Below is a bullet-point summary of the key deliverables from Phase 1 identified in the four stakeholder groups: R/D and Seed, Cultivation, Testing, and Transportation. These are proposed deliverables and are still in draft form. The next step is for the Executive Committee members to review the details of the proposed deliverables and provide feedback.

R&D and Seed Deliverables:

1) Establish guidance for farmers regarding THC levels to ensure crops do not go over .3% THC
   a) Create a Colorado Hemp Education Committee ("Committee") to develop and identify educational resources for farmers. Collaboration between CDA, CSU Extension, higher education, and other organizations.
      i) Serve as a resource center that can direct farmers to existing educational resources
      ii) Develop custom education materials unique to the Colorado hemp industry. Topics may include compliance with state regulations, best growing practices, testing protocols, and consumer protection.
   b) Develop the Committee in 2019, Resource Planning in 2020 (identify resource needs), Implement 2020 or 2021.
   c) Notes: possibly fold into Center of Excellence (COE)

2) Explore R &D opportunities and financial support to encourage research and breeding for all end-use (CBD, fiber, grain, etc.)
   a) Develop a COE for hemp science and technology to accelerate economic development and research. The center will facilitate a public-private partnership between academic institutions, industry, state agencies, and stakeholders.
   b) The center should be supported with base funding to attract top talent and interest from leading scientists, including partnerships with private industry.
      i) Base funding should include both operational support as well as grants.
   c) Focus on NIFA approval and funding opportunity
   d) Key agencies: OEDIT, CDA
   e) Potential agencies/organizations involved: CDA, CSU, CSU Pueblo, CU, Adams, Colorado Mesa, Fort Lewis College, Northeastern Junior College, along with independent research facilities.

3) Enhance a certification program to manage hemp seed to ensure a high level of standards
   a) Continue advancement of the current Certified seed program and enhance the program where appropriate and/or necessary. Currently, the program meets national standards.
   b) Do not mandate the use of Certified seed
   c) Address Colorado Seed Law regulations to establish definitions and standards Focus on labeling requirements. CDA to work with other states and federal agencies to develop labeling requirements/standards. Ensure resources are available to enforce established labeling requirements.
   d) Key agencies: CDA, Colorado Seed Growers Association, CSU Experiment Station.
4) **Establish a clonal certification program and labeling standards**
   a) Support the development of a Certified clone program and development of a process of certifying feminized seed.
   b) Work in partnership with AOSCA, CSGA, CDA and research universities.
   c) Assemble representatives from the above organization to scope out further.
   d) AOSCA is looking to develop of a clonal program, support AOSCA in research
   e) Provide support to AOSCA in an advisory role and any research needs.
   f) Consider bringing into the COE

5) **Define the state position on open source genetics. If allowed, develop a system that can properly document open-source genetics**
   a) This deliverable is a position that Colorado should take.
   b) The general position in Colorado should allow for the utilization of open-source genetics.
   c) Open Source Genetics means open access to all hemp seed, including Colorado Heritage Cannabis Seed, used for breeding purposes produced by the plant Cannabis sativa that
      i) possess a THC content less than or equal to 0.3%, tested according to USDA regulations;
      ii) is not patented, certified or otherwise intellectually protected. The States' position is to allow the use of open-source genetics as defined above.
   d) Consider issuing a joint policy statement/guidance.

6) **Provide industry guidelines on the use of biotechnology, and potentially GMO and organic hemp**
   a) Use existing federal regulations that are already in place for both GMO and Organic cultivation issues with hemp. This choice minimizes the regulatory burden to farmers by eliminating duplicate regulations, and also protects the state and consumers with practices that have been established and validated in other crops.
   b) Allow USDA Organic certified inspectors to certify hemp as an organic crop the same as any other.
   c) Provide funds for farmer education around the issues of GMO technology, intellectual property in relation to plants, organic cultivation and best use of agrochemicals for hemp.
   d) Provide funding to state universities and agencies to further understand: general agronomics of hemp in CO, utilization of agrochemicals on hemp, crop rotation and soil management for hemp, and pests and diseases that affect hemp in CO.

7) **Establish standards for managing cross-pollination for hemp seed multiplication**
   a) Update the registration database program to facilitate timely applications recording date of application, field location, female grow, production purpose and maybe other important information.
      i) CDA would need to change policy to disclose hemp locations. Currently do not collect some of this information.
         (1) This still need to be reviewed or researched. Complex issue
   b) Research cross-pollen issue.
i) CSU or another University for pollen research; possibly CSGA and CO HIA for hemp field mapping buy-in.
c) This is a complex issue that needs more research on best practices on how to best manage cross-pollination issues.

