the MGO's sampled had Penicillium spore levels that exceeded 5 times the outdoor levels in either the average spore levels, the range, or both. In some cases, the difference was over 100 times the outside level. These results suggest that the mold species most commonly associated with MGO's in Colorado are Penicillium sp. This is not a surprise since other investigations that we have conducted in Colorado have also involved Penicillium sp. In several of these prior investigations, the elevated concentrations of Penicillium mold spores were associated with hypersensitivity pneumonitis among workers in the contaminated areas. Levels of Aspergillus spores were only found to be elevated in one MGO (MGO#5).

Non-Viable Mold Levels

Non-viable mold spore measurements have the advantage over viable spore levels in that the spores do not have to be grown. Since not all mold spores that are captured using the Anderson Cascade Impactor are able to grow due to viability issues, the non-viable spore levels are usually higher than the viable mold levels. Since most of the health effects due

to mold exposure are caused by the allergens in the spores, the spores need not be viable to cause health effects.

Table #3 provides the results from of the total spore counts.

Table #3

Grow	Plant #	Total Outside		Grow Rooms	
		average	range	average	range
1A	117	241	241	711	711
1B	77	241	241	1960	1960
1C	58	241	241	1410	1410
1D	28	241	241		
2	160	NA	NA	1380	1380-7610
3	65	509	274-744	645	505-745
4	670	221	161-281	958	345-2090
5	232	556	295-816		
6	52	1470	1370-1570	3345	2670-4020
7	37	989	928-1050	900	780-1020
8	24	989	928-1050	534	471-597
9	86	989	928-1050	489	465-512
10	28	7430	6690-8170	1893	653-2880
11	30	3670	3370-3970	279	189-369
12	11	6075	5960-6190	783	716-850
13	290	2695	2240-3150	304	0-654
14A	446	503	498-507	464	464
14B	323	503	498-507	179	84-274
14C	107	503	498-507	334	323-344
14D	84	503	498-507	157	139-175
15	56	1067	864-1270	102	70-140
16		274	273-274	1045	0-2520
17	188	787	681-893		
18	75	439	168-710	863	365-1490
19	64	751	231-1270		
20	100+	1840	1350-2330	6868	5130-9820
21	240	186	126-246	P	P
22	236	13850	11100-16600	2500	2010-2990
23	84	95	77-112		
24	168	2380	1770-2990	10800	10100-11500

P = Particle overload on spore trap.

These results are similar to Table #1 and indicate that a number of the MGO's had spore levels that were elevated above the background level. The biggest difference between the two tables are the results for MGO#14 where the viable levels of spores were much higher than the number of counted spores. The reason for this discrepancy is unknown at this time.

Table #4 shows the non-viable spore counts for the Penicillium/Aspergillus species only:

Grow	Plant #	Outside		Grow	
		average	range	average	range
1A	117	42		42	28
1B	77	42		42	
1C	58	42		42	246
1D	28	42		42	97
2	160	NA	NA	42	42-42
3	65	0	0-0	26	0-42
4	670	32	0-42		
5	232	180	0-359		
6	52	84	0-105	801	
7	37	116	0-190	74	63-84
8	24	116	0-190	285	211-359
9	86	116	0-190	32	21-42
10	28	21	0-42		
11	30	200	0-356	0	0-0
12	11	106	0-106	42	21-63
13	290	21	0-42	63	42-84
14A	446	11	0-21	63	63
14B	323	11	0-21	53	21-84
14C	107	11	0-21		
14D	84	11	0-21	53	42-63
15	56	264	0-401	42	21-63
16		11	0-21		
17	188	496	0-570		
18	75	201	0-380	95	63-169
19	64	380	0-739		
20	100+	1192	0-1560	6445	4260-9520
21	240	127	0-211	P	P
22	236	32	0-63		
23	84	11	0-21		
24	168	2170	0-2570	10380	9960-10800

P = Particle overload on spore trap.

This table is similar to the results obtained with the viable samples. Fourteen of the MGO's were found to have elevated or possibly elevated spore levels. The results for MGO#21 were also likely elevated but the spore trap was overloaded and could not be counted. Although spore traps can't discriminate between *Penicillium* sp and *Aspergillus* sp, it is assumed that most of the spores counted were *Penicillium* spores since that is what was found during the viable sampling.

Combining the information obtained from both the spore traps and the viable samples collected using the Anderson Cascade Impactors, we found the following as shown in Table 5:

MGO#	Plant Number	Viable Results	Non-Viable Results	Combined
1A	117			
1B	77			
1C	58	Possibly Elevated	Possibly Elevated	Possibly Elevated
1D	28	Possibly Elevated	Elevated	Elevated
2	160			
3	65			
4	670			
5	232			
6	52			
7	37			
8	24			
9	86			
10	28	Elevated	Elevated	Possibly Elevated
11	30			
12	11			
13	290			
14A	446	Possibly Elevated	Possibly Elevated	Possibly Elevated
14B	323			
14C	107			
14D	84			
15	56			
16				
17	188			
18	75			
19	64			
20	100+	Possibly Elevated	Possibly Elevated	Possibly Elevated
21	240		?	
22	236	Possibly Elevated		
23	84			
24	168			

? = Particle overload on spore trap.

There is strong agreement between both the viable and non-viable samples. Combining the results from both of the tests, we found elevated mold spore counts in 18 of the 30 MGO's for a percent elevated of 60%. We found possibly elevated levels at another 3 MGO's, which if added to the 18, result in a total of 21 MGO's with elevated spore levels (70%). The MGO's that did not show elevated mold spore levels generally had smaller numbers of plants with the exception of MGO#2 and MGO# 9. There were four MGO's that had elevated levels of mold spores but only a few plants. Two of these grows, MGO 1C and 1D were in duplexes with other larger grows were present that may have increased the spore counts for these smaller grows.

Spore Levels During Tear-out

A study conducted by DEA indicated that some of the highest mold spore concentrations occurred during the tear-out of plants from an MGO. We were able to monitor the mold spore concentrations in 10 cases where the plants were removed from the structure. The results are represented in the next tables for both viable and non-viable sampling.

Table 6.

		Viable Results					
MGO #	Total Outside		Initial Grow Room		Grow Room at Removal		
	Average	Range	Average	Range	Average	Range	
2	945	540-1256	2247	594-5330	>3048	1010 - >5450	
16	126	90-162	871	144-1724	>2688	1350->6840	
17	401	252-594	>3150	144->5922	>2938	270->5688	
18	414	198-684	628	72-1134	>7566	270->11322	
19	824	504-1188	>3189	288->6430	>5837	>5796->5886	
20	3087	2182-4028	>3613	1422->10836	>5560	>5400->5742	
21	438	252-756	>6422	>5976->6894	>6282	>5886->6714	
22	869	576-1242	>3582	846->6264	2745	1706-3948	
23	293	72-468	914	630-1188	>6629	>5616->7820	
24	1993	180-3740	>6728	>5436->8404	>5436	>5400->5490	
		Penicillium Outside					
MGO#	Penicillium Outside		Initial Grow Room		Grow Room at Removal		
	Average	Range	Average	Range	Average	Range	
2	14	0-54	155	0-558	261	0 - 630	
16	14	0-36	63	0-234	883	648-1240	
17	18	0-72	>2927	54->5706	>2792	36->5400	
18	108	36-180	178	0-396	>4704	162->5400	
19	9	0-36	>2768	36->5400	>5400	>5400->5400	
20	2601	2110-3146	>4403	1188->5400	>5405	>5400->5436	
21	27	0-36	>5400	>5400->5400	>5400	>5400->5400	
22	42	0-108	171	90-270	846	486-1220	
23	14	0-54	477	432-540	>5198	4900->5400	
24	477	162-972	>5400	>5400->5400	>5400	>5400->5400	

This table indicates that the total number of mold spores in the air increased in six of the MGO's in which the plants were removed. The number of Penicillium species increased in 7 of the 10 MGO's in which the plants were removed. In some of those instances (MGO 2,14,18,22,and 23) the levels increased substantially, thereby potentially increasing the risk to the individuals conducting the operation.

The results of the non-viable samples are represented in Table 7. These results also show an increase in the total number of mold spores due to handling as well as an increase in the numbers of Penicillium/Aspergillus in the samples that were manipulated. In some instances the levels of Penicillium/Aspergillus spores reached extremely high levels (greater than 100,000 spores/cubic meter) that are not normally observed in residential samples. These high levels of spores may impart an even greater risk for exposed individuals.

