



## Board of County Commissioners

Boulder County has in place a set of Policies to ensure that people of all opinions are comfortable attending public meetings and hearings, and are able to express their opinions without fear.

As public hearings and meetings are official civil proceedings, it is the policy of the County that the following Rules of Conduct be observed for all hearings in order to facilitate an orderly, respectful and fair discussion where all points of view may be heard and the Board may conduct county business:

### C. Rules of conduct

1. It is inappropriate to cheer, boo, hiss, talk, cry out or applaud. Members of the public are not expected to agree on all issues but must make an effort to respect the process so that all viewpoints are heard.

...

4. The waving or posting of signs, banners or other materials in the hearing room is not allowed.

5. So that everyone can hear the proceedings, side conversations must be taken outside of the hearing room.

6. The use of profanity, threatening or abusive language is not allowed.

...

8. The placement of electronic recording devices and cameras, including but not limited to audio recorders, video cameras, still cameras, motion picture cameras or microphones, may be regulated by the Chair so as to avoid interference with the orderly conduct of the hearing.

In accordance with Boulder County Policies and Colorado State Law, disruption of a public hearing or meeting by audience members will not be tolerated. At the discretion of the Chair, the hearing or meeting may be suspended. In addition, individuals who violate the provisions of this policy may be subject to removal by law enforcement from the public hearing and/or the County Courthouse and, depending on the seriousness of the violation, may be prosecuted under state law.

**Docket DC-16-0004: Amendments to  
Oil and Gas Development Regulations:**  
**Public Hearing to consider proposed Land Use Code  
amendments addressing oil and gas development within  
the Boulder County Land Use Code**

Board of County Commissioners  
November 15, 2016  
12:00 p.m.

# Today's Agenda - Nov. 15

- I. County staff presentation
- II. Public comment (3-min allowance per individual speaker)
- III. Board of County Commissioners discussion / direction to staff

# Anticipated Schedule for Public Review

## ✓ Planning Commission

- ✓ **Wednesday, Oct. 12, 1:30 p.m.** Planning Commission public hearing
- ✓ **Thursday, Oct. 27, 4 p.m.** Planning Commission public meeting