**Cultivation Deliverables**

1. Determine whether the current hemp registration program aligns with USDA requirements, or if modifications are needed to submit the State and Tribal plans
   a. Identify missing pieces of current program w/ Farm Bill:
      i. Recording keeping and reporting to USDA.
      ii. Disposal procedures for hemp and products derived from plants.
      iii. Felony background check provision.
      iv. Certification that the state or Indian tribe has the resources and personnel to carry out the practices and procedures described in the Farm Bill.
   b. Waiting on USDA to come out with regulations (estimate: November)
   c. Changes will be able to be done through rulemaking
   d. CDA in conjunction with MPG will be drafting our plan to include missing pieces, in 1. A.
   e. Discuss collaboration opportunities between state and tribal plans.

2. Identify eligible information to be shared for law enforcement, local municipalities, and private sector
   a. The location of the hemp cultivation site will only be shared with law enforcement, local governments, and other state agencies. Sharing of this and other sensitive business information protected by state law will not be shared with the private sector.
   b. Development of guidelines for searchable/shareable databases regarding registered hemp locations, per legal guidelines and audience the database is supporting.
   c. Information to be shared: producer name, location (GIS) (Law enforcement/local government only), contact information
   d. Method to be shared: an electronic database or shared spreadsheets
   e. Look for access (roadside) for law enforcement
   f. Agency involved: CDA, CDNR, local and state governments, Tribal agencies
   g. CDA legal counsel will look into the confidentiality of shared information between regulatory agencies.

3. Definitions and potential implications of illegal/unauthorized/non-compliant activities as they relate to hemp cultivation.
   a. Co-location with marijuana should be prohibited.
   b. MJ and Hemp may be located on the same premise, but not in the same field, or greenhouse bay - the two plants/registrations must be clearly separated
   c. Policies communicated to hemp registrants and MED.

4. Develop process and guidelines to ensure cultivators obtain a legal water supply prior to, or in conjunction with, the issuance of the hemp registration from CDA.
a. Revise the application for new applicants to address if they have a legal water supply. Provide hyperlinks and resources for the applicant to check.
b. Incorporate the referral process from CDA to CDNR, Division of Water Resources (DWR) to review and verify within 21 days of receipt
c. CDA and Applicant will receive notification: Water Supply Commitment Letter
d. CDA is not responsible for verifying. Will not prevent CDA from issuing a registration
e. CDA and DWR to work on a new process.

5. Establish a center of excellence (COE) related to cultivation practices and down the supply chain.
   a. Develop a detailed strategic plan that outlines the concept of an organization that will consist of academic institutions and state agencies that are interested in establishing a collaborative COE for education and research funding.
      i. Utilize existing task force from SB18-235
      ii. Plan to include specifics regarding funding, staffing, organizational structure, and
      iii. Move quickly on a plan.
      iv. CDA, OEDIT, Gov. Office.
   b. See similar deliverables in R/D and Seed on COE.

6. Devise various safe and economically feasible non-compliant material disposal mechanisms:
   a. Identify legislation/regulatory guidelines for handling non-compliant hemp waste disposal.
   b. Identify options for utilizing non-compliant hemp onsite if USDA rule doesn’t address this in the final disposal definition.
   c. Prior to USDA Ruling; CDA will keep its current policy as it pertains to hemp testing between 0.39 and 1% THC
      i. The material must remain on the registered site
      ii. Material must not enter the stream of commerce
      iii. Material must not be used for human or animal consumption

7. Develop local government authority facility, security and public safety requirements for indoor cultivation:
   a. Levels of local government authority regarding hemp cultivation should be determined at the local level through appropriate zoning and land-use policies.
      i. Local and state review/approval of licensing can happen concurrently -- approval from CDA comes first and then local provides sign-off and then get a final license from CDA.
         1. If a county, municipality overly restrictive on participation, then the state should have some oversight -- ie, local governments can't effectively ban cultivation.
         2. Adding a conditional statement on registration; adding a check-box system but not making registration conditional on approval;
         3. The clarity for operators in regulation that you have to honor the local gov process and cannot operate until local gov approval; need to explore regulatory clarity on this issue; put on the application that you have checked with/are aware of city restrictions and water rights
ii. **Security standards:** Colorado should wait until after USDA comes out with guidance and then state and local governments can add to that. Security standards should be floors, not ceiling to avoid needless taking of licenses. There should be a safety inspection, no inspection for security. The consensus that security standards, including on storage, should largely be onus/discretion of cultivator.