Table 7

MGO #	Total Outside		Non-Viable Results		Grow Room at Removal	
	Average	Range	Average	Range	Average	Range
2	NA	NA	4495	1380-7610	5555	2080 - 9030
16	274	273-274	1045	0-2520	4093	1970-7090
17	787	681-893	11196	893-25200	9838	5440-15900
18	439	168-710	863	365-1490	37260	7240-82300
19	751	231-1270	48454	245-13400	3780	3250-4310
20	1840	1350-2330	6868	5130-9820	212225	19700-534000
22	13850	11100-166	2500	2010-2990	28600	28600
23	95	77-112	2988	766-5210	190	190
24	2380	1770-2990	10800	10100-115	121500	107000-136000
MGO#	Penicillium Outside		Initial Grow Room		Grow Room at Removal	
	Average	Range	Average	Range	Average	Range
2	NA	NA	35	28 - 42	21	0 - 42
16	10.5	0-21	162	106-211	2967.5	1010-5970
17	496	0-570	10524.25	317-24900	9205	4120-15400
18	200.5	0-380	94.75	63-169	35360	6040->82300
19	380	0-739	47193.5	63-132000	1655	1560-1750
20	1191.5	0-1560	6445	4260-9520	211725	18300-534000
22	31.5	0-63	559	274-844	16200	16200
23	10.5	0-21	1922.5	295-3550	21	21
24	2170	0-2570	10380	9960-1080	121000	107000-135000

THC Levels

As part of the project, we sampled for THC in the air at the MGO's as well as on surfaces within the MGO and on the gloved hands of the investigating officers. We found airborne THC at a low level in only one MGO, suggesting that THC is not normally airborne during normal operations at MGO's. We have found THC on many of the surfaces sampled within the MGO's as well as on the hands of the investigators working in the MGO. The following results were obtained:

MGO #	Location	Result (ug/wipe)
#1	Living room table bottom north apt.	16
#1	Kitchen counter top north apt.	0.31
#1	Kitchen counter bottom south apt.	0.28
#1	Bathroom counter top north apt.	0.79
#1	Bathroom counter bottom south apt.	0.34
#1	Bathroom sink upper south apt.	0.61
#1	Kitchen counter bottom north apt.	1.2

#1	Blank	Non Detect
#2	Kitchen Counter	0.27
#2	Hand of officer	50.0
#2	Floor between grow rooms	Non detect
#2	Blank	Non Detect
#2	Upstairs Bathroom sink	1.4
#3	Kitchen counter	0.15
#3	Bathroom sink	0.29
#3	Floor in MGO	0.14
#3	Clothes Dryer	0.14
#3	Floor in grow area	Non detect
#3	Blank	Non detect
#4	Surface of inside door	Non detect
#4	Door in room #1	39.0
#4	Hands of officer	11
#4	Hands of officer	1.6
#4	Prep sink	0.83
#4	Main room floor	6.5
#4	Door to room 2	Non detect
#4	Blank	Non detect
#5	Dining Table	2.1
#5	Kitchen Counter	2
#5	Basement Grow Room Floor	37
#5	Back Bathroom	Non detect
#5	Blank	Non detect
#6	Kitchen	0.015
#6	Drying Room	0.045
#6	Grow Room Floor	0.015
#6	Bath Floor	0.0054
#6	Gloves	Non detect
#6	Blank	Non detect
#7	Bathroom Adjacent to Grow	Non detect
#7	Washer	Non detect
#7	Grow Room Floor	0.0045
#7	Kitchen	Non detect
#7	Hands	0.014
#7	Hands	0.014
#8	Kitchen Counter	Non detect
#8	Upstairs Bathroom Sink	Non detect
#8	Grow Room	Non detect
#8	Upstairs Bathroom Sink #2	0.0046
#9	Kitchen Sink	Non detect
#9	Main Floor Bathroom	Non detect
#9	Bedroom Bathroom Sink	Non detect
#9	Blank	Non detect

#10	Kitchen Counter	Non detect
#10	Bathroom sink	Non detect
#10	West Grow room table	1.9
#10	East Grow room table	Non detect
#10	Gloves	Non detect
#10	Blank	Non detect
#12	Washer in Kitchen	Non detect
#12	Coffee Table	Non detect
#12	Bathroom Toilet	Non detect
#12	Blank	Non detect
#13	Bathroom Floor	0.76
#13	Large Grow Room Floor	0.30
#13	Small Grow Room Floor	0.13
#13	Kitchen Floor	0.77
#14	Bathroom Floor	0.80
#14	Processing Counter	59
#14	Kitchen Sink	0.49
#14	Refrigerator	0.13
#14	Counter	3.9
#14	Kitchen Sink	0.94
#14	Grow Room Floor	0.29
#16	Bathroom Sink	0.69
#16	Hallway	Non detect
#16	Kitchen island	Non detect
#17	Table top	Non detect
#17	Refrigerator Top	Non detect
#17	Top of Grow Light	Non detect
#17	Blank	Non detect
#18	Top of boxes	0.48
#18	Top of water tank	0.73
#18	Top of grow room table	0.38
#18	Hand wipe after tear-out	180
#18	Hand wipe after tear-out	40
#19	Top of grow light	0.41
#19	Kitchen Table	0.1
#19	Hand wipe	6.1
#19	TV table top	0.1
#19	Hand wipe	11
#19	Kitchen counter	Non detect
#19	Blank	Non detect
#20	Basement clipping table	2000
#20	Kitchen counter	0.1
#20	Bathroom counter	Non detect
#20	Floor	Non detect
#20	Blank	Non detect

#20	Hands	2.4
#20	Hands	5.8
#21	Hand wipe after tear out	1100
#21	Hand wipe after tear out	490
#21	Table in grow room	43
#21	Kitchen counter	2.4
#22	Stove top	1.4
#22	Clone room table	3.2
#22	Hand wipe after tear out	150
#22	Hand wipe after tear out	150
#23	Kitchen counter	Non detect
#23	Grow room wipe	0.19
#23	Hand wipe	9.2
#23	Hand wipe	120
#24	Kitchen counter	Non detect
#24	Grow room wipe	1.1
#24	Hand wipe after tear out	2900
#24	Hand wipe after tear out	1300

As this table indicates, the THC levels can be rather elevated on surfaces throughout the MGO. The levels observed ranged from non-detect to a level of 2900 ug/wipe on the hands of an officer participating in the tear-out of an MGO. The highest surface level observed was on a table top used for cloning where a level of 2000 ug/wipe was documented. Most surface levels within the MGO's were found to be less than 10 ug/wipe. Wipes taken on the hands of 16 officers working in the MGO's ranged from non-detect to 2900 ug/wipe. The highest levels were observed on the hands of officers tearing out the plants at the MGO's.

Although we are still researching the toxic effects of THC relating to dose, it appears that the intoxicating effects of THC can be observed in individuals without a history of use at levels as low as 2 mg (2000 ug). Levels this high on environmental surfaces were only observed on one occasion (a cloning table) while most surfaces within the MGO were found to have levels of less than 10 ug/wipe, 2 orders of magnitude below the levels found to cause euphoria. THC levels on the hands of officers did approach levels that would be considered to be intoxicating on a couple of occasions but these were observed primarily on the hands of officers tearing out the plants at MGO's. The average amount of THC on the hands of officers was approximately 400 ug/wipe. Hand protection during tear-out would still be considered to be desirable not only due to the toxic effects of THC but also as protection against herbicides, pesticides, etc.

VOC Sample Results:

Samples for volatile organics were collected at all of the sites. Samples taken inside of the MGO's were compared to samples taken outside in order to determine if any chemicals of concern were present within the structure. Since most of the MGO's that we visited had not been using any THC concentration techniques, the presence of high

concentrations of solvents were not expected. We did detect a number of solvents that are normally present in all structures such as acetone, butane, isobutene, etc. We also detected a number of compounds that cause the smell that we characterize as the marijuana smell. These compounds are present in higher quantities in the grow rooms and are alpha-pinene, beta-myrcene, beta-pinene, and limonene. These compounds do not present a known hazard to anyone inhaling them as far as we know.

Carbon Dioxide and Carbon Monoxide Levels:

Carbon dioxide levels were not being boosted at the time of sampling in many of the MGO's. In only one instance did we find that an operator had disconnected the vent system for the furnace and hot water heater, but at the time of sampling, he was in jail and the CO₂ was at ambient levels. No other fossil fuel combustion products were observed at that unit.

In general, the carbon dioxide levels ranged from ambient (300 – 400 ppm) up to approximately 1300 ppm. Elevated levels of carbon monoxide were not identified in any of the MGO's sampled.

The presence of carbon dioxide tanks and regulators were observed in a number of the MGO's. In general, these setups are the best methodology for increasing the carbon dioxide levels since they do not result in the production of other combustion products that may cause pulmonary irritation or, in the case of carbon monoxide, fatalities. The typical carbon dioxide tank setup is shown in Figure 1.

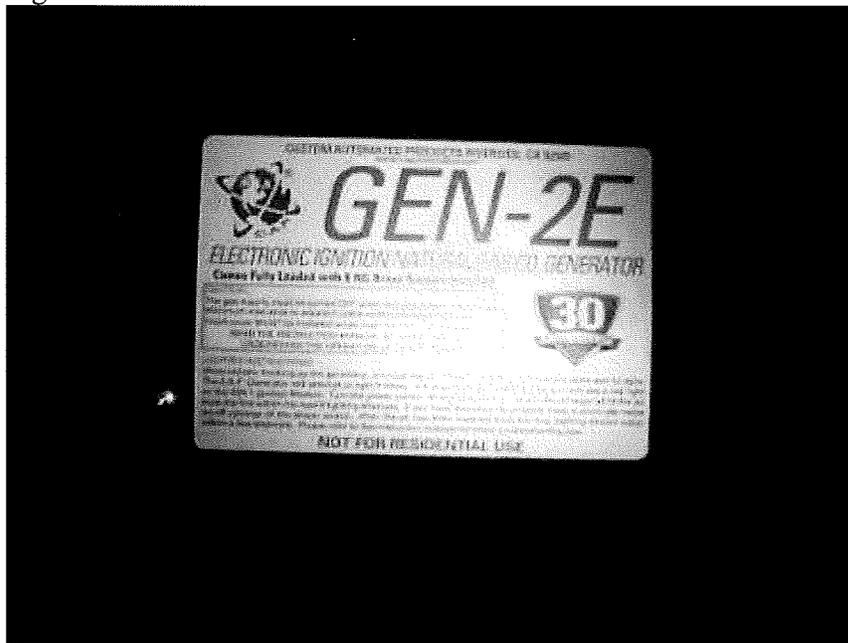
Figure 1.