## Board of County Commissioners

**Tuesday, Nov. 15, 12 p.m.** Board of County Commissioners public hearing

**Thursday, Nov. 17 11 a.m.** Board of County Commissioners public **meeting** – no further testimony will be taken.

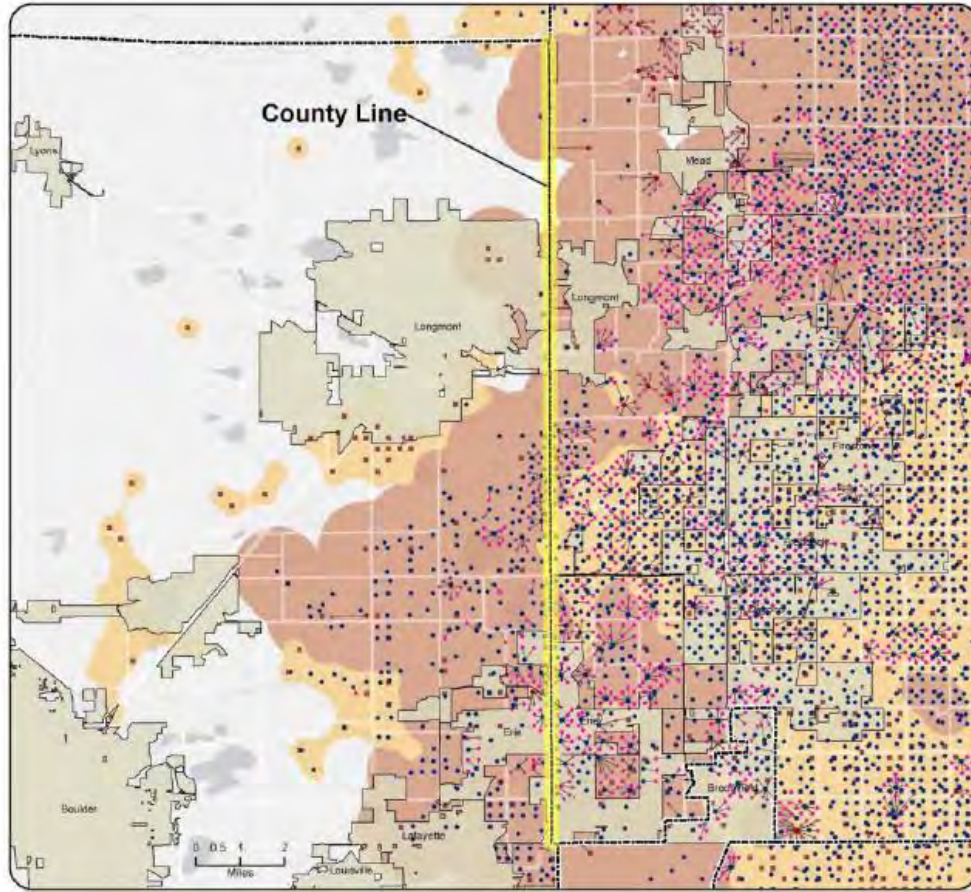
# Oil & Gas Development Website

<http://www.bouldercounty.org/dept/landuse/pages/oilgas.aspx>

Email: [oilgascomment@bouldercounty.org](mailto:oilgascomment@bouldercounty.org)

# Background

- Boulder County enacted a moratorium in February 2012
- Planning Commission adopts BCCP amendments in August 2012
- New regulations adopted in December 2012, amended May 2013
- Transportation fees adopted in May 2013
- In November 2014 the moratorium was extended to July 1, 2018

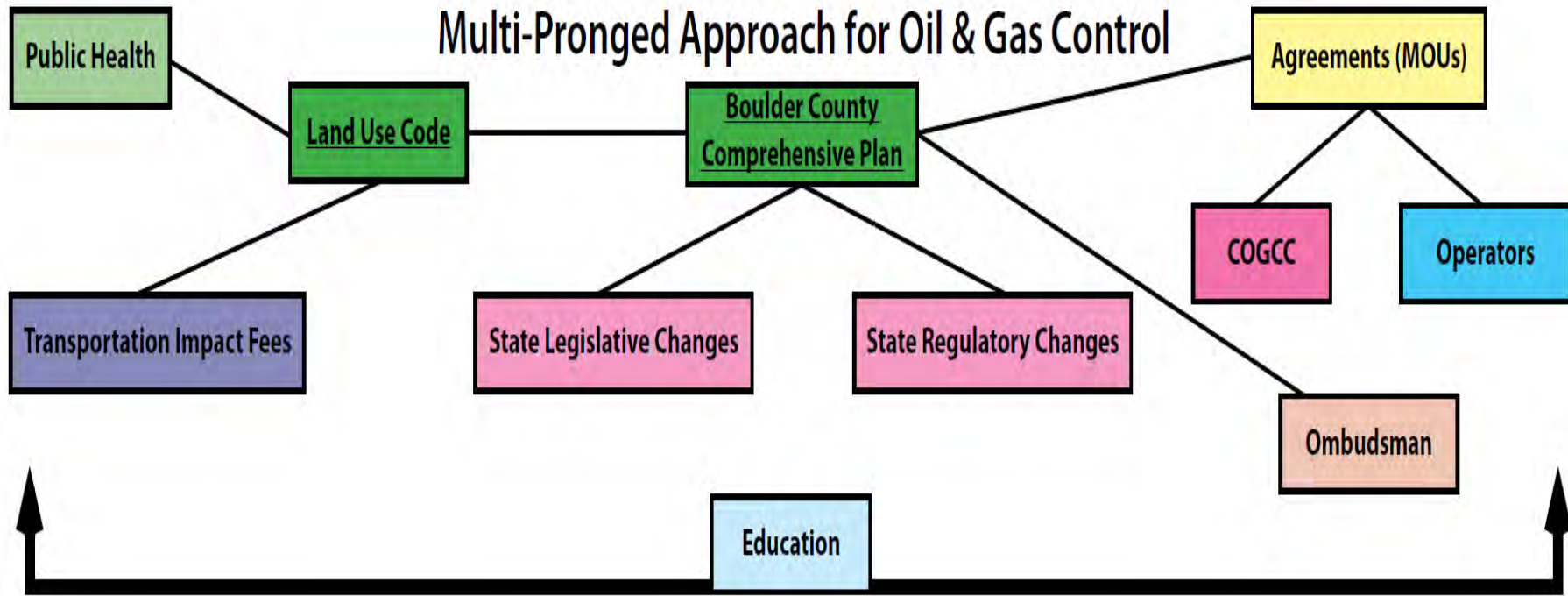


## Colorado Oil and Gas Conservation Commission Wells: GIS Data Map

- Wells
- State Permitted Sites
- Pit Facility
- Directional Well Bottomhole: Actual
- Directional Well Bottomhole: Planned
- Directional Well Line
- Oil or Gas Field
- Wattenberg Gas Field



