



**AGENDA**  
**RIO DELL PLANNING COMMISSION**  
**REGULAR MEETING— 6:30 P.M**  
**TUESDAY, MARCH 22, 2016**  
**CITY COUNCIL CHAMBERS**  
**675 WILDWOOD AVENUE, RIO DELL**

***WELCOME . . .** By your presence in the City Council Chambers, you are participating in the process of representative government. Copies of this agenda, staff reports and other material available to the Commission are available at the City Clerk's office in City Hall, 675 Wildwood Avenue. Your City Government welcomes your interest and hopes you will attend and participate in Rio Dell Planning Commission meetings often.*

**A. CALL TO ORDER**

**B. ROLL CALL**

**C. PLEDGE OF ALLEGIANCE**

**D. CEREMONIAL**

- 1) 2016/0322.01 - Swearing in of Melissa Marks to the Rio Dell Planning Commission for the remainder of a three-year term ending December 31, 2018

**E. CONSENT CALENDAR**

- 1) 2016/0322.02 - Approve Minutes of the October 22, 2015 Regular Meeting **(ACTION)** 1
- 2) 2016/0322.03 - Approve Minutes of the October 29, 2015 Continued Meeting **(ACTION)** 5
- 3) 2016/0322.04 - Approve Minutes of the February 23, 2016 Regular Meeting **(ACTION)** 9

**F. PUBLIC PRESENTATIONS**

*This time is for persons who wish to address the Commission on any matter not on this agenda and over which the Commission has jurisdiction. As such, a dialogue with the Commission or staff is not intended. Items requiring Commission action not listed on this agenda may be placed on the next regular agenda for consideration if the Commission directs, unless a finding is made by at least 2/3rds of the Commission that the item came up after the agenda was posted and is of an urgency nature requiring immediate action. Please limit comments to a maximum of 3 minutes.*

**G. SCHEDULED MATTERS/PUBLIC HEARINGS/STUDY SESSIONS**

- 1) 2016/0322.05 - Manufacturing Recommendations - Medical Marijuana Commercial Land Use Regulations, Section 17.30.195 of the Rio Dell Municipal Code **(DISCUSSION/POSSIBLE ACTION)** 21

## H. ADJOURNMENT



**In compliance with the American with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Office of the City Clerk at (707) 764-3532. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to the meeting.**

***The next Regular meeting is scheduled for Tuesday, April 26, 2016 at 6:30 p.m.***

**CITY OF RIO DELL  
PLANNING COMMISSION  
REGULAR MEETING  
OCTOBER 22, 2015**

The regular meeting of the Rio Dell Planning Commission was called to order at 6:30 p.m. by Commissioner Angeloff.

Present were Commissioners Angeloff, Long, and Millington. Absent was Commissioner Leonard (excused).

Others present were Community Development Director Caldwell and City Clerk Dunham.

**CONSENT CALENDAR**

Motion was made by Long/Millington to approve the consent calendar including approval of minutes of the September 3, 2015 special meeting and approval of minutes of the September 24, 2015 regular meeting. Motion carried 3-0.

**PUBLIC PRESENTATIONS**

None

**SCHEDULED MATTERS/PUBLIC HEARINGS/STUDY SESSION**

Adopt Resolution No. PC 093-2015 recommending the City Council amend the "Definition" provisions, Chapter 17.10 of the Rio Dell Municipal Code (RDMC) to expand the "Definition" provisions to include additional use types and other terms not currently defined in the Zoning Regulations, Chapter 17 of the Rio Dell Municipal Code (RDMC)

Community Development Director Caldwell provided a staff report and said the definitions are primarily the result of the Land Use Matrix update. He said staff added a number of sign definitions and as such, will be updating the sign regulations as well.

He referred to the draft Definitions and noted that the areas in red were eliminated because of revised definitions for new and improved land use types.

He said he understands the Commissioners have not had the opportunity to review the document in any great detail so if they would like more time to look it over the meeting could be continued. He said if not, the recommendation is to adopt Resolution No. PC 093-2015 as presented.

Commissioner Long commented that he personally would like more time to review the document.

It was agreed to continue the meeting to October 29, 2015 at 6:30 p.m.

Commissioner Millington asked where the definitions came from.

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Community Development Director Caldwell noted that most of the definitions came from the City of Greenfield in Monterey County. He said they seem to have the most current zoning ordinance in the state of California based on what he could find. He commented that he didn't use all of their use types as many were much more industrious than what Rio Dell would likely ever have.

Staff continued with a review of the new use types and definitions.

Commissioner Angeloff referred to the definitions under *Affordable Rent* and commented that HUD is continually changing things so it might be wise to say that the city will follow HUD guidelines.

Community Development Director Caldwell noted that this definition has been on the books since the 1980's.

Commissioner Long referred to the various definitions for *Adult Entertainment* and asked if all of the use types as identified in the Land Use Matrix were covered.

Community Development Director Caldwell confirmed that they were all covered and handed out the most recent revision to the Land Use Matrix which was broken up by use types. He said the Commissioners should be very proud in helping to create the Land Use Matrix stating that is probably the best thing the Commission has done in quite awhile. He noted there are now a lot of definitions that didn't exist before and very few that are not related to the use types themselves.

Commissioner Angeloff asked how the density bonus provisions compare to other cities.

Community Development Director Caldwell stated the language is straight out of State law.

Commissioner Long commented that the density bonus allows developers to crowd in more apartment units yet there are millions of acres of forest land that cannot be developed. He questioned the need for dense development.

Community Development Director Caldwell stated that the idea is that it's better for the environment to have a smaller footprint however; that point can be argued because not everyone wants to live in a 600 sq. ft. apartment in a 4-story building without a vehicle or any pets. He added that you need to provide those housing opportunities for those that do. He stated that it is really market driven.

Commissioner Angeloff commented that a lot has to do with low income folks and the elderly. He said his argument is that what is happen

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back to a situation like it was when people first settled here in the 1850's or so and that's the baseline. He said Indian people have lived here for thousands of years and the fact is that the

population of Humboldt County is about the same as it was for the last 4,000-5,000 years. He said the difference is that people spread themselves over the land and there were no water or sewer systems and the water from the streams was drinkable. He said spreading people like that is far less damaging to the environment than condensing the population into urban areas where one sewage spill can contaminate a large area which negatively impacts the environment.

Commissioner Long commented that the other issue is that when you cram people into smaller and smaller areas it affects them mentally and their attitudes toward one another. He said tension and animosity tends to build between tenants.

Community Development Director Caldwell said his opinion is that people didn't move to Humboldt County to live in a 4-story mixed use building near a bus line, where you hear traffic, dogs barking and sirens, and to have no vehicle. He said they moved here because of the desire to live in a rural area and enjoy everything it offers. Again, he said affordable housing and multi-family opportunities have to be provided for those that do.