The second type of carbon dioxide generator that was found was a unit that produced carbon dioxide through the combustion of natural gas. These units were observed in a

number of MGO's and none of the units were ventilated to the outside. In one instance, respiratory irritation to investigators was of such a concern that the unit was turned off prior to us arriving on the scene and collecting samples. These units are labeled "NOT FOR RESIDENTIAL USE" due to the potential for the production of carbon monoxide and other combustion by-products. Although none of these units were found to be producing carbon monoxide at the time of our sampling, the potential is present and the result could be fatal if unrecognized. Figure 2 shows the warning tag on one of the units.

Figure 2.



Chemicals Utilized at MGO's

Most of the chemicals observed at MGO's fell into one of two categories, pesticides and fertilizers. Most of the compounds observed did not appear to pose a substantial threat to short duration exposures by law enforcement officers. Pesticides were primarily pyrethroids which have a relatively low toxicity. We did find, however, a number of instances of pesticides approved for outdoor use only, apparently being utilized indoors. In addition, in many instances these pesticides were being stored on the floor and within easy reach of children. In fact, a number of chemicals observed within the MGO's had label warnings to keep the chemicals out of the reach of children, yet they were still stored on the floor.

Figure #3 and #4 show the typical pesticides and fertilizers observed at the MGO's.

Figure 3.

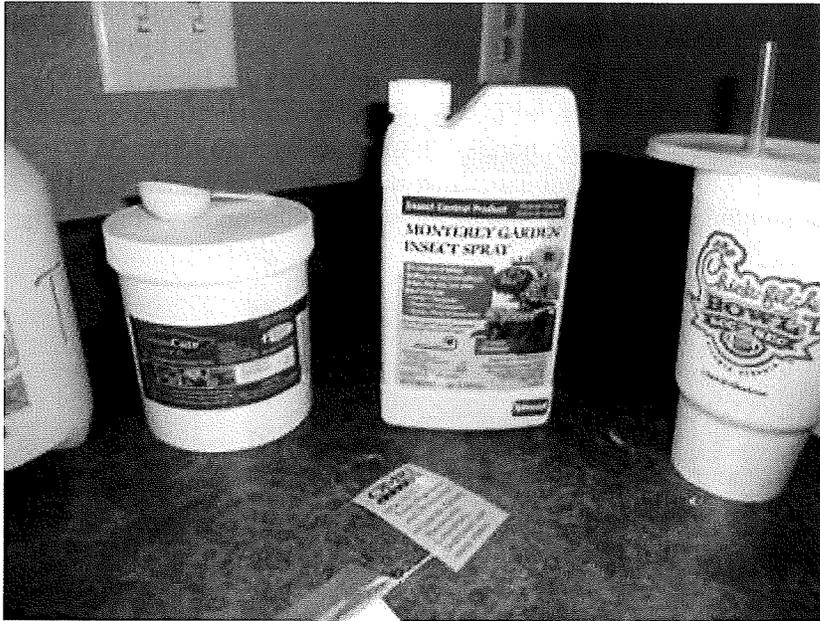


Figure 4.



Conclusions:

A number of reports have suggested that the principal concern in indoor marijuana grow operations is the presence of excessive mold spore levels due to the elevated

temperatures, humidity, and organic material in these operations. Our study has confirmed this concern. Over 60% of the MGO's that we sampled had mold spore levels or Penicillium spore levels that exceeded outdoor levels by at least 10 times. In some cases, the levels were in excess of 100 times the outdoor level. In almost all of the MGO's, the primary species involved were Penicillium species, a species that is common in Colorado. In fact, a number of homes and commercial buildings studied by National Jewish researchers involving cases of hypersensitivity pneumonitis in patients have involved Penicillium species. It is very possible, therefore, that individuals working for long periods of time in these facilities could develop pulmonary problems such as hypersensitivity pneumonitis, asthma, and allergic rhinitis.

A study conducted by DEA personnel indicated that the manipulation of the marijuana plants results in the release of higher levels of mold spores than simply growing the plants. Our sampling confirmed that, in many cases, the tear-out of the MGO's did increase the number of airborne mold spores (especially Penicillium species spores) to relatively high levels. In one instance, the spore levels exceeded 500,000 spores per cubic meter, a level seldom observed in residential structures. These levels are high enough to indicate that respiratory protection should be worn by individuals participating in MGO investigations. Failure to utilize respiratory protection could result in respiratory irritation, headache, difficulty breathing, chest tightness, and other symptoms caused by the mold spore exposure. This is especially of concern for individuals that spend excessive time within the MGO's.

We also sampled for THC in the MGO's and found the active ingredient in marijuana to be present on many environmental surfaces. The levels found did not coincide with airborne levels suggesting that the surfaces were contaminated with large particles that had dropped onto the surfaces. The levels observed upon the surfaces do not appear to be high when related to the toxicity of THC. Although children exposed to this contamination may have some health risk, adults would not normally be expected to show symptoms. A surface in one MGO did have an excessive level of THC present but this was a cloning table with significant amounts of vegetative material on the surface.

Our investigation did not reveal the presence of any chemical concerns at the time of sampling although several reports from Canada have suggested that toxic pesticides may be present in MGO's. Although no highly toxic chemicals were observed, the use of pesticides and fungicides by individuals not trained in that use may expose responding individuals to chemicals that may cause health concerns, especially as the plants are removed from the scene.

The use of compressed carbon dioxide tanks to raise the level of carbon dioxide significantly reduces the potential for exposures to combustion by-products that may cause pulmonary concerns. Compressed gas tanks primarily present safety concerns from tanks being knocked down and breaking the valve which will then create a missile out of the tank. There are also some thermal concerns in that if gas is rapidly released, very cold temperatures can be created. In general, however, compressed carbon dioxide gas tanks create fewer health concerns than combustion sources.

A number of MGO's did utilize combustion sources to provide the excess carbon dioxide necessary. These systems are not approved for residential use and may cause health concerns due to the production of carbon monoxide as well as oxides of nitrogen. It is important that these devices not be utilized in any residential building where adequate ventilation and monitoring does not exist. In at least one MGO, the unit did cause a noticeable respiratory irritation to the investigators.

Recommendations:

Expected Hazards:

Based on the results of our study, the primary exposure of concern is the inhalation of high numbers of mold spores that we found to be present in many of the indoor marijuana grows. The highest concentrations of fungal spores were measured when the plants were being removed from the operation and not during the initial entry. However, even the initial entry at some of the MGO's was found to expose individuals to fungal spore levels that were well above outside levels. Exposure to these elevated spore levels on a sporadic basis for short periods of time may be well tolerated by most individuals. Individuals exposed to these spore levels for excessive periods of time or with an elevated frequency may develop allergic reactions to the fungal spores resulting in upper respiratory irritation and, in some cases, hypersensitivity pneumonitis. Individuals with an immune deficiency caused by transplant surgery, corticosteroids, illness, or other causes could have severe reactions to these elevated spore levels and experience life-threatening illnesses.

In addition to elevated fungal spore levels, some studies in Canada, have suggested that exposures to carbon monoxide and chemical pesticides may also be possible. Although we did not find any significantly elevated carbon monoxide levels or very toxic pesticides associated with our MGO's, the possibility does exist that these exposures could be present in some MGO's. The RCMP has recorded at least one officer that reported symptoms compatible with pesticide poisoning after working in a large MGO for a 5 hour period of time. Elevated carbon monoxide levels have also been reported in some MGO's.

Exposure to a number of physical hazards including trip and fall hazards, electrical hazards, booby traps, firearms, and fire hazards have also been associated with MGO's and a number of fire fighters and law enforcement personnel have suffered electrical shock while entering MGO's. This is not unexpected due to the poor wiring methodology associated with these grows and the significant use of water in the operations. Physical hazards must therefore be expected in MGO's.

Current Personal Protection Guidelines:

We reviewed a number of guidelines that are currently available regarding personal protective gear requirements for entry into MGO's. The publication entitled "Clandestine

Indoor Marijuana Grow Operations – Recognition, Assessment, and Remediation Guidance” published by the American Industrial Hygiene Association in 2010 indicates that the PPE required for entry must be tailored to the specific facility in question but that the following is suggested as a minimal consideration:

Initial Response:

- Chemical resistant boots with slip and puncture protection
- Eye and face protection
- Tactical ballistic helmet
- Tear and fire resistant outer garment
- Chemical resistant gloves
- Tyvek and/or chemical resistant coveralls
- For unknown atmospheres – an SCBA
- For known atmospheres – a Powered air purifying respirator (PAPR) or air purifying respirator with P-100 cartridges.