iii. **Safety standards:** CDA should be responsible for developing standards for safety -- treat it like any other agricultural commodity. Consensus for bare minimum temperature requirement for storage outdoors -- concerns about mildew and mold otherwise.

iv. **Reporting requirements:** mandatory reporting on thefts or other losses. Mandatory reporting on the chain of custody -- need to ensure traceability, eg, tag super-sacks. Mandatory reporting on lab testing results -- from potency to pesticides or other contaminants for all harvest lots.

b. Rulemaking will be required. Confirm statutory authority for making rules

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**Testing Deliverables**

1. **Define State certified laboratory approval program:**
   a. For a laboratory's test results to be approved by the state, the laboratory must first be certified by the state and accredited by an independent accreditation body.
   b. The laboratory would be required to apply and submit certain paperwork, as well as go through onsite auditing, for approval.
   c. The types of paperwork that would be required could include but is not limited to
      i. Proof of ISO 17025 accreditation
      ii. An application that specifies which analytes the lab is applying to be accepted by the State of Colorado to test for
      iii. Reporting structure and who the point of contact is
      iv. Acknowledgment that the laboratory will comply with policies established by the State for all accredited laboratories
      v. standard operating procedures and other essential laboratory documentation.
   d. Laboratory audits could be announced or unannounced.
      i. Requires regulation.
      ii. Consider procedure for violations and enforcement
   e. Develop licensing/renewal procedures (consider reciprocity for interstate commerce)
   f. Lead agency: CDPHE (Possibly new subdivision). We will need FTE to administer the certification program.
   g. Other agencies: AOAC, APHA and Hemp Authority that can assist/be a resource
   h. The legislation will need to be developed by establishing the program.
   i. Funding could come from laboratory application fees, certification fees, a portion of tax revenue collected from hemp products, General Fund. It should also be noted that some flexibility in the ability to add FTE to meet unanticipated workloads should be considered.
   j. A task force would need to be formed to develop the framework of the program.

2. **Clarify and review current sampling protocols/create a uniform sampling protocol**
a. Explore the protocol regarding the amount of the plant, field sample size, and timing of the sample before harvest.

b. Amount of Plant: Stakeholders had different opinions on this issue: The majority of SH recommended amending regulations to take the top 30cm of the plant. Which would be more in line with international standards and other states. Minority opinion strongly felt sampling should remain at the top 2 inches, which examines the part of the plant with the highest level of THC to ensure the full plant is compliant. Other felt 8 inches was appropriate
   i. CDA to conduct a study by testing 36 registrant samples of both 2 in. and 12 in. (~30cm) to compare the difference.
   ii. Look for research and recommendation from CSU and consultants.

c. Field Sample Size: CDA and CSU to research calculations for number of sample-based on field size.

d. Timing of sample: Focus should be on sampling within 30 days of harvest. CDA to work on providing longer notification window to producers: goal is to notify the grower 10 days before taking samples.

e. Need to focus on additional sampling protocols for THC further down the supply chain.

f. The focus is to adjust any CDA regulations and protocols for the 2020 harvest season.

3. Develop uniform testing requirements, using randomized samples taken with government oversight and submitted to approved laboratories

   a. All raw hemp will be subject to mandatory field testing for THC, either by CDA inspectors or third party laboratory testing.
   b. Currently, CDA only is able to sample a 25-30% of hemp prior to harvest. This scheme will allow for testing/oversight for the remaining 70-75%.
   c. A qualified third party, not a private lab, can collect the field samples in addition to CDA.
      i. Create a reporting mechanism of results managed and housed by CDA
   d. After the THC field testing, licensees will either need to be audited for compliance to GMP or subject to a mandatory testing program.
   e. Additional tests in the supply chain in the mandatory program would include pesticides, heavy metals, contaminants (microbials, solvents, etc., to be defined further), and accurate cannabinoid labeling.
   f. The state will also conduct spot enforcement testing based on a published and valid method to confirm laboratory sample results.
   g. Lead by CDA/CDPHE to adopt regulations and develop standards for the program.
      i. FTE possibly needed to support both agencies.
   h. Deliverable 1 (Certified Labs) is needed to implement uniform testing requirements.