Community Development Director Caldwell explained the first Land Use Matrix presented to the Commission included definitions but they were not part of the Definitions chapter 17.10 of the Zoning Regulations in the Rio Dell Municipal Code (RDMC). He said what this does is codifies those definitions from the Land Use Matrix to the Definitions Chapter of the Zoning Regulations. He continued by reviewing the newly added definitions that were not previously reviewed under the Land Use Matrix.

Commissioner Millington referred to the definition of *Manufactured Home* and asked for clarification of the term "body feet."

Staff explained it refers to the body length of the trailer itself, independent of the hitch.

Commissioner Millington identified the new definition of *Animal Keeping* as a use type not identified in the Land Use Matrix.

Community Development Director Caldwell noted that the use type *Feed Lot* also needs to be added to the Land Use Matrix as principally permitted in the Industrial Zone.

## **ADJOURNMENT**

Motion was made by Angeloff/Long to continue the meeting to October 29, 2015 at 6:30 p.m. Motion carried 3-0. The meeting adjourned at 7:15 p.m.

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Nick Angeloff, Chair

Attest:

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Karen Dunham, City Clerk

CITY OF RIO DELL  
PLANNING COMMISSION  
CONTINUED MEETING  
OCTOBER 29, 2015

The continued meeting of the Rio Dell Planning Commission was called to order at 6:30 p.m. by Commissioner Angeloff.

Present were Commissioners Angeloff, Long, and Millington. Absent was Commissioner Leonard (excused).

Others present were Community Development Director Caldwell and City Clerk Dunham.

**PUBLIC PRESENTATIONS**

None

**SCHEDULED MATTERS/PUBLIC HEARINGS/STUDY SESSION**

Adopt Resolution No. PC 093-2015 recommending the City Council amend the "Definition" provisions, Chapter 17.10 of the Rio Dell Municipal Code (RDMC) to expand the "Definition" provisions to include additional use types and other terms not currently defined in the Zoning Regulations, Chapter 17 of the Rio Dell Municipal Code (RDMC)

Community Development Director Caldwell provided a brief staff report and said the purpose of continuing the meeting was to allow Commissioners more time to review the Draft Definitions and revised Land Use Matrix presented at the October 22, 2015 regular meeting.

Commissioner Millington referred to the definition of *Accessory Horse Keeping* and suggested it be changed to *Accessory Large Animal Keeping* since it also refers to other animals such as llamas, alpacas, ponies, mules and donkeys.

The question arose as to whether llamas and alpacas are included in the equine family.

Commissioner Angeloff explained that llamas and alpacas actually in the camel family because they have split lips.

Commissioner Angeloff referred to the definition of *Animal Husbandry* and noted that it excludes slaughterhouses and feedlot operations and asked for clarification that those definitions were included under a separate category.

Community Development Director Caldwell said the definition for *Feedlot* was included but the definition for *Slaughterhouse* seemed to have been left out. He indicated that there is another term used for slaughterhouses and as Councilmember Marks pointed out, the former slaughterhouse in Scotia was referred to as an "abattoir." He said would research other terms and definitions and include it in the current definitions.

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Commissioner Millington noted that *Veterinary Facilities* are not principally permitted in any zone and thought they should be allowed where other medical facilities are allowed.

Community Development Director Caldwell said the Commission talked about *Veterinary Facilities* being principally permitted in the Industrial Commercial (IC) zone but the intent for that area at the Eel River Industrial Park is to reserve it for highway commercial uses. As such, it was agreed to conditionally permit the use in CC, NC, IC and NR zones.

Commissioner Millington stated that she would like the use principally permitted somewhere so that it is convenient for people to drop off their animals and said the Industrial Park is a little out of the way.

Community Development Director Caldwell commented that he didn't think it would be inconvenient or out of the way and said one of the advantages of a Conditional Use Permit besides giving the neighborhood the opportunity to participate in the process is that it gives the Commission the ability to impose performance standards and if they don't comply with those operational conditions, it becomes a violation of their permit.

After further discussion, the consensus of the Commission was to principally permit *Veterinary Facilities* in IC and conditionally permit them in the CC, NC and NR zones as proposed.

It was then suggested that staff come up with an alternative name for *Slaughterhouse*.

Commissioner Angeloff noted that slaughterhouses are not places of pleasantry and the City should certainly have control over the smell and other conditions. As such, he suggested slaughterhouses be conditionally permitted in the Industrial (I) zone.

Commissioner Long noted that other synonyms for *Slaughterhouse* are abattoir, shambles, and knacker's yard or stock yard.

Community Development Director Caldwell said *Slaughterhouses* were included on the previous version of the Land Use Matrix and was apparently left out in error. He said he would make sure to include it in the final version going to the City Council on November 3, 2015.

Commissioner Angeloff questioned regulations for soft-sided water storage and suggested the ordinance be amended to incorporate language to address soft sided water storage tanks. He said the County is in the process developing guidelines and that the Department of Fish and Game and the Water Quality Control Board are also getting on board. He noted that the concern lies with massive failure and Aqua Dam's design precludes massive failure whereas the surplus Army models are questionable.



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Community Development Director Caldwell noted that the California Building Code allows for exemptions with regard to building permits for tanks 5,000 gallons or less. Anything above 5,000 gallons requires a permit, primarily to insure stability of the tank and some of the taller tanks could be susceptible to rolling over during an earthquake. Also, based on location of the tank, may want to create a check dam around it to try and contain most of the water in the event of failure.

Commissioner Angeloff noted that the Water Quality Control Board would rather see ponds to facilitate ground water recharge as opposed to hard storage. He said the Department of Fish and Game has historically been against large scale water storage but because of the drought situation is changing their views. He said he would like to see the City encourage the capturing and storage of storm water, especially off of roofs for dry periods.

He further stated that ground water recharge is good but if someone is only capturing storm water that is good because that water is ultimately going out to sea anyway.

**Melissa Marks** commented that she thought the State of California owned the water that runs off roofs.

Commissioner Angeloff stated that storm water capture is now encouraged and the issue with water runoff from roofs had to do with water coming off of asphalt roof tiles and the potential contaminants. He said the capture of storm water is now preferred by the State and they don't like to see water drawn from the ground or the river during a 90-day driest period of the year.

Commissioner Millington commented that it makes sense because she watched a special segment on television and learned that there are several parts of California where the ground is actually sinking and in one particular place actually sunk two feet in one year. She agreed with the importance of not pulling water from the ground.

Motion was made by Millington/Long to adopt Resolution No. 093-2015 recommending the City Council amend the "Definition" provisions, Chapter 17.10 of the Rio Dell Municipal Code (RDMC) to expand the "Definitions" provisions to include additional use types and other terms not currently defined in the Zoning Regulations, Chapter 17 of the RDMC as amended to include *Slaughterhouses* and to principally permit *Veterinary Facilities* in the Industrial Commercial (IC) zone. Motion carried 3-0.

#### **ADJOURNMENT**

Motion was made by Long/Millington to adjourn the meeting at 7:03 p.m. to the next regularly scheduled meeting on December 22, 2015. Motion carried 3-0.