Assessment and Product Removal:

- Chemical resistant boots with slip and puncture protection
- Eye and face protection
- Tear and fire resistant outer garment
- Chemical resistant gloves
- Tyvek and/or chemical resistant coveralls
- For unknown or IDLH atmospheres – an SCBA
- For known atmospheres – a Powered air purifying respirator (PAPR) or air purifying respirator with P-100 cartridges.

The State of Arizona suggests that for tactical operations at MGO's, entry should be initiated with a full-face air purifying respirator, a Tyvek and/or chemical resistant suit, boots and gloves that provide protection from chemicals. They also indicate that the use of SCBA as a routine entry tool be considered.

A slide show produced by Network Environmental Systems and the DEA Clandestine Laboratory Training Unit suggests that entry into MGO's should be conducted with a minimum of a full face air purifying respirator with a minimum of a P-100 cartridge, nitrile-dipped gloves, Tyvek suits, and boots.

The Calgary Fire Department in Calgary, Canada considers the minimum equipment for MGO entry to consist of the following:

- Tyvek outer garments
- A full-face air purifying respirator or, if glasses are needed, a ½ face respirator with a minimum of a P-100 cartridge
- Nitrile rubber gloves or gloves appropriate for the chemicals found
- Waterproof work boots
- Kevlar gloves for tactical officers

- A 3-gas (oxygen, Carbon monoxide, and Flammability) portable monitor

The U.S. EPA does not specifically address MGO's but does provide guidance regarding mold exposures in schools and commercial buildings. They indicate that the following PPE should be worn when entering indoor areas where mold contamination has been discovered:

Minimally contaminated areas:

- N-95 disposable respirator
- Goggles or other eye protection

Moderately contaminated areas:

- N-95 disposable respirator or ½ face air purifying respirator with P-100 cartridges
- Protective coveralls
- Goggles or eye protection

Heavily contaminated areas:

- Gloves
- Tyvek coveralls
- Head covering
- Boots
- Full-face air purifying respirator with P-100 filters

In most cases, the levels of mold found in MGO's would be considered to be heavily contaminated areas by U.S. EPA definition.

Study Recommendations:

Based on the results of our study, we believe that the primary exposures present in MGO's consist of high levels of mold spores, low toxicity pesticides and other chemicals, carbon monoxide, and electrical hazards. Other than electrical hazards, very few of these exposures are expected to cause significant health effects during short exposure periods. Most individuals will not experience significant health reactions during 20 minute exposures to excessive mold spores, especially if the individual simply enters the house and leaves without manipulation of the plants or the growing equipment.

It is possible however, that some individuals will experience significant health effects to these fungal spore levels. Individuals with allergies to mold, individuals with a lowered immune response, and individuals with asthma or other chronic pulmonary disease may exhibit life threatening responses to high fungal spore levels. In addition, although we did not find any chemical exposures that would present an immediate threat to responders, the possibility of very toxic compounds being present or excessive carbon monoxide levels posing a significant risk can't be discounted. In fact, a number of MGO's have been found to be associated with clandestine methamphetamine labs that produce dangerous levels of chemical exposures. For these reasons, the

recommendations that we are providing should be considered as the minimum personal protective equipment for MGO entry and disposition. An upgrade in PPE should be immediately implemented if the status of the MGO changes or if chemicals are present that may result in dangerous exposures.

Initial Responders:

The initial law enforcement responders are frequently SWAT teams or uniformed officers that are expected to participate in the entry and apprehension of individuals in the MGO. It is expected that these officers will spend very little time within the MGO and that the primary concerns will be tactical safety, booby traps, and electrical hazards. Visibility, maneuverability, ballistic protection, and access to defensive equipment may be of prime importance. For these individuals we would suggest the following minimum PPE:

- Normal ballistic gear or uniforms as outer clothing with some fire resistance desirable.
- Gloves (chemical resistance could be desirable).
- Boots that have some water resistance in case decontamination is necessary as well as slip protection.
- An N-95 or P-100 disposable respirator with NIOSH approval should be considered by any individual with significant allergies or pulmonary problems.

In addition to this PPE, law enforcement members with immune system deficiencies should not enter MGO's without a minimum of a full-face respirator with P-100 filters. Since all respirators leak to some degree and the levels of mold spores present may be extremely high, we suggest that these individuals not participate in these activities. It is also important that individuals with these problems do not handle items being removed from the MGO and that they do not have contact with individuals that have been inside the MGO until those individuals have been decontaminated.

Assuming that no contact with chemicals has occurred during the response and that significant contact with marijuana plants and grow chemicals has not occurred, an extensive decontamination is likely not necessary. Clothing and equipment utilized within the MGO can simply be laundered in the normal fashion as soon as possible after the entry. If during the entry there was exposure to unknown chemicals or other exposures of concern, decontamination should be considered.

If there is any question as to the presence of a clandestine methamphetamine lab or concern regarding the chemicals utilized in the MGO, then chemical resistant clothing, boots, gloves, and self-contained breathing apparatus (SCBA) should be utilized.

Evaluation Period:

It is expected that during this portion of the investigation, law enforcement personnel, building inspectors, fire personnel, etc. will be entering the MGO in order to determine

what hazards are present. This portion of the investigation is expected to take a longer period of time compared to the initial entry but the removal of plants and/or equipment will not occur. In addition, chemicals will not be removed or handled in such a way as to promote spillage during this phase. Individuals participating in this phase of the operation should have the following minimum PPE:

- Tyvek coveralls designed to reduce accidental spills and to enable decontamination upon leaving. Chemical resistant clothing might also be considered during this phase.
- Water resistant and puncture resistant non-slip boots
- Gloves that are chemical resistant and water proof (nitrile gloves may work well in most situations).
- An N-95 or P-100 disposable respirator or a ½ face respirator with P-100 cartridges. Some individuals that experience headaches will find that a ½ face respirator with P-100 and organic vapor cartridges will eliminate the odor of the MGO as well as protect against fungal spores.
- The use of a 3 chemical detector capable of detecting carbon monoxide, low oxygen, and explosive environments is also recommended.

As in the initial phase, individuals with immune system deficiencies should seriously consider not participating in MGO operations. Decontamination, assuming that no chemical spills occurred, can be accomplished by simply removing the outer layer of clothing. Blowing off the clothing or shaking it should not be done prior to bagging the clothing. Chemical exposures, especially pesticides, may require full decontamination of the individual and equipment utilized. If a chemical detector is utilized, it must be maintained so that the readings can be trusted. These detectors must be calibrated on a frequent basis whether or not the detectors are used.

Removal and Destruction Phase:

It is expected that this phase of the operation will consist of sampling the plants, removing the plants, and removing equipment and supplies from the MGO. It is during this phase of the operation that we consistently observed the highest exposures and it is during this phase that the exposures may be the longest and where spills and accidents are most likely. Individuals participating in this phase should have the following minimum PPE:

- Chemical resistant and fire resistant outer garments
- A full-face air purifying respirator with a minimum of a P-100 filter. Individuals may prefer a Powered Air Purifying Respirator (PAPR) and individuals with beards must use a PAPR.
- Water, slip and puncture resistant boots.
- Water and chemical resistant gloves (nitrile may be best).
- The use of a 3 chemical detector capable of detecting carbon monoxide, low oxygen, and explosive environments is also recommended.

As in the initial phase, individuals with immune system deficiencies should seriously consider not participating in MGO operations. Decontamination, assuming that no chemical spills occurred, can be accomplished by simply removing the outer layer of clothing. Blowing off the clothing or shaking it should be minimized prior to bagging the clothing. Chemical exposures, especially pesticides, may require full decontamination of the individual and equipment utilized. If a chemical detector is utilized, it must be maintained so that the readings can be trusted.

As was previously mentioned, these suggestions are minimum PPE suggestions. Any intelligence suggesting that the MGO is combined with a clandestine methamphetamine lab or other clandestine lab should suggest that PPE be upgraded. If the initial entry or any other phase of the operation suggests that exposures may be higher than expected, then PPE should be upgraded. Finally, some individuals will be much more comfortable upgrading the PPE for a specific phase. Individuals with asthma or allergies may consider using a full-face respirator or a PAPR during any phase of operation. If at any time during an operation, an individual or individuals begin to feel ill, an immediate switch to Level B (SCBA, gloves, chemical and fire resistant clothing, gloves and boots) should be conducted until it can be determined that the environment is safe for lesser PPE.

Acknowledgements

This study was coordinated by the Colorado Drug Investigators Association, in coordination with National Jewish Health.

Funded by Bureau of Justice Assistance Grant 2010-DJ-BX-0316

Additional funds were provided by the Colorado Association of Chiefs of Police and the County Sheriffs of Colorado, Inc.