# Multi-Pronged Approach for Oil & Gas Control



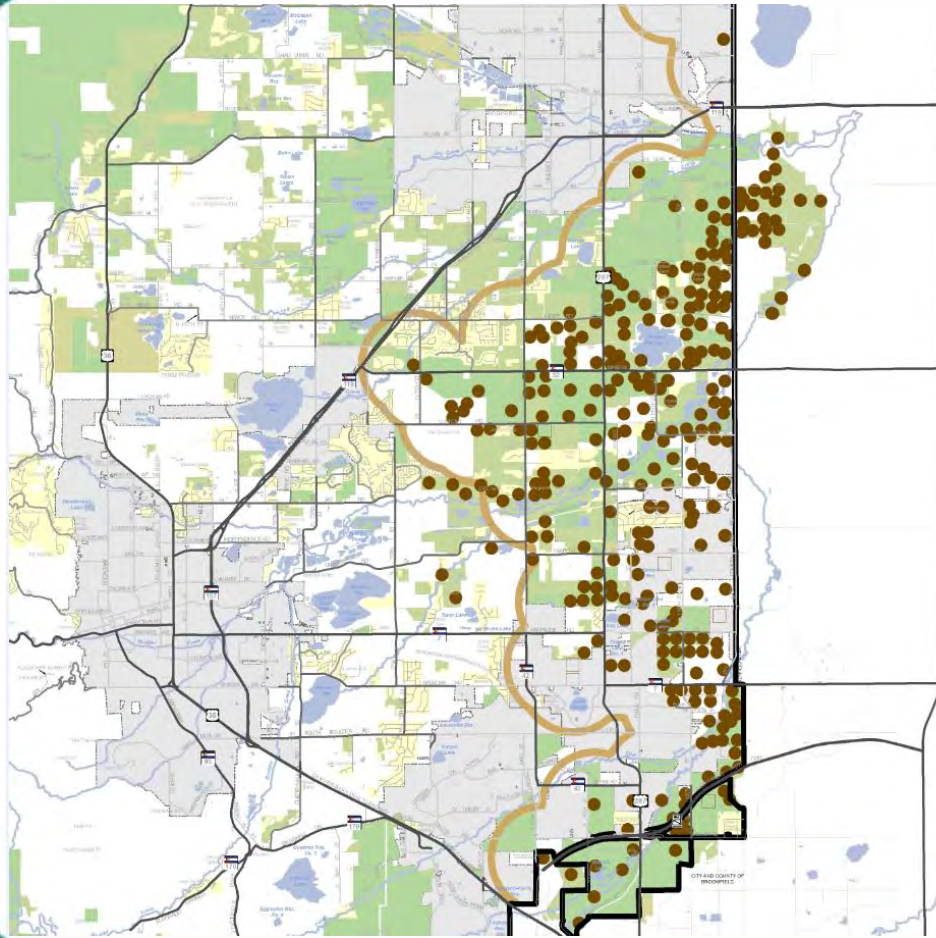


# External Efforts to Address Impacts of Oil and Gas Development

- New Air Quality Rules adopted by CO AQCC
- Colorado General Assembly Sessions – no legislation passed
- COGCC Rulemakings – nothing significant came out of these rulemakings to address local impacts
  - ✓ Complainant
  - ✓ Floodplain
  - ✓ Governor’s Task Force re: large-scale oil and gas facilities
- Statewide Ballot Initiatives – failed to make ballot

# CO Supreme Court Decisions

- Two CO Supreme Court decisions overturned efforts to limit hydraulic fracturing in May 2016
  - *City of Longmont v. Colo. Oil and Gas Ass'n* – fracking ban
  - *City of Fort Collins v. Colo. Oil and Gas Ass'n* – 5-year moratorium
- In light of these decisions, the BOCC voted to terminate the temporary moratorium through July 2018 and establish a new moratorium until November 18, 2016 to update regulations adopted in 2012
- Draft Regulations reflect direction given to staff by the BOCC in May



- Concerns with intensity of oil & gas development and trends for larger and consolidated facilities
- Concerns with impacts on community and environment
- Traditional zoning generally would separate industrial uses from residential areas
- Severed mineral estate