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Nick Angeloff, Chair

Attest:

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Karen Dunham, City Clerk

**CITY OF RIO DELL  
PLANNING COMMISSION  
REGULAR MEETING  
FEBRUARY 23, 2016**

The regular meeting of the Rio Dell Planning Commission was called to order at 6:30 p.m. by Commissioner Angeloff.

Present were Commissioners Angeloff, Millington and Woodall. Absent were Commissioners Long and Leonard (excused).

Others present were Community Development Director Caldwell and City Clerk Dunham.

**CEREMONIAL**

Swearing in of Nick Angeloff, Billie Joe Long and R. L. "Bud" Leonard to the Rio Dell Planning Commission for 3-year terms ending December 31, 2018

City Clerk Dunham administered the Oath of Allegiance to Commissioner Angeloff; Commissioner Long was not in attendance.

Staff announced the resignation of Bud Leonard on the Planning Commissioner and resultant vacancy for the term ending December 31, 2018.

**CONSENT CALENDAR**

Approval of minutes of the October 22, 2015 regular meeting and October 29, 2015 continued meeting were continued to the next meeting for approval as Commissioner Woodall was not on the commission at that time and unable to vote on the approval.

Motion was made by Woodall/Millington to approve the minutes of the January 14, 2016 special meeting. Motion carried 3-0.

**PUBLIC PRESENTATIONS**

**Gordon Johnson** thanked the Commissioners for volunteering their service to the city and said some members have been on the Commission for several years and said it was much appreciated.

**Norman Uhrlich**, owner of River's Edge R.V. Park addressed the Commission regarding water rates and said with the recent increase, the 35% discount for Mobilehome and R.V. Parks was taken out of the ordinance. He presented a copy of the notice he provided to his tenants at the park increasing the monthly space rent by \$30.00 to cover the increase. He said the problem is that he is currently being billed for 50 spaces with only 16 spaces occupied and that he has no one to pass the charge on for the unoccupied spaces. Although not within the Commission's authority, he asked them to reconsider the water rates for Mobilehome and R.V. Parks.

Commissioner Angeloff suggested Mr. Uhrlich bring the matter before the City Council.

**SCHEDULED MATTERS/PUBLIC HEARINGS/STUDY SESSIONS**

Adopt Resolution No. PC 095-2016 recommending approval of amending the Removal of Natural Materials Regulations, Section 17.30.280 of the Rio Dell Municipal Code (RDMC)

Community Development Director Caldwell provided a brief staff report and said this item involves a very minor text amendment to accurately reflect reference to the California Building Code (CBC) rather than the Uniform Building Code (UBC) under the Removal of Natural Materials regulations.

Motion was made by Millington/Woodall to adopt Resolution No. PC 095-2016 recommending approval of amending the Removal of Natural Materials Regulations, Section 17.30.280 of the Rio Dell Municipal Code. (RDMC). Motion carried 3-0.

Adopt Resolution No. PC 094-2016 recommending the City Council establish Medical Marijuana Commercial Land Use Regulations, Section 17.30.195 of the Rio Dell Municipal Code (RDMC)

Community Development Director Caldwell provided a brief recompilation of what was discussed at the January 14, 2016 special meeting and said as the Commission is aware, Governor Brown approved the Medical Marijuana Regulations and Safety Act (MMRSA), comprised of three bills enacted by the legislature on September 11, 2015; AB 243, AB 266 and SB 643. He noted that the MMRSA provides for comprehensive, concurrent regulation and licensing by the state and local governments of medical marijuana as an agricultural product, including its cultivation, processing, testing, manufacture, distribution, transportation, dispensing and delivery.

He provided a summary of each of the three bills and explained the bills won't actually go into full effect until 2018 but does allow cities and counties to develop their own regulations more stringent than state law and as such, is why we are here tonight.

He said staff is not recommending any outdoor open field cultivation at this point but is recommending that the type of license required to be able to engage in the commercial cultivation of marijuana within the City to be determined by the size of the parcel in accordance with the *Table of License Types, Parcel Sizes & Allowable Canopies* which he then reviewed. The table identified the following four license types:

- Type 1: Outdoor Greenhouses (no artificial lighting)
- Type 2: Mixed Light (combination of natural and artificial supplemental lighting)
- Type 3: Indoor (exclusively artificial lighting)
- Type 4: Nursery

He stated that Chief Hill was present this evening to answer any questions regarding security and to give his thoughts in general on land use and commercial cultivation.

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Commissioner Angeloff asked if the City has the capability on staff of monitoring and regulating marijuana and the large scale of operations it may invite.

Community Development Director Caldwell noted that at the last meeting, Commissioner Long expressed concern regarding potential burglaries associated with grow operations, extractions and labs in general.

Chief Hill stated that he doesn't believe this legislation or these types of businesses would increase any type of criminal activity any more than what exists currently. He said there are people that grow illegally and close to people in the community who are extracting oils from marijuana illegally. He noted that the police department has served several search warrants this year and last year. He said as far as security, there are people with little or no knowledge of what they are doing and creating dangerous situations in residential neighborhoods. He pointed out that the industry will be better regulated so people in this business won't necessarily be hiding their security systems; they will be obvious. From the City's perspective, it will be easier to monitor those activities versus a clandestine grower where the neighborhood isn't aware of what's going on. Also, he would rather have someone who has a background in the process of extracting oils than having someone doing it in their garage in the middle of the night and not knowing what they are doing.

He said with regard to crime, he said there have been some home invasion burglaries in the community as a result of illegal grows and he can't speak statistically what this industry legalized will do but doesn't believe it will create additional issues. He felt that if issues are created, it will be much safer than what exists now.

Commissioner Angeloff pointed out that with economic development funding coming in, whether the criminal activity decreases or increases, the City will be better equipped to deal with it.

**Melissa Marks** commented that as she recalls, Commissioner Long had concerns about having armed security guards at dispensaries and how his home borders commercial property; not wanting that element of activity in his own backyard.

Community Development Director Caldwell noted that they do have armed guards at some of the larger dispensaries in the bigger urban areas but they are at dispensaries; not where the extraction process takes place. He said the reason for armed guards is because of the significant volume they tend to have on hand.

He said Commissioner Long was also concerned about the quantity a lab would have on hand at any given time and potential burglaries.

Community Development Director Caldwell noted that there were a couple of experts present

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that would like to address the Commission regarding the process for testing cannabis and introduced Gordon Griswold and Michelle Mallaroy.

Mr. Griswold stated that with regard to testing, they would never have more available cannabis on site than is legal today for the normal person to have which is 8 ounces or 227 grams. He said for testing purposes, they ask for 1 gram but only use one-tenth and the reason they request 1 gram is in the event they mess up a test and need to do it over. He noted that once the product is tested, it is then contaminated from the solutions they use so it becomes totally useless. He pointed out that one person can do 25 tests in a day so that would mean they may have 25 grams of cannabis; even with a back log of testing, they don't ever anticipate having more than 8 ounces of cannabis at any one time. As far as how that impacts the community from a criminal point of view, if they were going to rob someone for 8 ounces of marijuana, they would be better off going across the street to a grower. From a testing stand point, the product would be contaminated anyway.