The law enforcement agencies that participated with this study were:

- North Metro Task Force
- Aurora Police Department
- Longmont Police Department
- Larimer County Sheriff's Office

**CITY OF CENTRAL, COLORADO
ORDINANCE NO. 13-02**

**AN ORDINANCE AMENDING SECTIONS 10-21 AND 10-22 OF CHAPTER 10 OF THE
MUNICIPAL CODE REGARDING THE REGULATION OF THE
POSSESSION AND PERSONAL USE OF MARIJUANA AND
MARIJUANA ACCESSORIES**

WHEREAS, the City of Central is a home rule city of the State of Colorado; and

WHEREAS, Colorado voters approved an amendment to the state Constitution, Article XVIII, Section 16 of the Colorado Constitution, that makes the personal possession, use and limited home-growing of small amounts of marijuana for adults twenty-one years of age or older legal under Colorado law; and

WHEREAS, the City desires to amend and update the City's regulations concerning possession of marijuana and marijuana accessories to recognize and implement the intent of Article XVIII.

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CENTRAL,
GILPIN COUNTY:**

Section 1. Section 10-21 of Chapter 10 of the Central City Municipal Code is hereby amended to read in full as follows:

Sec. 10-21. Possession and Use of marijuana.

(a) For purposes of this Chapter, "marijuana" means all parts of the plant of the genus *cannabis*, whether growing or not, the seeds thereof, the resin extracted from any part of the plant, and every compound, manufacture, salt, derivative, mixture, or preparation of the plant, its seeds, or its resin, including marijuana concentrate. "Marijuana" does not include industrial hemp, nor does it include fiber produced from its stalks, oil or cake made from the seeds of the plant, or the sterilized seed of the plant which is incapable of germination, or the weight of any other ingredient combined with marijuana to prepare topical or oral administrations, food, drink, or other product.

(b) It shall be a violation of this Code for any person to possess more than one (1) ounce of marijuana but less than six (6) ounces of marijuana.

(c) It shall be a violation of this Code for any person to purchase for consumption or possession by, to otherwise provide for consumption or possession by, or to sell to, any person under the age of twenty-one (21) years, marijuana as defined in this section.

(d) It shall be a violation of this Code for any person under the age of twenty-one (21) to possess, attempt to purchase, purchase or obtain marijuana as defined in this section, either directly or indirectly, or through an intermediary, by misrepresentation of age or by any other means.

(e) It shall be a violation of this Code for any person to possess, consume, or use marijuana as defined in this section in a public place or on property owned, leased or operated by the State or any political subdivision or agency thereof, or upon property owned, leased or operated by the City. For purposes of this section, public place shall mean and include any place commonly or usually open to the general public or any resort or club accessible to members of the general public. By way of illustration, public places include, but are not limited to, public ways, streets, buildings, sidewalks, alleys, parking lots, retail stores and centers, shopping malls, places of business usually open to the general public, and automobiles or other vehicles in or upon any such place or places; but shall not include the interior or enclosed yard of private homes, residences, condominiums or apartments.

(f) It is an affirmative defense to a prosecution under this Section that a person who possesses or uses marijuana is so permitted by Colorado or federal law under the direction of a duly licensed medical or osteopathic doctor.

Section 2 Section 10-22(a) of Chapter 10 of the Central City Municipal Code is amended to add a new definition for “Marijuana Accessories” to read as follows:

Marijuana Accessories means any equipment, products, or materials of any kind which are used, or designed for use in planting, propagating, cultivating, growing, harvesting, composting, manufacturing, compounding, converting, producing, processing, preparing, testing, analyzing, packaging, repackaging, storing, vaporizing, or containing marijuana, or for ingesting, inhaling, or otherwise introducing marijuana into the human body.

Section 3. Section 10-22 of Chapter 10 of the Central City Municipal Code is amended to add a new subsection (e) to read as follows:

(e) The provisions of this Section shall not apply to personal use or possession of Marijuana Accessories as defined by Section 10-22(a) of this Chapter by any person that is twenty-one years of age or older to the extent provided by Article XVIII, Section 16(3) of the Colorado Constitution.

Section 4. **Repealer.** Existing ordinances, parts of ordinances, or resolutions which are inconsistent or conflict with the provisions of this Ordinance are hereby repealed.

Section 5. **Severability.** If any section, paragraph, clause, or provision of this Ordinance shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining provisions of this Ordinance, the intent being that the same are severable.

Section 6. **Safety Clause.** The City Council hereby finds, determines, and declares that this Ordinance is promulgated under the general police power of the City of Central City, that it is promulgated for the health, safety, and welfare of the public, and that this Ordinance is necessary for the preservation of health and safety and for the protection of public convenience and welfare. The City Council further determines that the Ordinance bears a rational relation to the proper legislative object sought to be attained.

Section 7. Effective Date. This Ordinance shall become effective immediately following publication, public hearing and the approval of City Council following second reading in accordance with Sections 5.9 and 5.10 of the City Charter.

INTRODUCED AND READ by title only on first reading at the regular meeting of the City Council of the City of Central on the 15th day of January, 2013, at Central City, Colorado.

CITY OF CENTRAL, COLORADO

Ronald E. Engels, Mayor

Approved as to form:

Marcus McAskin, City Attorney

ATTEST:

Reba Bechtel, City Clerk

PASSED AND ADOPTED on second reading, at the regular meeting of the City Council of the City of Central on the 19th day of February, 2013.

CITY OF CENTRAL, COLORADO

Ronald E. Engels, Mayor

ATTEST:

Reba Bechtel, City Clerk

POSTED IN FULL AND PUBLISHED BY TITLE AND SUMMARY in the Weekly Register Call newspaper on January 17, 2013.

POSTED AND PUBLISHED BY TITLE [AND SUMMARY IF AMENDED ON SECOND READING] in the Weekly Register Call newspaper on February 21, 2013.

CITY OF CENTRAL, COLORADO

Ronald E. Engels, Mayor

ATTEST:

Reba Bechtel, City Clerk

**CITY OF CENTRAL, COLORADO
ORDINANCE NO. 13-03**

**AN ORDINANCE AMENDING CHAPTER 16 OF THE MUNICIPAL CODE
REGARDING THE REGULATION OF MARIJUANA CULTIVATION FOR
PERSONAL USE IN RESIDENTIAL STRUCTURES**

WHEREAS, the City of Central is a home rule city of the State of Colorado; and

WHEREAS, Colorado voters approved an amendment to the state Constitution, Article XVIII, Section 16 of the Colorado Constitution, that makes the personal possession, use and limited home-growing of small amounts of marijuana for adults twenty-one years of age or older legal under Colorado law; and

WHEREAS, the City Council previously adopted zoning regulations governing the cultivation, processing and growing of medical marijuana in residential and non-residential structures as set forth in Chapter 16 of the Municipal Code; and

WHEREAS, the City desires to adopt zoning regulations to apply to the cultivation and processing of marijuana plants by persons who are authorized to possess marijuana plants under Article XVIII, Section 16 of the Colorado Constitution; and

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CENTRAL,
GILPIN COUNTY:**

Section 16-13, titled Definitions, of Chapter 16 of the Central City Municipal Code is hereby amended to add a definition of "marijuana" to read as follows:

Marijuana means all parts of the plant of the genus *cannabis*, whether growing or not, the seeds thereof, the resin extracted from any part of the plant, and every compound, manufacture, salt, derivative, mixture, or preparation of the plant, its seeds, or its resin, including marijuana concentrate. "Marijuana" does not include industrial hemp, nor does it include fiber produced from its stalks, oil or cake made from the seeds of the plant, or the sterilized seed of the plant which is incapable of germination, or the weight of any other ingredient combined with marijuana to prepare topical or oral administrations, food, drink, or other product.

Section 1. Section 16-37, newly added to Chapter 16 through Ordinance No. 12-16, is hereby amended to read as follows:

Sec. 16-37 Growing of marijuana in residential dwelling units.

The requirements in this section shall apply to the growing of marijuana, including medical marijuana, in residential dwelling units by primary caregivers, patients, and by any person who is twenty-one years of age or older who is authorized under Article XVIII, Section 16 (3)(a) to grow or cultivate marijuana plants:

1. All cultivation, processing and production of marijuana plants shall be conducted entirely within a dwelling unit. For purposes of this provision, dwelling unit shall mean one (1) or more rooms and a single kitchen and at least one (1) bathroom, designed, occupied or intended for occupancy as separate quarters for the exclusive

use of a single family for living, cooking and sanitary purposes, located in a single family, two-family or multi-family dwelling or mixed use building.

2. No cultivation, processing or production of marijuana may occur in an accessory structure; garage, whether attached or detached; shed; greenhouse; storage unit; or other structure other than a dwelling unit.
3. Possession of marijuana by patients, caregivers and persons authorized to possess marijuana pursuant to Article XVIII of the Colorado Constitution shall comply with all applicable City and state regulations, ordinances and laws, including home occupation requirements set forth in this Chapter.
4. No cultivation, possession or dispensing of marijuana shall occur in the common areas of a multi-family or attached residential building.
5. No more than twelve (12) marijuana plants regardless of size or stage of growth may be cultivated or kept within any single dwelling unit.
6. In no event shall a patient or primary caregiver keep, cultivate, grow or process more medical marijuana than such person is entitled to possess under Article XVIII, Section 14 of the Colorado Constitution.
7. In no event shall a person twenty-one years of age or older that is cultivating marijuana plants for his or her own use possess, grow, process or transport more than six (6) marijuana plants, with three (3) or fewer being mature. Possession of marijuana shall be in full compliance with all applicable provisions of Article XVIII, Section 16 of the Colorado Constitution and all state laws and regulations promulgated pursuant thereto.
8. Possession, growing and processing of marijuana shall meet the requirements of all adopted City building and life/safety codes.