# Current Update

- **Purpose:**
  - To review the 2012 regulations and respond to additional information about impacts, changes in oil & gas drilling practices, the rulemakings at the State level, and the CO Supreme Court cases**
- **County's objective is to protect public health, safety, welfare, and the environment to the maximum extent permitted by law**
- **Reduce incompatibility and minimize potential land use conflicts between oil and gas operations and surrounding land uses**

# Proposed Regulations

- The proposed regulations employ our **local land use authority** to **protect** public health and the environment
- Close **scrutiny** of oil and gas development through Special Use Review
- Multiple opportunities for **public input** prior to any decision
- Consideration of **site-specific circumstances** related to each application
- Avoidance, Minimization, and **Mitigation Measures** customized to address specific circumstances
- Implementation of **conditions of approval**



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**DenverPetroleumClub**

@DenverPetroClub



"Scrutiny drives a better culture," Phil  
Mason, #GEOilGas #COGA2016

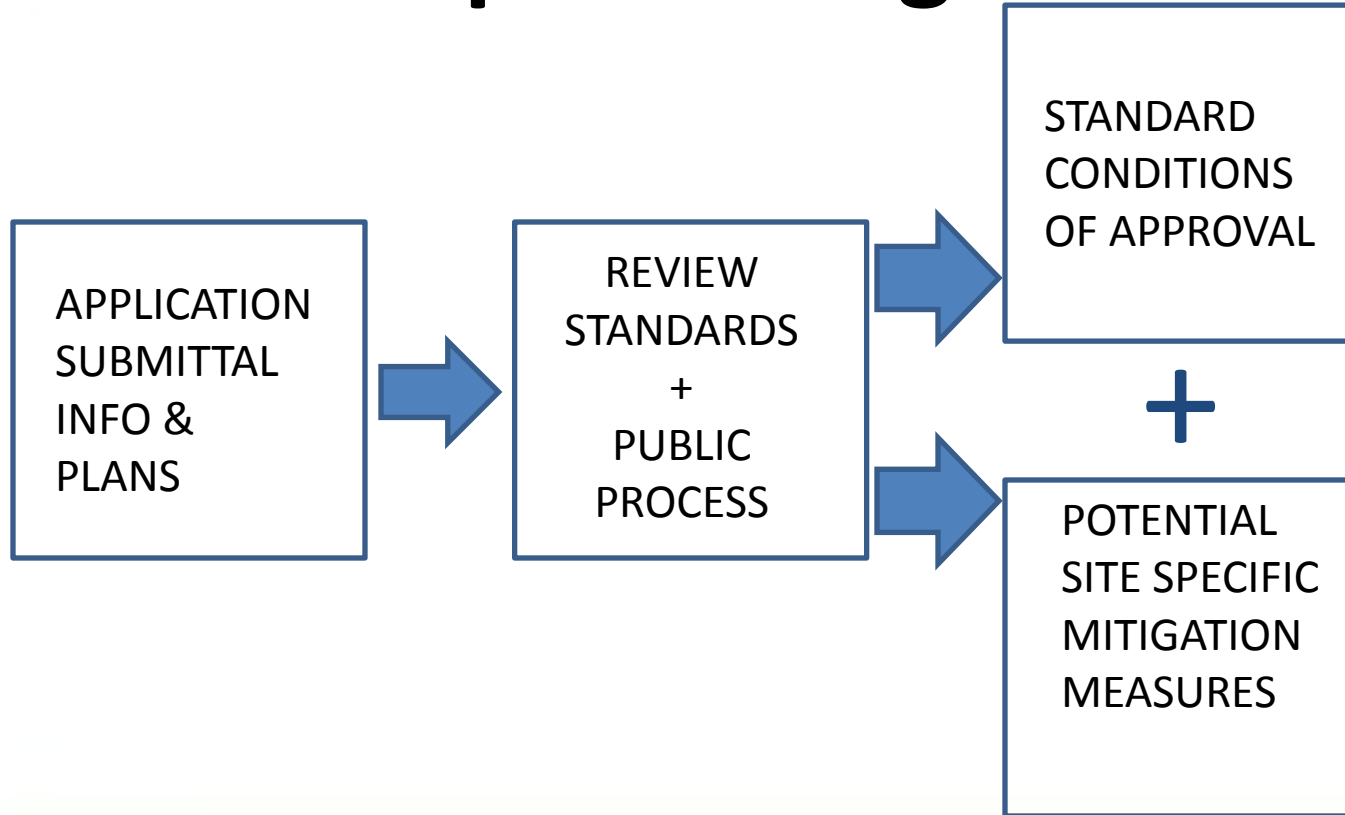


1:35 PM - 23 Aug 2016 from [Denver, CO](#)