He said there have been some issues in the Los Angeles area and said one of the testing facilities was caught with approximately 500 lbs. of marijuana because they let it build up; but again it was contaminated.

Community Development Caldwell said the way the proposed ordinance is written, it allows staff to make inspections of the facility Monday through Friday without any prior notification.

Commissioner Millington questioned whether law enforcement will be part of the initial inspection process for licenses issued in the City for any kind of cannabis operation.

Community Development Director Caldwell explained the MMRSA actually requires that a background check be conducted on applicants and certain felonies would disqualify someone at the state level and the local level as well.

Commissioner Millington clarified that her question pertained more along the lines of security of the facility such as the type of doors and locks.

Community Development Director Caldwell commented that the City will have that ability with the Conditional Use Permit process and every property owner within a radius of 300 feet will be notified during that process and given the opportunity to comment. In addition, the planning commission will have the ability to impose additional conditions beyond the normal performance standards. He noted that performance standards with regard to the CUP will be reviewed at the next meeting and the Commission will have the opportunity to recommend any changes they deem appropriate.

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Chief Hill commented that he would be involved in the initial process. He stated that that he made some inquiries outside of the community related to security and it was pointed out to him that it is in the best interest of the business to have good security including video surveillance, and while he thinks it is an important requirement, he didn't get the impression that there would be an issue of compliance with the people in the industry.

Commissioner Angeloff asked for clarification that if the City does not establish cannabis regulations, effectively the State or County regulations will cover the City if the existing medical marijuana ordinance doesn't cover the issues.

Community Development Director Caldwell stated that staff was told by the City Attorney that the City's current medical marijuana ordinance is in fact a cultivation ordinance and satisfies the requirement for having its own regulations. If the City were to do nothing, nothing would change; only personal indoor limited to 50 square feet in size would be allowed and outdoor green houses with the limited canopy area.

Commissioner Angeloff called for public comment on the matter.

**Alonzo** addressed the Commission and said his questions had more to do with dispensaries. He said he recently moved to the area from Los Angeles and is trying to recover from a bad situation genetically and was hoping there would be a dispensary closer than Arcata. He said he recently experienced a neuroleptic seizure and has a condition where he basically can't sweat and would appreciate a dispensary here where he can medicate and relax.

He said he was told there is a current ban on dispensaries in the City of Rio Dell and asked if there are any plans to lift the ban; if so what is the time frame.

Community Development Director Caldwell clarified there is currently a ban on dispensaries in the City and the Commission has the opportunity as part of this process to change that. He said staff has received 6 or 7 inquiries regarding dispensaries in Rio Dell and there are currently only three dispensaries in the County. He noted that the County is preparing now to issue 15 additional permits for dispensaries; five can be in the north part of the County, five in the mid part and five in the south part.

He said if the Commission and City Council is interested in entertaining the idea, staff would recommend dispensaries to be allowed in the Town Center (TC) zone, and one of the reasons staff would recommend that area is that hopefully it would attract tourists to come into town and also patronize some of the other local businesses. He said he would also recommend that the City open it up to a RFP (Request for Proposals) process and make sure the City gets a first-rate dispensary with an attractive design so that it is an attribute to the community.

Commissioner Woodall asked for clarification that should the City adopt its own regulations, they essentially would go into effect before 2018.

Staff explained the way the MMASA works, it allows cities and counties to adopt their own regulations and actually put those businesses in place before 2018; the State would then come in with their own enforcement agency to make sure the cities and counties are complying with their own regulations. He reiterated that the local regulations cannot be less stringent than the State regulations.

He noted that BOMMR (Bureau of Medical Marijuana Regulations) will be the enforcement agency for the new laws.

Commissioner Woodall asked if the dispensary in Arcata that also grows marijuana will be allowed to continue with that type of operation.

Community Development Director Caldwell noted that they will be allowed and under the dispensary regulations, there can be a cultivation area and nursery where they sell clones.

He provided a brief review of the State's proposed "Track and Trace" program which is "seed to sale" and explained they are going to basically identify the plants with specific indicators with information where that plant originated and what type of plant it is. Once the plants are fully grown and the marijuana is processed, then it is tested by a lab. Once it is given a clean bill of health from mold and pesticides, then it is allowed to be taken to the dispensaries. He noted that the lab cannot be located within the dispensary and cannot be affiliated with any other operation.

Regarding the number of dispensaries, staff said to be cautious with the approach, recommending beginning with one dispensary and if it looks to be successful and there's a demand for a second dispensary, come back and massage the regulations to allow for another facility.

**Ronzo**, owner and operator of Ronzo's Garden Supply addressed the Commission and began by referring to a recent article in Newsweek Magazine titled "The Beginning for the End of Pot Prohibition" pointing out that the issue is definitely on everybody's mind.

He applauded the Commission for having the discussion and recognizing the issues. He commented that there are people that have real medical needs and marijuana is not just for recreational use. He said he has a friend that has a business called "Treatwell" and he worked for years with Lawrence Ringo, who is known for developing several high strains of high CBD marijuana to help people get through their illness. He said he is actually trying now to develop a strain that helps dogs and cats that are sick. He went on to explain that this person has a disease that affects his digestive system to the point where it almost killed him and the doctors couldn't help him. He said by pure chance he ran into



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Lawrence Ringo and he introduced him to one of these CBD strains and started injecting this oil and basically went from going to the bathroom 50 times a day to once a day and has been doing well for about 7 years. As a result, he started this "Treatwell" business and is now serving about 300 patients, mostly in the bay area.

He again applauded the Commission for having an open mind and said he has grown up here all his life and been in the industry but unfortunately the so called bad players have stolen the lime light and they are the ones in the news; you don't hear about those that are actually stewards of their property and are very involved in legitimately trying to do a good job. Giving them the opportunity to come forward and operate in a safe environment is what a lot of people want.

He said he also has a business in Fortuna called Burnt Bridge that helps growers get into compliance and also has a collective called Humboldt Roots Cannabis. He commented that he is very busy but tries to attend as many meetings in the County as possible to encourage cities to jump on board and be a leader. He urged the Commission to be a leader and not a follower and set a standard for the rest of the County. He added that there is a lot of activity going on throughout the County and Rio Dell should take the opportunity to grasp it and use it to the City's benefit. He said there are a lot of old mill sites sitting around and suggested Rio Dell go out and purchase one and lease out the compound to individuals that need a place to do extractions, edibles and perhaps processing. He noted that the City could benefit forever from that activity and should not let the marijuana industry pass by.

He invited everyone to come by Ronzo's Garden Supply any Saturday and enjoy their free barbeque.