Section 2. Repealer. Existing ordinances, parts of ordinances, or resolutions which are inconsistent or conflict with the provisions of this Ordinance are hereby repealed.

Section 3. Severability. If any section, paragraph, clause, or provision of this Ordinance shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect any of the remaining provisions of this Ordinance, the intent being that the same are severable.

Section 4. Safety Clause. The City Council hereby finds, determines, and declares that this Ordinance is promulgated under the general police power of the City of Central City, that it is promulgated for the health, safety, and welfare of the public, and that this Ordinance is necessary for the preservation of health and safety and for the protection of public convenience and welfare. The City Council further determines that the Ordinance bears a rational relation to the proper legislative object sought to be attained.

Section 8. Effective Date. This Ordinance shall become effective immediately following publication, public hearing and the approval of City Council following second reading in accordance with Sections 5.9 and 5.10 of the City Charter.

INTRODUCED AND READ by title only on first reading at the regular meeting of the City Council of the City of Central on the 15th day of January, 2013, at Central City, Colorado.

CITY OF CENTRAL, COLORADO

Ronald E. Engels, Mayor

Approved as to form:

Marcus McAskin, City Attorney

ATTEST:

Reba Bechtel, City Clerk

PASSED AND ADOPTED on second reading, at the regular meeting of the City Council of the City of Central on the 19th day of February, 2013.

CITY OF CENTRAL, COLORADO

Ronald E. Engels, Mayor

ATTEST:

Reba Bechtel, City Clerk

POSTED IN FULL AND PUBLISHED BY TITLE AND SUMMARY in the Weekly Register Call newspaper on January 17, 2013.

POSTED AND PUBLISHED BY TITLE [AND SUMMARY IF AMENDED ON SECOND READING] in the Weekly Register Call newspaper on February 21, 2013.

CITY OF CENTRAL, COLORADO

Ronald E. Engels, Mayor

ATTEST:

Reba Bechtel, City Clerk



AGENDA ITEM #9

CITY COUNCIL COMMUNICATION FORM

FROM: Shannon Flowers, Finance Director
DATE: February 14, 2013
ITEM: FPPA Volunteer Firefighter Pension Board Update
NEXT STEP: Present Council with current status of the fund

ORDINANCE
 MOTION
 INFORMATION

- I. **REQUEST OR ISSUE:** In accordance with C.R.S. 31-30-1119, the Volunteer Firefighter Pension Board is required to report to Council on the status of the pension funds over which the Board presides. The volunteer firefighter pension is held and managed by the Fire & Police Pension Association (FPPA). The City receives a quarterly statement detailing the earning/losses and benefit expenses of the fund. Further, FPPA performs an actuarial study on the pension fund every other year to ensure that the fund is sustainable given the number of volunteers who are eligible to participate and the level of annual contribution from the City.
- II. **RECOMMENDED ACTION / NEXT STEP:** No Action required-presentation is informational purposes and to satisfy C.R.S. 31-30-1119.
- III. **FISCAL IMPACTS:** As of December 31, 2012 the ending balance in the pension fund was \$463,879.35. The fund paid out pension benefits in the amount of \$18,441.94 over the course of the year and FPPA's investment of the funds earned a total of \$47,879.35. As of the 2011 Actuarial Study (most recent available) the pension fund had adequate levels of contributions from the City and State to provide for the needs of the plan.

The City contributed \$7,600 to the pension plan in 2012 and received a state grant in the amount of \$6,418 that was also contributed to the plan.

- IV. **BACKGROUND INFORMATION:** Please see the attached year ending statement for the fund as of December 31, 2012 detailing the earnings and expenses for the year. Also attached is the Executive Summary from the 2011 Actuarial Study detailing the plan's valuation and solvency. A 2013 Actuarial study will be performed by FPPA during the 1st and 2nd quarters of 2013.

The pension plan provides volunteer firefighters with benefits as shown in the attached Actuarial Valuation Information Checklist.

- V. **LEGAL ISSUES:** C.R.S. 31-30-1119 requires that the pension board make a report to the City Council on the condition of the pension fund by the last meeting in February and August of each year. This report satisfies this requirement.

- VI. **CONFLICTS OR ENVIRONMENTAL ISSUES:** None

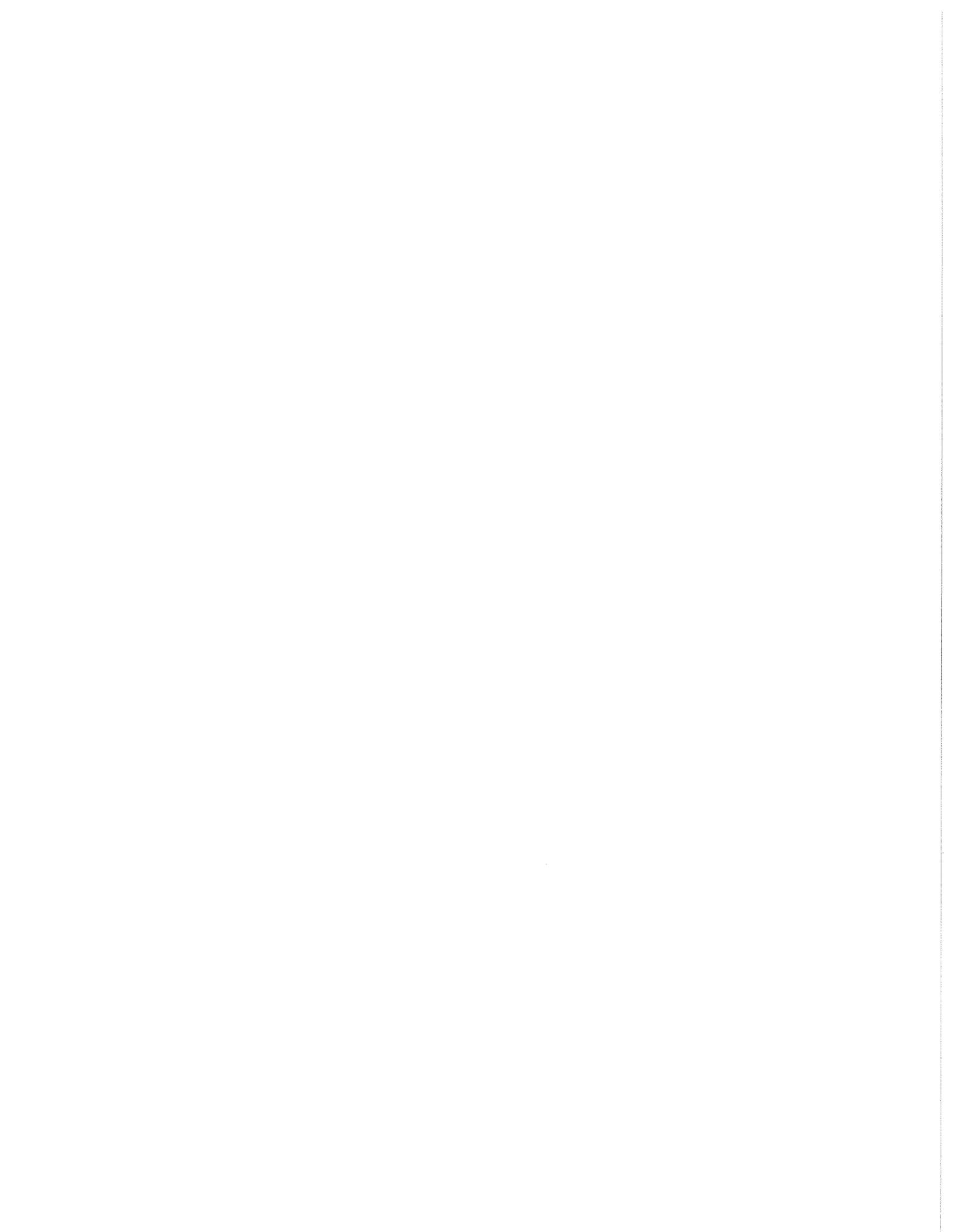
- VII. **SUMMARY AND ALTERNATIVES:**

1. No action needed-informational only.



**Fire and Police Pension Association
Central City Fire Volunteers 746-5
For the Twelve Months Ending December 31, 2012**

Beginning Balance	\$420,265.27
Period Totals	
Member Contributions	
Employer Contributions	\$7,600.00
Refunds	
Affiliations	
Net Benefits	(\$18,441.94)
Identified Fees	
State Funding	<u>\$6,417.00</u>
Period Sub-Total	<u>(\$4,424.94)</u>
Interest	\$2,072.59
Dividends	\$5,431.37
Real Estate	\$0.07
Other Income	\$1,734.17
Net Change Accrued Income	(\$142.43)
Unrealized Gain/Loss	\$31,614.50
Realized Gain/Loss	\$11,141.14
Def. Cont. Earnings (Net)	<u>(\$3,972.06)</u>
Fees & Expenses	<u>\$47,879.35</u>
Investment Change Sub-Total	<u>\$47,879.35</u>
Total Ending Balance	<u><u>\$463,719.68</u></u>