Reply to @DenverPetroClub

# Proposed Regulations



# Application Submittal Requirements(12-500)

Applicants must submit detailed information on the proposal, including:

- Siting plan showing location of proposed wells and associated facility
- Plan showing existing structures within one (1) mile from the operation
- Map showing other wells and oil and gas operations within one (1) mile of the proposed site
- Analysis of at least three (3) alternative site locations
- Air quality plan
- Emergency preparedness and response plan
- Mitigation plans for impacts on agricultural land, land disturbance, cultural and historic resources, geologic hazard, natural resources, and scenic attributes and rural character
- Wetlands protection plan
- Operations Plan, including schedule and duration of time for phases of activity
- Surrounding land uses and potential impacts
- Transportation route and traffic plan
- Water Quality Plan
- Water supply and quantity needed for all phases of the operation
- Offsite transport plan for water and the retrieved resource, including options for both pipelines and vehicles
- Site electrification information
- Waste disposal plan



# Review Process/Public Involvement (12-400)

- **Pre-application conference**, which may involve a site visit to begin to identify potential site-specific concerns
- **Neighborhood meeting** with adjacent and surrounding landowners and other interested parties
  - Must occur at least 20 days after the pre-application conference + 14-day notice
  - An application cannot be submitted for 20 days following the neighborhood meeting and must include summary from meeting
- **Completeness determination** – 45 days
- **Notice to landowners and owners of water wells** and to **residents (physical address)** within ½-mile prior to application submittal and again before drilling commencement
- Public notice **signage**
- **Referrals** to county departments, fire district, County Sheriff, adjacent municipalities, school district and any necessary technical consultants
- **Planning Commission** and **Board of County Commissioners public hearings**
- If the proposed well is on or near county open space, **Parks and Open Space Advisory Committee (POSAC) review** may be required

# Review Standards (12-600)

16 special review standards to evaluate the impacts and of the proposed operation and minimize potential land use conflicts:

- Adequate water supply
- Agricultural land
- Air Quality
- Cultural and Historic resources
- Emergency Prevention and Response
- Floodplains and Floodways
- Geologic Hazard Areas
- Land disturbance
- Natural Resources
- Pipelines (Art. 4-514.E) and tandem application and review for new or modified pipelines
- Recreational Activity
- Scenic Attributes and Rural Character
- Surrounding Land Uses
- Transportation, Roads, and Access
- Water quality
- Wetlands Protection

# Conditions of Approval (12-700)

Board of County Commissioners may impose specific conditions of approval to ensure compliance with the review standards:

- Anchoring
- Applications and permits
- Certification of compliance with State and/or County air quality requirements
- Color
- Secure discharge valves
- Dust Suppression and Fugitive Dust
- Emergency Preparedness Plan – updated annually
- Exhaust venting
- Flammable material
- Flare and combustion devices design and operation
- Hydrocarbon Emissions Leak Detection & Repair (LDAR) program / prompt repair of leaks
- Lighting
- Maintenance of a daily log
- Maintenance of machinery
- Noise – compliance with State levels
- Notice 30 days prior to commencement of drilling
- Performance guarantee / letter of credit
- Interim and final Reclamation procedures required by COGCC
- Removal of debris
- Removal of equipment within 30 days of completion of work
- Representations
- Spills and leak reporting and clean-up
- Stormwater control
- Temporary Access Roads reclamation / revegetation
- Transportation Fees
- Transportation Infrastructure improvements / costs
- Transportation Permits
- Baseline Vegetation analysis
- Vehicle Tracking Control practices
- Water Quality
- Weed Control
- Well Abandonment