Commissioner Angeloff commented that this is a critical point in our history and to the future of Rio Dell and it is important to take the time and effort to through the issues very thoroughly.

He said with the manufacture of concentrates in and of itself; not the manufacture of edibles, he has concerns with heavy-duty concentrates being produced in large quantities and getting into the hands of small children and young adults.

**Ronzo** responded that it really falls on the responsibility of the parents at every level whether its edibles, cannabis, alcohol or tobacco. He said as a youngster his father liked to drink whereas; his mother liked to smoke cannabis and as a teenager he broke into his father's alcohol cabinet far more than his mother's cannabis locker. He said again, it comes down to responsible parenting but didn't see why edibles and concentrates can't be put into child-proof containers.

Commissioner Angeloff said his thinking is more in the lines of mass production of concentrates.

**Ronzo** commented that there are gravely ill patients that need super strong concentrates. Also, there are different levels of pain, different levels of illness, and also different strengths of

cannabis to address those issues.

Discussion continued regarding the different types of extraction processes. It was pointed out that many of the new processes are safer but the only way to get a handle on that activity is to regulate cannabis.

**Ronzo** pointed out that the cannabis today is not the pot you smoked in the 70's and if you've never done it, you better beware. He said you do build up a tolerance to cannabis and he has seen patients who are very ill and need the extra strength to put them out. Sometimes the side effects a person gets from modern medicine is pretty severe whereas; the side effects from cannabis is usually just hunger and sleepiness; if a person is not used to it maybe a little anxiety or paranoia.

Commissioner Angeloff stated that this is basically adding another level of complexity to our regulatory environment for mind altering substances whatever they may be and making sure it's done right.

**Ronzo** commented that at the end of the day people are in charge of how much Vicodin they take ultimately just like they are in charge of how many cigarettes they smoke. He said he lives by something his grandpa always said which was "too much beer, bacon or beans will kill ya" so it is basically an individual decision and taking it away from people is not the smartest option in his opinion.

**Michelle Mallaroy** noted that concentrates typically come in at 60-80% THC which is the psychoactive part. She said on a personal note, there are a lot of different ways to extract oils from cannabis and one which is particularly popular is an alcohol type extraction process. She indicated that another extraction process is with the use of coconut oil rather than solvents.

She pointed out that edibles seem to be the big concern in Colorado because of the fact that children will typically pick up chocolate if they see it on the counter. She noted that there are however; a lot of rules related to packaging of edibles as a precaution.

Commissioner Angeloff said one thing to keep in mind is that legalization of medical marijuana is realistically leading to legalization of recreational marijuana.

**Glen White** addressed the Commission and provided some background about himself. He said he moved to the area in 1982 and purchased a ranch in Mendocino County and because of the crack-down in Mendocino County moved back to southern California. He said he is currently a housing developer, still owns the ranch, has two businesses in Garberville and is looking at purchasing property in Rio Dell, possibly on Rio Vista Dr. He said in locating here he would

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like to help expand economic opportunities in Rio Dell. He said the question is how Rio Dell is going to fit in with all the changes in the cannabis industry and said that Rio Dell is at the heart of the cannabis culture and there's going to be literally tons of product here if regulations allow.

He said 1,000 lbs. of cannabis flower generates 2,000 lbs. of trim and presented the scenario where the 1,000 lbs. of product is taken to a distribution facility, tested and shipped somewhere else; leaving 2,000 of trim to possibly go to illegal labs where it is converted into high strength concentrates.

He said he understands there are people who have medical conditions that need cannabis but questioned the percentage of the people that actually do. He said he thinks everything that is happening in the state is based on what has happened in Colorado. He added that recreational marijuana will likely become legal and there is a lot to be looked at regarding regulation and how it will profit Rio Dell.

When it comes to concentrates and the manufacturing process, he thinks the majority of everything is going to be for recreational purposes; not a lot of people will have the need for super high concentrates. Those cases are few and far between and whether they will be required to have a specific prescription is unknown. He said ideally, everything would be converted into oil and shipped to another manufacturer who would make edibles; it would be concentrated but controlled.

Community Development Director Caldwell said he and Chief Hill met this afternoon with a manufacturer and extractor and relayed Commissioner Angeloff's concerns about oils getting into the hands of children and he made a comment that whether oils are manufactured in Rio Dell or Scotia, those people who use oils are going to have a vile of oil on their counter regardless. His point was that by eliminating the manufacturing process in the regulations, you will not be eliminating that activity.

He said he also talked to him about taxes and asked him if he would be opposed to a fee of \$1.00, \$2.50 or even \$5.00 per gram in which he indicated that he would not be opposed. He said the cost for a half a gram of oil is \$40-\$55; for the same amount of medicinal pure oil without TCH is \$100.00.

Commissioner Angeloff commented that he has a better understanding of concentrates with the information presented although he still has some reservations.

**Tisha Moschetti** pointed out that a lot of these extracts are impalatable and need some kind of heat source to be consumed and for a child to be able to navigate these types of systems would be very difficult. She said there are tinctures that are sweeter but ultimately the responsibility is with the parent. She said she doesn't know many people that would leave these things out for kids to have access to.

Additionally, she said she wanted to take the opportunity to thank the Commission for addressing the cannabis issue and said this is a huge turning point for Rio Dell. She said she concurs with the idea of having applicants go through the CUP process; especially the large industrial uses. She offered her expertise in terms of production and said she would be writing down some comments and providing them to staff.

**Gordon Griswold** asked Commissioner Angeloff to explain more specifically what his concerns are.

Commissioner Angeloff stated that his concerns are related to heavy concentrates and the safety of children. He said they could get ahold of it and be hospitalized or suffer permanent damage. He noted that in the past marijuana was considered to be less damaging than alcohol but that is no longer the case with the high-level concentrates today.

**Gordon Griswold** pointed out that someone could eat marijuana bud all day long with very little effect because of the low levels of THC.

**David Bridge** addressed the Commission regarding decarboxylation of cannabis and said he runs a lab called Lost Coast Research, a full service bioinformatics company. He said as a type 8 tester, he will be helping cannabis businesses stay compliant with state testing regulations. He explained the decarboxylation process (decarb) is a chemical reaction that removes a carboxyl group and releases carbon dioxide (CO<sub>2</sub>) and decarbing the cannabis used in edibles and tinctures makes them safer and more effective. He pointed out that raw cannabis mainly contains THCA which is not psychoactive and most hash is a 50-50 ratio. He said people should be much more worried about edibles than concentrates.

He said in terms of extractions, different solvents yield different amounts and extract different amounts of cannabinoids from terpenoids. He said the entourage effect in the amount of terpenoids is really one of the things to think about. It's a whole plant extraction rather than having shatter which is 80% THC.