**Central City Volunteer Fire Department Pension Fund
Actuarial Valuation as of January 1, 2011**

Executive Summary

Item	Valuation as of January 1, 2011	Valuation as of January 1, 2009
Membership <ul style="list-style-type: none"> • Number of: <ul style="list-style-type: none"> - Active members - Retired Members - Disabled members - Beneficiaries - Terminated vested members - Terminated members active in another fund - Total 	18 2 0 0 3 0 <hr/> 23	15 0 0 0 3 0 <hr/> 18
Assets <ul style="list-style-type: none"> • Market value • Actuarial value • Employer contribution for prior year • Employer contribution for prior year minus 1 • Ratio of actuarial value to market value 	\$ 417,715 419,048 7,600 7,600 100%	\$ 292,851 351,421 7,600 7,500 120%
Actuarial Information <ul style="list-style-type: none"> • Employer normal cost • Normal cost per active member • Unfunded actuarial accrued liability / (Surplus) • Calculated contribution • Assumed contribution from department • Assumed contribution from state • Funding period based on assumed contributions • GASB funded ratio • Is current level of contributions adequate 	\$ 10,440 580 27,451 13,040 7,600 6,418 12 years 94% Yes	\$ 9,457 630 13,309 10,423 7,600 6,418 4 years 96% Yes

Central City Volunteer Fire Department Pension Fund
 Actuarial Valuation as of January 1, 2011

Table 2

Actuarial Valuation Information Checklist

	Current Plan	Proposed Plan A	Proposed Plan B	Proposed Plan C	Maximum Per State Statute
1. Normal Retirement Benefit (monthly):					
a. Regular	\$500.00	\$600.00	\$700.00	\$300.00	None
b. Extended Service Amount Per Year of Service	\$0.00	\$0.00	\$0.00	\$0.00	5% of Regular, for 10 Additional years
2. Vested Retirement Benefit (monthly):					
a. With 10 to 20 Years of Service Amount Per Year of Service per Minimum Vesting Years	\$25.00	\$30.00	\$35.00	\$15.00	Pro rata Share of Regular 20 Years
b. Minimum Vesting Years	10	10	10	10	
3. Disability Retirement Benefit (monthly):					
a. Short Term Disability for line of duty injury Amount payable for not more than 1 year	\$0.00	\$0.00	\$0.00	\$150.00	½ of Regular or \$225, whichever is greater
b. Long Term Disability for line of duty injury Lifetime Benefit	\$500.00	\$600.00	\$700.00	\$300.00	Regular or \$450 whichever is greater
4. Survivor Benefits (monthly):					
a. Following Death before Retirement Eligible; Due to death in line of duty as a volunteer firefighter	\$250.00	\$300.00	\$350.00	\$150.00	½ of Regular or \$225, whichever is greater
b. Following Death after Normal Retirement	\$250.00	\$300.00	\$350.00	\$150.00	50% of Regular
c. Following Death after Normal Retirement with Extended Service Amount Per Year of Service	\$0.00	\$0.00	\$0.00	\$0.00	50% of Extended
d. Following Death after Vested Retirement with 10 to 20 Years of Service Amount Per Year of Service per Minimum Vesting Years	\$12.50	\$15.00	\$17.50	\$7.50	50% of Vested
e. Following Death after Disability Retirement	\$250.00	\$300.00	\$350.00	\$150.00	50% of Disability
f. Optional Survivor Benefit Following Death before or after Retirement Eligible; Due to death on or off duty as a volunteer firefighter (Purchase of Life Insurance Required)	\$0.00	\$0.00	\$0.00	\$0.00	100% of Regular
5. Funeral Benefits (Required Benefit):					
a. Funeral Benefit Lump Sum, one time only	\$200.00	\$240.00	\$280.00	\$100.00	2 x Regular

STATE OF COLORADO

DEPARTMENT OF TRANSPORTATION

Executive Director
4201 East Arkansas Avenue, Room 262
Denver CO 80222
(303) 757-9201
(303) 757-9656 Fax



February 12, 2013

Alan D. Lanning, City Manager
PO BOX 249
141 Nevada Street
Central City, CO 80427

Dear Mr. Lanning,

Thank you for taking the time to talk with Tony DeVito and myself on February 8th via conference call about the proposed closure of the I-70 eastbound Hidden Valley Off-Ramp due to the Twin Tunnels project construction. We understand your frustration and appreciate you reviewing the situation with us to see how we might better mitigate Central City's concerns.

As agreed, CDOT will defer the closing of the eastbound Hidden Valley Ramp until after peak travel the night of February 18th or early morning on February 19th. CDOT will also work to reduce the closure time from 30 days to an estimated 10 calendar days (weather permitting) by implementing a 24/7 work operation.

Additionally, we agreed to provide a detour map and informational flyer for your use with Central City businesses which I understand has already been provided to you via email from Jim Bemelen on February 11th. Lastly, CDOT will utilize variable message signs and other information resources, such as Cotrip.org and the I-70 Mobile Application to advise the traveling public of the closure and associated detour.

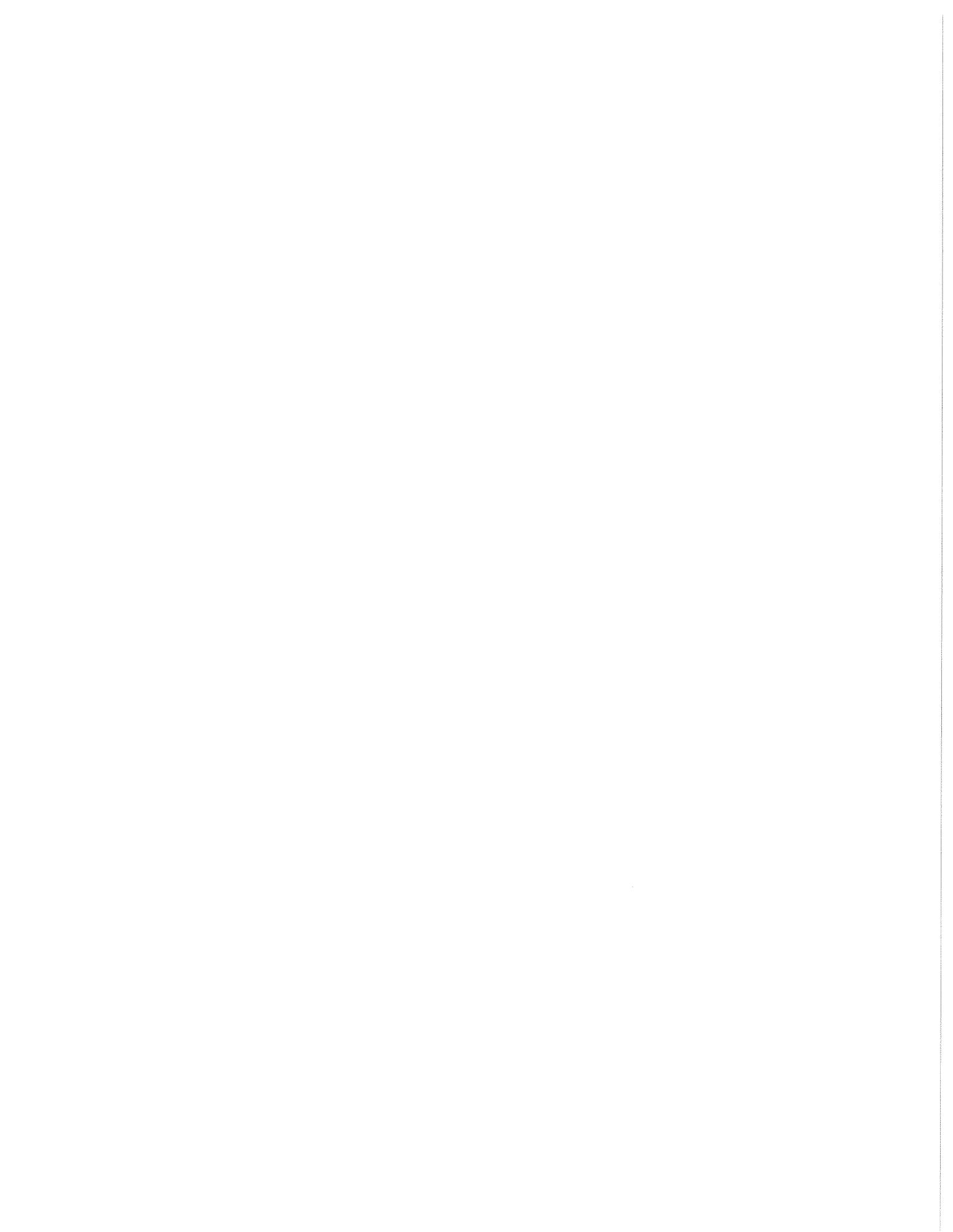
On behalf of CDOT, I apologize again for the communication oversight and can assure you we will strive to maintain clear and more frequent communications with Central City as we move forward with constructing this very critical I-70 project.