# Potential Site Specific Mitigation Measures (12-701)

## Application of potential mitigation measures:

- Air Quality / Hydrocarbon emissions control measures
  - Electrification from the power grid or from renewable sources
  - Environmentally sensitive and efficient production techniques
  - Hydrocarbon destruction or control efficiency of 98% or better
  - Closed loop pitless systems.
  - A leak detection and repair program using modern leak detection technologies such as infra-red cameras for equipment used on the well site
  - Continuous ambient air quality monitoring to measure hydrocarbon emissions and meteorological data
- Water Quality Monitoring and Well Testing
- Location, number of wells, pad dimensions
- Disruption payments to surrounding occupants of residential structures who are affected by drilling activities
- Use of shared infrastructure
- Visual buffering / natural screening and maintenance of existing vegetation
- Buried or low profile tanks
- Remote monitoring

| Year                  | # Facilities Visited with IR Camera | # Facilities Found to Have a Leak or Venting Identified | Percentage with Leak or Venting Identified | Average Time Span For Repair    |
|-----------------------|-------------------------------------|---|--|---------------------------------|
| 2014                  | 128                                 | 53  | 41%  | 31 days                         |
| 2015                  | 75                                  | 33  | 44%  | 13 days                         |
| 2016 (through August) | 56                                  | 26  | 46%  | 18 days                         |
| <b>Totals</b>         | <b>259</b>                          | <b>112</b>  | <b>43%</b>                                 | <b>20 days (3 year average)</b> |

| # Repair Confirmation Visits | Issues Unresolved | Issue Resolved | New Leak Identified | Percentage With New Leak Identified |
|------------------------------|-------------------|----------------|---------------------|-------------------------------------|
| 44                           | 3                 | 41             | 12                  | 27%                                 |

| # Sites Visited in Multiple Years | # Sites Where a Leak is Detected in Multiple Years | % of Sites with Leaks Detected in Multiple Years |
|-----------------------------------|--|--|
| 97                                | 19   | 19%  |

- Leak Detection and Repair (LDAR)
- Certification, monitoring, and inspection

| Release Location Data | Tank      | Separator | Wellhead  | ECD      | Pipeline | Flowline |
|-----------------------|-----------|-----------|-----------|----------|----------|----------|
| 2014                  | 18        | 22        | 24        | 0        | 3        | 1        |
| 2015                  | 18        | 13        | 10        | 3        | 1        | 0        |
| 2016 (through August) | 12        | 10        | 7         | 5        | 0        | 0        |
| <b>Totals</b>         | <b>48</b> | <b>45</b> | <b>41</b> | <b>8</b> | <b>4</b> | <b>1</b> |

# Oil and Gas Pipelines (4-514.E)

- Oil and gas pipelines also require Special Review:
  - Gathering lines and flow lines that are part of new oil and gas development and are included in the Special Review for the proposed facility
    - Pipelines that are proposed offsite require a separate Special Review application that must be processed in tandem with the facility
      - Pipeline approval is conditioned upon approval of the oil and gas operation
- Additional Provisions for pipelines:
  - New requirements for the siting of pipelines, including minimum distances (50 ft.) from buildings and places of public assembly
  - LDAR requirements for lines within 150 ft. of general residential, commercial, and industrial buildings or the high water mark of any surface body
  - Requirements to minimize disturbance, share existing rights-of-way, and consolidate new corridors

# Water Pipelines (4-514.K and J)

New water and wastewater transmission lines or pipelines require review:

- Special Review = Permanent water and wastewater transmission lines
- Limited Impact Special Review = Temporary above-ground pipelines

# Compliance (12-700), Right to Enter (12-900), and Enforcement (12-1000)

- Certification and reporting throughout the oil and gas development process are required
- Any site under an approved Special Review may be inspected by the County, in coordination with the operator, at any time to ensure compliance with the requirements
- The Director may issue a written order to the operator suspending the Special Use and all activity allowed if there are violations
- Director shall provide written notice to the Applicant describing the violation, and stating a reasonable time within which the violation must be corrected



# Substantial Modification (12-300.B)

- ✓ Substantial modification requires Art. 12 special review
- ✓ Additional guidance/criteria includes – substantial modification if:
  - Adding one or more new wells on an existing pad
  - Altering the nature, character, or extent of the land use impacts of the special review approval
  - Resulting in an increase in hydrocarbon emissions
  - Refracking of an existing well
- Not a substantial modification if results in a net decrease in hydrocarbon emissions or other net mitigation of existing or potential impacts

# Water & Waste Disposal/Injection Wells

- In response to concerns about disposal of waste and wastewater, as well as concern for earthquakes, injection wells are now proposed to be prohibited in all zoning districts not only GI zoning
- Disposal plans for wastewater and other projected waste from the site are required

# Financial Solvency, Bonds, and Performance Guarantees

- Planning Commission asked staff to continue examining this area
- Staff talked to Industry representatives and COGCC, researched the COGCC Rules, and looked at examples of what individual companies post for bonds
- Requirements in Section 12-700.Q for letters of credit or other financial guarantees

# Planning Commission Recommendation

The Planning Commission heard this docket on October 12 and October 27.