He said on a completely different subject, he attended the Business Leadership Conference and Michael Porter, a professor from Harvard spoke on the subject of cluster analysis which is a group of businesses that create synergy. He said he thinks that's how the cities and county should look at this industry and to have a cluster that works together and utilizes the collective information everyone has. He said it is important to put Humboldt County first and keep innovating and stay in front of the industry.

**James Bidwell** said one of the things he took away from another meeting he recently attended is that the governmental officials on the north coast realize that the smaller businesses and small-time growers are the backbone of this community. He said when talking about testing marijuana and having all these dispensaries, he thinks Rio Dell should be one of the more progressive cities

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because it is the heart of Humboldt County. He said it is important to be open-minded and make the growers feel comfortable working with the testing facilities.

**Ronzo** urged commissioners to go on google and educate themselves.

Commissioner Angeloff said that he has done some logistics analysis on the industry but only from a business perspective so he is not totally unfamiliar with it although clearly he has much more to learn.

He added that there clearly are financial impacts as well as financial benefits to the City and everyone needs to make sure to look at the ancillary businesses and the effects of those businesses to the community.

He said with regard to concentrates, wondered what the environmental impacts are if spills were to occur. He asked staff to follow up and provide information to the Commission at the next meeting.

Community Development Director Caldwell indicated that there will be probably ten other agencies besides the City involved with enforcement.

Commissioner Angeloff stated that the City needs to carefully look at which industries they want to integrate into Rio Dell and make the decision not based on which industries will be the most profitable but the best for the City overall.

He encouraged public participation in the process in moving forward.

Discussion continued regarding outdoor cultivation with regard to land use.

Community Development Director Caldwell stated that staff is recommending outdoor and mixed-light commercial cultivation for medical use be conducted within a fully enclosed, secure and lockable greenhouse and be conditionally permitted in the Rural (R) and Natural Resources (NR) designations only.

He noted that he has been contacted by residents with large lots in the Urban Residential zone expressing interest in outdoor cultivation.

He recommended the Commission schedule a special meeting on March 8, 2016 to discuss cultivation followed by the regularly scheduled meeting on March 22, 2016 to discuss manufacturing and the extraction processes.

Discussion continued regarding licensing, taxes and other economic opportunities for the City.

**ADJOURNMENT**

Motion was made by Woodall/Millington to continue the meeting at 8:35 p.m. to the March 8, 2016 Special meeting.

\_\_\_\_\_  
Nick Angeloff, Chair


Attest:

\_\_\_\_\_  
Karen Dunham, City Clerk



For Meeting of: March 22, 2016

To: Planning Commission

From: Kevin Caldwell, Community Development Director 

Through: Kyle Knopp, City Manager

Date: March 17, 2016

Subject: Manufacturing Recommendations - Medical Marijuana Commercial Land Use Regulations, Section 17.30.195 of the Rio Dell Municipal Code (RDMC)

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**Recommendation:**

That the Planning Commission:

1. Receive staff's report regarding Manufacturing Regulations associated with Medical Marijuana Commercial Land Use Regulations, Section 17.30.195 of the Rio Dell Municipal Code; and
2. Open the public hearing, receive public input and deliberate; and
3. Identify and recommend Manufacturing locations and Performance Standards;
4. Continue consideration of the Medical Marijuana Commercial Land Use Regulations to a Special Meeting scheduled for April 12, 2016.

**Background**

This meeting is the fourth in a series of meetings regarding the discussion of the Medical Marijuana Land Use Ordinance (MMLUO). At the meeting of March 8, 2016 the Planning Commission discussed Cultivation and Processing provisions.

At this meeting the Planning Commission is scheduled to discuss Manufacturing provisions, including:

- “Manufacturing Level 1”, for manufacturing sites that produce medical cannabis products using nonvolatile solvents;
- “Manufacturing Level 2”, for manufacturing sites that produce medical cannabis products using volatile (i.e. butane, hexane, ethanol, etc.) solvents. This process will be regulated at a higher level. *The State Department of Public Health will limit the number of licenses of this type;* and
- Cannabis Commercial Kitchens that produce edibles.

Again, at the meeting scheduled for April 12, 2016 the Planning Commission is scheduled to discuss Testing Laboratories and Dispensaries provisions, including:

- “Testing”, Testing licensees shall have their facilities licensed according to the regulations set forth in Section 19341 et. seq. of the Business and Professions Code. A testing licensee shall not hold a license in another license and shall not own or have ownership interest in any other license type; and
- “Dispensary; General”, Type 10 dispensaries are facilities where medical cannabis, medical cannabis products, or devices for the use of medical cannabis or medical cannabis products are offered either individually or in any combination, for retail sale, including an establishment that delivers, pursuant to express authorization by local ordinance, medical cannabis and medical cannabis products as part of a retail sale. Only one retail site is allowed and no other licenses are allowed under the Type 10 license; and
- “Dispensary; No More Than 3 Retail Sites”, A Type 10A dispensary licensee may apply for other licenses in an effort to be vertically integrated, which is required in some cities. And even though a dispensary may obtain a cultivator and/or manufacturing license, it must first transport all cannabis through a distributor and testing licensee before it re-enters the dispensary (if the grow is located in the same place) for sale.

### Discussion - Manufacturing

Below are the State definitions and proposed definitions in the City’s draft Ordinance of “Manufactured Cannabis” and “Manufacturing Facility”



*“Manufactured Cannabis” means raw cannabis that has undergone a process whereby the raw agricultural product has been transformed into a concentrate, an edible product or topical product.*

*“Manufacturing Facility” means a process whereby the raw agricultural product is transformed into a concentrate, an edible product, or a topical product, and the production, preparation, propagation, or compounding of medical cannabis or medical cannabis products, directly or indirectly, by extraction methods, independently by means of chemical synthesis, or by a combination of extraction and chemical synthesis.*

The State has designated “Manufacturing” as Type 6 and 7 license types. As indicated above “Manufacturing Level 1” requires a Type 6 License. Type 6 manufacturing utilizes non-volatile solvents (i.e. dry sieve, water, CO<sub>2</sub>, isopropyl alcohol). The Type 7 manufacturing utilizes volatile solvents (i.e. butane, hexane, ethanol, etc.). Again, the State will be limiting the number of Type 7 licenses. Attachment 1 includes information from CannLabs regarding the various manufacturing techniques. It’s staff’s understanding that the manufacturing of concentrates occurs in a laboratory environment.

The State Department of Public Health is responsible for developing regulations governing the licensing of cannabis manufacturers. Of course manufacturers will be subject State and Federal labor laws, Cal/OSHA regulations, California Department of Public Health regulations. In addition, commercial kitchens producing edibles are also regulated locally by the County Department of Environmental Health.

A manufacturing licensee may not send product directly to a dispensary, but instead will have to send all cannabis through a distributor and testing licensee, who will test for concentration, purity of product, and contaminants.