Please do not hesitate to contact Tony DeVito or myself with any questions or concerns at 303-365-7001 or 303-757-9201 respectively.

Sincerely,

Don Hunt
Executive Director

cc: Roxanne White
Tony DeVito
Jim Bemelen
Mindy Crane



DATE: February 14, 2013
TO: Alan Lanning, City Manager
Mayor & Council
FROM: Shannon Flowers, Finance Director/Treasurer

Following is an update of the Finance Department's activities from Friday, February 4th through Thursday, February 14th, 2013.

- Prepared and booked all accounts payable for year end
- Prepared and booked all accounts receivable for year end
- Prepared and booked payroll accruals for year end
- Attended visioning work session
- Coordinated employee meetings with life insurance representatives
- Began January bank reconciliation
- Began CIRSA Workers Comp payroll audit for 2012
- Worked with CIRSA on workers comp claims
- Worked with health insurance brokers on claims and enrollments
- Processed new hire paperwork for new police officer
- Prepared February device fee invoices
- Worked with Finance Clerk and Water Dept on water meter questions and/or concerns from community
- Prepared check listing for Council
- Processed Bi-weekly payroll and all associated tax and retirement filings
- Finance Clerk Processed Accounts Payable
- Finance Clerk processed Accounts Receivable and prepared weekly deposits
- Finance Clerk administered Court

City Clerk's Office

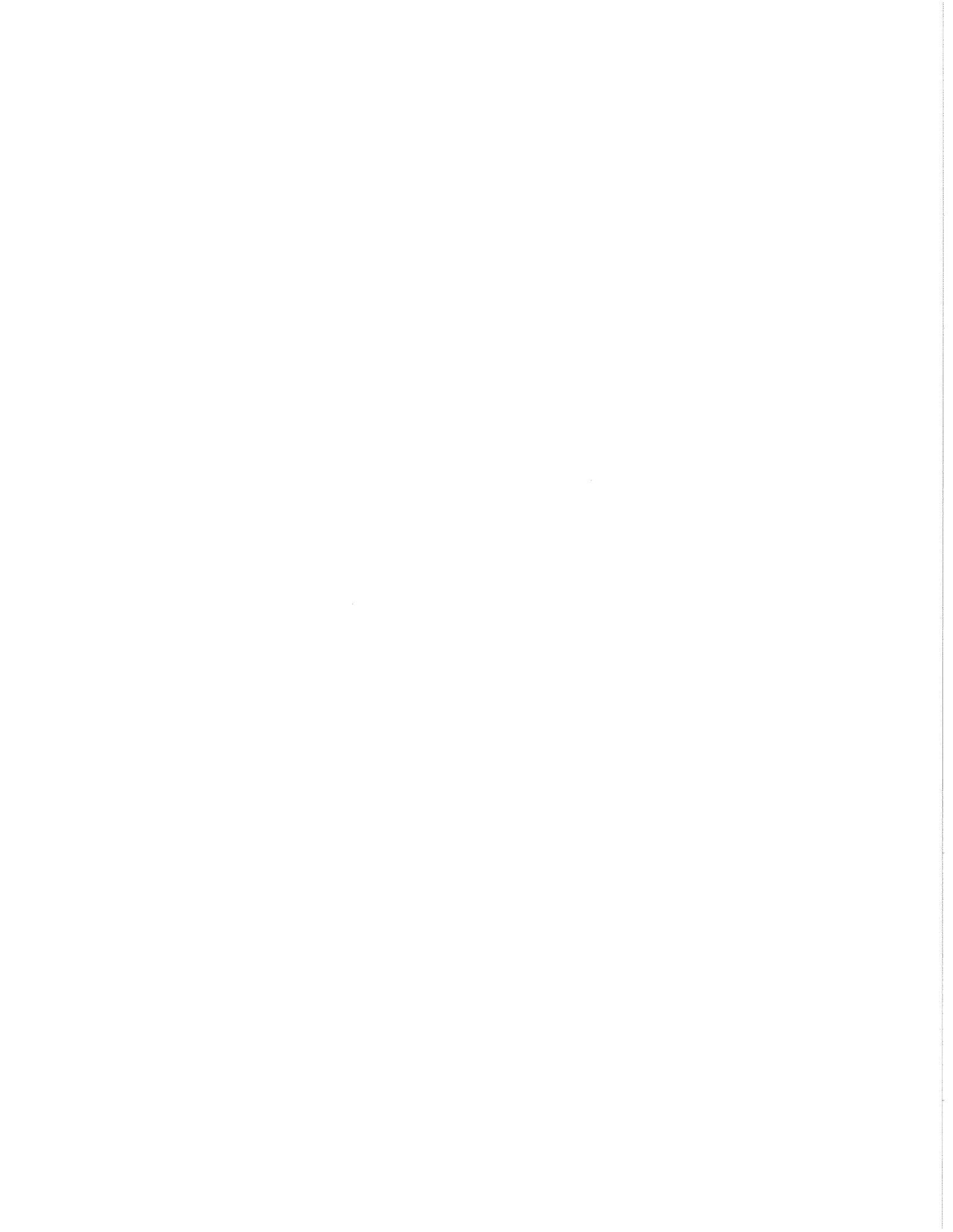
To: City Manager Alan Lanning, Mayor Engels, and City Council

From: Reba Bechtel, City Clerk

Date: February 19, 2013

Re: Bi-weekly Report

- Council minutes from February 5 completed
- Packet prep for the February 19 Council meeting
- Attended project work session
- Met with area clerks: Nederland, Idaho Springs, Georgetown
- Packet prep/meeting/minutes for February 13 HPC – the new Chair is Alex Thome and the Chair Pro-tem is Deb Wray



MEMORANDUM

DATE: 14 February 2013
TO: Alan Lanning / City Manager
FROM: Gary Allen / Fire Chief
RE: **Activity Report**

The Fire Department has responded to 57 incidents as of 13 February 2013, with 5 incidents being out of City, and of those 4 incidents was for Mutual Aid to other agencies. Following are the activities the department responded to and conducted for this reporting period.

Friday 1 Feb., 2013 - 18:37 PM / Medical - 109 Main St.

Friday 1 Feb., 2013 - 19:06 PM / Medical - 102 Main St.

Sunday 3 Feb., 2013 - 10:41 AM / Elevator Rescue - 135 Pine St.

Sunday 3 Feb., 2013 - 11:55 AM / Vehicle Fire - CCP & I-70

Sunday 3 Feb., 2013 - 14:26 PM / Medical - MM 6 CCP

Monday 4 Feb., 2013 - 12:31 PM / Mutual Aid - BHFD

Monday 4 Feb., 2013 - 16:38 PM / Mutual Aid Structure fire - TFPD

Tuesday 5 Feb., 2013 - 16:56 PM / Residential Fire Alarm

Wednesday 6 Feb., 2013 - 04:30 AM / Fire Alarm - 321 Gregory St.

Friday 8 Feb., 2013 - 11:34 AM / Medical - 131 Main St.

Saturday 9 Feb., 2013 - 06:06 AM / Medical - 321 Gregory St.

Saturday 9 Feb., 2013 - 17:12 PM / Medical - 321 Gregory St.

Monday 11 Feb., 2013 - 14:47 PM / Medical - 562 Gregory St.

TRAINING

We conducted monthly department training this period on Self Contained Breathing Apparatus (SCBA) and search drills on Saturday 2 February and then monthly truck and station maintenance on Thursday night 7 February. On 5

February we began a Firefighter I academy class. This class will go for the next couple months on Tuesdays and Saturdays using 135 contact hours and will allow the participants a State Firefighter I certification. I am also in the process of recertifying my S230/231 Crew Boss / Engine Boss Wildland certification. This will entail approximately 25 hours of on line work and a Saturday, Sunday on the 23 & 24 February at Evergreen Fire.

MEETINGS

I met with Joe at station 1 on the CIRSA audit upcoming pertaining to some repairs needed at the station. I attended the Boulder County Wildland Cooperators meeting at the Boulder Training Center. I also met with Gary Pringy with Colorado Code Consultants on an issue I am having with a hood system at the Reserve. I and Captain Phil Headrick attended the yearly Annual Operating Plan (AOP) with Gilpin County Sheriff, the Colorado Division of Prevention and Control and the US Forest Service at the Gilpin County S. O. I attended a City Council meeting as well.

APPARATUS

We took B-2 out to the County shop for repairs and then I went to Commerce City to pick up the parts needed to conduct the repair. I also had to take B-2 down to Front Range Fire Apparatus so they could look at another problem with a compartment problem.

GENERAL

I worked on a blasting issue at 206 E. 5th High street starting on 6 February but the blast has not taken place as of yet, however the holes are drilled. I went to 207 E. First High to retrieve our salvage covers from the structure fire in January that we covered furniture and belongings with to minimize water damage. I also spent a lot of time getting caught up on in putting our NFIRS (National Fire Incident Reporting System) for 2012 and I am now working on January of 2013.