4. Create a uniform/consistent test method requirement: Method, error margins what constitutes pass/fail, validating/verifying the accuracy, proficiency testing.

   a. Establish consistency of results across all testing laboratories based on proficiency testing parameters and error range which is reflective of industry standards.
   b. CDPHE and CDA to provide guidance to laboratories related to currently available and appropriate analytical methodology.
   c. Resources for methods and standards:
      i. Accreditation bodies: AOAC, ASTM, GMP, and FDA.
      ii. Approved PT providers, Guidance document from AOAC, (Guidelines for Laboratories Performing Microbiological and Chemical Analyses of Food, Dietary
5. **Create definitions for the whole plant, THC free, full-spectrum hemp products:**
   a. Define: broad spectrum, full spectrum, whole plant, THC Free, CBD isolate
   b. These definitions will also be explored by the Marketing SH group but will need to have a connection to testing to verify the accuracy of labeling claims.
   c. Group generally agreed on the definition of THC-Free to be less than 250 ppm (0.025%), which is the limit of the current testing equipment
   d. Group punted other definitions to the marketing group, but will need to know definitions in order to test and validate claims.
   e. Look for guidance from industry and FDA, USDA on definitions
   f. Required testing by product type.
   g. When testing begins, develop a task force for the testing protocol. Private and state labs.
   h. This will overlap with laboratory certification and test methods
   i. Look to Farm Bill and USDA guidance for establishing state statutes and regulations.
   j. Look for grant funding to support testing and compliance methods.

6. **Develop a framework for interfacing with all necessary governmental stakeholders**
   a. Position: Testing results would be the property of the owner, producer, or buyer.
      i. The private laboratory may be subject to a subpoena.
   b. CDA or contractor analytical results would be made available to the USDA and law enforcement agencies.
   c. Establish direct contact number to CDA for out of state law enforcement or regulators regarding questions pertaining to pre-harvest hemp testing results.

7. **Develop a standard for how to treat hemp from other states**
   a. Any hemp entering the state must be below 0.3% total THC.
   b. Apply Colorado state standards for unprocessed hemp entering Colorado for testing
   c. A harmonized and reciprocally acceptable testing protocol, methods and standards in the sending state is required
   d. Detail protocol and documentation will be developed under Transportation.

8. **Create disposal protocols for unused sample material:**
   a. Establish regulations for certified laboratories to follow existing protocol to make samples unrecognizable if it’s above .3% THC.
   b. Otherwise, dispose of it in a typical fashion for samples of hemp at or below .3% THC.
   c. Haz waste follows existing State rules and protocols
   d. Clear protocols needs to be prepared in transporting and disposing of extract with high THC content (Processing group).
Transportation Deliverables

1. Establish communication protocol for State, Tribal and local governments regarding the tracking of hemp loads through various jurisdictions
   a. Establish an electronic tracking system from the whole hemp life cycle (Seed to market) that can be used to track hemp, including origin, testing results, transfer of ownership of hemp through processing and into manufacturing.
   b. Explore Blockchain\(^1\) solutions
   c. This is a long term solution
   d. Look at a system that is scalable to a national system.
   e. CDA will continue with Stakeholder Group to establish system requirements and scope the procurement process and funding needs.

2. Establish regulatory protocol and industry best practices regarding the transportation of hemp and hemp products across the various jurisdictional levels
   a. Develop guidance and/or regulations to require transportation documents.
   b. Look into the security of loads.
   c. Develop a guidance document by November 1st that identifies the proper documentation that should accompany hemp during transportation.
      i. Main documents: CDA registration credential, Certificate of Analysis (COA), processor license, commodity handler license, travel manifest.
   d. Documents can be verified by law enforcement with the issuing agencies.
   e. This is a short term (immediate need) to provide producers.
   f. CDA will take the lead, work with State Patrol, Tribal agencies, and industry on the guidance document.
   g. Begin to focus on communication/education of law enforcement agencies

3. Develop resources guideline and establish training for law enforcement agencies on hemp identification and differentiation from cannabis for law enforcement.
   a. Focus education and outreach of messaging after the development of guidance from the first deliverable is produced.
      i. Joint effort between CDA, CDPHE, CDPS, local municipalities
   b. Focus on engaging with law enforcement associations and other national organizations to expand the discussion beyond Colorado.

\(^1\) Blockchain is the technology that underpins digital currency (Bitcoin, Litecoin, Ethereum, and the like). The tech allows digital information to be distributed, but not copied.