The Medical Marijuana Regulations and Safety Act (MMRSA), Section 19347 of the Health and Safety Code, requires that prior to delivery or sale at a dispensary, medical cannabis products be labeled in a tamper-evident package. Labels and packages of medical cannabis products shall meet the following requirements:

- (1) Medical cannabis packages and labels shall not be made attractive to children.
- (2) All medical cannabis product labels shall include the following information, prominently displayed and in a clear and legible font:
  - (A) Manufacture date and source.
  - (B) The statement “SCHEDULE I CONTROLLED SUBSTANCE”.
  - (C) The statement “KEEP OUT OF REACH OF CHILDREN AND ANIMALS” in bold print.

(D) The statement "FOR MEDICAL USE ONLY".

(E) The statement "THE INTOXICATING EFFECTS OF THIS PRODUCT MAY BE DELAYED BY UP TO TWO HOURS".

(F) The statement "THIS PRODUCT MAY IMPAIR THE ABILITY TO DRIVE OR OPERATE MACHINERY. PLEASE US EXTREME CAUTION".

(G) For packages containing only dried flower, the net weight of the medical cannabis in the package.

(H) A warning if nuts or other allergens are used.

(I) List of pharmacology active ingredients, including, but not limited to, tetrahydrocannabinol (THC), cannabidiol (CBD), and other cannabinoid content, the THC and other cannabinoid amount in milligrams per serving, servings per package, and the THC and other cannabinoid amount in milligrams for the package total.

(J) Clear indication, in bold type, that the product contains medical cannabis.

(K) Identification of the source and date of cultivation and manufacture.

(L) Any other requirement set by the bureau (Bureau of Medical Marijuana Regulation).

(M) Information associated with the unique identifier issued by the Department of Food and Agriculture pursuant to Section 11362.777 of the Health and Safety Code.

Staff previously recommended that manufacturing of commercial cannabis for medical use be a conditionally permitted use in the **Industrial Commercial (IC)** designation, subject to a Conditional Use Permit and the conditions and limitations set forth in the proposed ordinance and as deemed appropriate by Planning Commission and/or the City Council.

As the Commission is aware, staff has relied heavily on the County's recently adopted Ordinance which is considered by the State as a model Ordinance. The County allows manufacturing of commercial cannabis with a Special Permit in the Community Commercial (C-2), Industrial Commercial (C-3), Business Park (MB) and Heavy (MH) and Limited Industrial (ML) zones.

Given the County's provisions, staff recommends that the Commission consider expanding the area where manufacturing could be allowed subject to a Conditional Use Permit and the conditions and limitations set forth in the proposed ordinance and as deemed appropriate by Planning Commission and/or the City Council. Again, the extraction process occurs in a laboratory setting which must be built in compliance with appropriate occupancy and types of construction required by the California Building Code (CBC) and the California Fire Code (CFC).

Commercial kitchens that produce edible would also be subject to the California Building Code (CBC) and the California Fire Code (CFC) and regulations administered by the Department of Public Health and the County Department of Environmental Health.

## Performance Standards

### Manufacturing

- Consent to a minimum at least two (2) annual on-site compliance inspection, to be conducted by appropriate City officials during regular business hours (Monday – Friday, 9:00 am – 5:00 pm, excluding holidays).
- Pay all applicable application and annual inspection fees.
- Comply with any special conditions applicable to that permit or parcel which may be imposed as a condition of the required Conditional Use Permit.
- Compliance with Cal /OSHA regulations
- Compliance with State and local building regulations, including the California Building Code (CBC) and the California Fire Code (CFC).
- Provide a secure storage area for all cannabis products, including raw and processed cannabis products.
- If using CO<sub>2</sub> in processing, a professional grade closed-loop CO<sub>2</sub> gas extraction system rated to a minimum of nine hundred (900) pounds per square (PSI) is required for every vessel in the system.
- Volatile extraction processes shall use a commercially manufactured professional grade closed-loop extraction system designed to recover the solvents and built to codes of recognized and generally accepted sound engineering practices, such as (i) The American Society of Mechanical Engineers (ASME); (ii) American National Standards Institute (ANSI); (iii) Underwriters Laboratories (UL); or (iv) The American Society for Testing and materials (ASTM).
- Volatile extraction facilities shall occur in a spark-proof room equipped with evacuation fans and lower explosive limit (LEL) detectors.

### **Employee Performance Standards for Manufacturing Activities:**

- All persons hiring employees to engage in commercial cannabis manufacturing shall comply with the following Employee Safety Practices:
- Manufacturing operations must implement safety protocols and provide all employees with adequate safety training relevant to their specific job functions, which may include:
  - Emergency action response planning as necessary; and
  - Employee accident reporting and investigation policies; and
  - Fire prevention;
  - Hazard communication policies, including maintenance of material safety data sheets (MSDS); and
  - Materials handling policies; and
  - Job hazard analyses;
  - Personal protective equipment policies, including respiratory protection; and
  - Emergency eye-wash station in any room where cannabis extraction is being processed.
- Manufacturing operations must visibly post and maintain an emergency contact list which includes at a minimum:
  - Operation manager contacts; and
  - Emergency responder contacts; and
  - Poison control contacts.
- At all times, employees shall have access to safe drinking water and toilets and handwashing facilities that comply with applicable federal, state, and local laws and

regulations. Plumbing facilities and water source must be capable of handling increased usage without adverse consequences to neighboring properties or the environment.

- All manufacturers shall, at the time of the application for a permit, include a Processing Plan/Plan of Operation with all of the following:
  - Summary of Processing Practices.
  - Description of location where processing will occur.
  - Estimated number of employees, if any.
  - Summary of Employee Safety Practices.
  - Description of toilet and handwashing facilities.
  - Description of plumbing and/or septic system and whether or not the system is capable of handling increased usage.
  - Description of source of drinking water for employees.
  - Description of waste management plan.
  - Security Plan

**Term of Conditional Use Permit and License; Annual Inspection.**

- Any Conditional Use Permit and License issued pursuant to this section shall expire after one (1) year after date of issuance, and on the anniversary date of such issuance each year thereafter, unless an annual compliance inspection has been conducted and the permitted site has been found to comply with all conditions of approval.
- If the inspector or other City official determines that the site does not comply with the conditions of approval, the inspector shall serve the permit holder with a written statement identifying the items not in compliance, and the action that the permit holder may take to cure the non-compliance, or file an appeal within ten (10) days of the date that the written statement is delivered to the permit holder. Personal delivery or mailing the written statement to the mailing address listed on the application by regular mail, plus three (3) days after date of mailing, shall constitute delivery. The permit holder may request a reinspection to determine whether or not the permit holder has cured all issues of non-compliance. Failure to request reinspection or to cure any items

of noncompliance shall terminate the Conditional Use Permit and License, immediately upon the expiration of any appeal period, or final determination of the appeal if an appeal has been timely filed.

- The City shall notify any state license authority, as defined by the MMRSA, whenever the Conditional Use Permit and License has been revoked or terminated.

#### **Appeal of Annual Inspection Determination**

Within ten (10) business days after delivery of the statement of non-compliance, the determination by the inspector that the site is or is not in compliance may be appealed by any interested party to the Planning Commission. The appeal shall be made, in writing, on a form provided by the City. The fee for filing the appeal is based on the adopted fee schedule in effect at the time of the appeal.

- (a) The appeal shall be heard by the Planning Commission within thirty (30) days following the filing of the appeal. The Planning Commission shall render a written ruling on the appeal within three (3) business days following the hearing.
- (b) The decision of the Planning Commission may be appealed to the City Council in accordance with Section 17.35.050 of the Rio Dell Municipal Code. If a timely appeal to the City Council is not filed, the ruling by the Planning Commission shall be final.

#### **Attachments**

Attachment 1: CannLabs information regarding the various manufacturing techniques.

## **CannLab Information Regarding Cannabis Extraction**

*A complex and potentially dangerous art – best left to the experts.*

### **What are cannabis concentrates?**

Cannabis concentrates (cannabis oil, budder, wax or shatter) are the cannabinoids of the cannabis plant that have been extracted using one of the many known extraction methods described below. They are significantly more potent than regular hashish or cannabis flowers and their applications as medicine have proven to be diverse and effective; however, the extraction of cannabis concentrates is a complex and potentially dangerous process – the methodology required for proper extraction is so precise that individuals who produce cannabis extracts of especially high quality are considered “extract artists.”

### **How are cannabis concentrates extracted?**

The science of cannabis concentrate extraction functions on the solubility of the cannabinoids and other active ingredients of the cannabis plant. Cannabinoids are not water soluble, so to extract them properly the cannabinoids must be dissolved in a solvent.

### **What are solvents?**

Solvents are the chemicals used to remove the cannabinoids from the cannabis plant. Butane, hexane, isopropyl alcohol and ethanol are all solvents that are commonly used in cannabis concentrate extraction. When cannabis flowers are submerged in these solvents, the cannabinoids, terpenes and other active ingredients are dissolved into the liquid or gas solvent. The remaining solid plant matter is filtered out and the liquid solvent and cannabinoid mixture is purged to remove all solvents, leaving only cannabinoids and other active compounds of the cannabis plant.

### **Why is removal of solvents important?**

Incredible scientific precision is required to properly remove all trace solvents from a cannabis concentrate. Any residual solvents can be harmful to patients, which is why CannLabs offers residual solvent testing to dispensaries and manufacturers who are concerned with compliance and the safety of their cannabis concentrates. Different extraction methods are used to create cannabis concentrates, all with varying degrees of effectiveness. The yield of a preparation of cannabis concentrates, the potency of the concentrates, and their overall safety are all determined by the quality of an extract artist’s method.

### ***Non-Volatile Processes***

#### **Dry Sieve**

The most naturally and unobtrusive form of cannabis extraction, often considered the holy grail of concentrates by true connoisseur, due to its low yield and the meticulous process involved in removing the cannabinoid containing trichomes from the plant matter.

- There are many grades of dry sieve from “farmer sieve” containing plant contaminant, to what is often times referred to as “kief”, a mixture of glandular trichrome heads, stalks and plant material, up to “Fullmelt Dry Sieve” which generally contains just the trichome heads themselves.
- There are multiple ways to achieve dry sieved products, but more often than not a single silk screen or series of silk screens can be utilized in conjunction with agitation to separate trichomes from the plant material creating a smokeable, edible, or vaporizable cannabis concentrate.

## Water

Very much like the dry sieve process, water can be used in conjunction with screens as a vessel to carry mechanically separated trichomes through multiple micron level screens. A micron is a microscopic unit of measurement used to calculate the size of the trichome and thus the holes in the screens themselves.

- Water hash, also termed “Iceolater”, “Bubblehash”, “Solvent-less”, “Ice Wax” and other names is made using agitation, generally from ice and motion, either done by hand or utilizing a washing machine to gently break off the trichome heads from the plant material.
- Water extracted products must be broken down and dried thoroughly before being consumed or there is the possibility of mold and health risks due to improper storage.

## CO<sub>2</sub>

Arguably the least-toxic form of cannabis concentrate extraction, CO<sub>2</sub> (carbon dioxide) has become more popular as an extraction method because of its low environmental impact and nonexistent toxicity; however, CO<sub>2</sub> extraction systems are considerably more expensive than butane or hexane systems.

- CO<sub>2</sub> functions as a solvent when it is heated or cooled and pushed through the flower at high (supercritical) or low (subcritical) pressures. In fact, 95% of the cannabis extractions right now are done in the subcritical phase.
- Most people tend to prefer subcritical CO<sub>2</sub> extraction because it gives a lighter colored extract, fewer waxes and resins, and retains significantly more volatile oils compared to supercritical CO<sub>2</sub> extraction; however, without the proper equipment rated for the proper pressures, creating quality CO<sub>2</sub> extracted concentrates is incredibly difficult.

CannLabs has performed all types of testing for potency and residual solvents on CO<sub>2</sub> extracted cannabis concentrates with amazing results.



## **Isopropyl Alcohol**

Isopropyl alcohol is a commonly used solvent for creating cannabis concentrates using a 'quick wash' method. Where hexane is not water soluble, isopropyl alcohol is highly water soluble and will dissolve undesired plant materials (chlorophylls and waxes) along with the sought after cannabinoids.

- In order to eliminate plant waxes from the isopropyl concentrate solution, a quick wash method is used as opposed to soaking (which is with non-water soluble solvents like hexane).
- Although the isopropyl method receives great reviews from patients and tasters, it takes significantly longer to properly purge isopropyl alcohol extracted concentrates due to the solubility in water.

## ***Volatile Processes***

### **Butane & Propane**

The most commonly used solvent in cannabis extraction is butane; however, a mixture of butane and propane has recently become very common as well. These solvents are nontoxic, non-polar and they dissolve oils very efficiently without creating other unwanted byproducts. Butane and propane dissolve all cannabinoids and terpenes (aromatics) with great effectiveness while preserving the integrity of the delicate cannabinoids.

- These solvents are cost effective, meaning large amounts of money are not spent on supplies for extraction, but instead on growing quality cannabis to be extracted.
- Thanks to their lower than room temperature boiling points, butane and propane are able to be 'purged' from a concentrate extraction. Note, hydrocarbon extraction is dangerous and should only be done in a proper lab setting.

Residual solvent testing with CannLabs can show you clearly if a particular sample of butane/propane-extracted cannabis concentrate was produced properly.

### **Hexane**

Like butane, hexane is a solvent that can be used for cannabis concentrate extraction. Some interesting information: hexane is completely insoluble in water, it boils at a higher temperature than butane, and is extremely flammable and potentially explosive. Although the general process for hexane extraction is similar to that of butane extraction, it requires significantly more care due to the fact that hexane is considerably more toxic. Residual solvent testing with CannLabs is the safest way to ensure hexane-extracted cannabis concentrates are safe for patient consumption.