PC voted (9-0) to:

- a) Approve and recommend approval of the proposed regulations (Docket DC-16-0004) to the Board of County Commissioners with the edits and comments provided at the October 27, 2016 public meeting, along with an additional focus on creating a robust baseline testing and a monitoring program of air, water, and soils, and how to fund inspections and monitoring at the county level; and
- b) Recommend that the Board of County Commissioners continue with a multi-pronged approach to addressing oil and gas development and consider a temporary moratorium on the processing of the required development plans for local oil and gas permits, for a period of time less than 5 years, to craft additional regulations based on new and recently published studies.

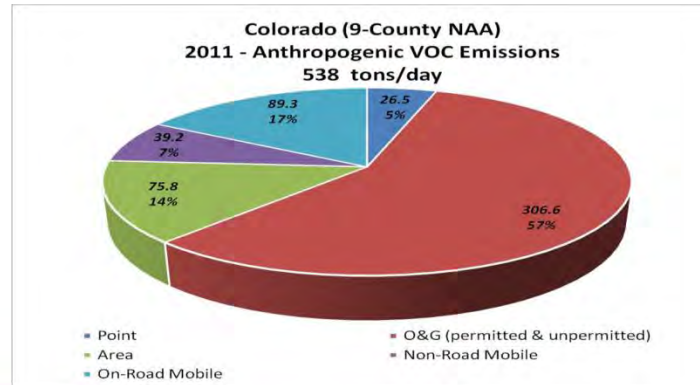
# Planning Commission Recommendation

*A) Approve and recommend approval of the proposed regulations (Docket DC-16-0004) to the Board of County Commissioners with the edits and comments provided at the October 27, 2016 public meeting, along with an additional focus on creating a robust baseline testing and a monitoring program of air, water, and soils, and how to fund inspections and monitoring at the county level*

# Ozone

Boulder County has exceeded federal health standards for ozone for years

- 2004 Early Action Compact (failed to attain)
- 2008 Ozone Action Plan SIP (failed to attain)
- 2016 Moderate Nonattainment SIP



| Study  | Area of Study                                    | Performed By                                 | Year              | Status                   |
|--|--|--|-------------------|--------------------------|
| <b>Boulder County Air Quality Monitoring Study</b>             | Air Quality and Monitoring Techniques            | University of Colorado (CU)                  | 2015              | Complete                 |
| <b>Study of Hydraulic Fracturing on Drinking Water</b>         | Hydraulic Fracturing and Drinking Water          | U.S. EPA                                     | 2016              | Draft                    |
| <b>Garfield County Gas Emissions Study</b>                     | Oil & Gas Air Emissions                          | Colorado State University (CSU)              | 2016              | Complete                 |
| <b>North Front Range Oil and Gas Emissions Study</b>           | Oil & Gas Air Emissions                          | CSU, CDPHE                                   | 2016              | Complete                 |
| <b>Air, Water, Gas- CU NSF Sustainability Research Network</b> | Air Quality, Water Quality, and Societal Impacts | CU   | 2017              | Initial studies complete |
| <b>Front Range Air Pollution and Photochemistry Experiment</b> | Air Emissions                                    | CDPHE, CU, CSU, UC Berkley, NASA, NOAA, NCAR | 2017<br>Projected | Data collection complete |
| <b>Platteville Monitoring</b>                                  | Air Emissions                                    | CDPHE  | Ongoing           |                          |

# Studies Needed

- Health risk screening analysis (underway)
  - Approved methodology assessing the increased cancer risk from the emissions data collected in the 2016 North Front Range Oil and Gas Emission Study
  - Due June 2018
- Ambient Baseline Air Monitoring (proposed)
  - One year study
  - Analyze volatile organic compounds to identify the source
  - House with State Ozone monitor at Boulder Reservoir



# Planning Commission

## Moratorium Recommendation

*B) Recommend that the Board of County Commissioners continue with a multi-pronged approach to addressing oil and gas development and consider a temporary moratorium on the processing of the required development plans for local oil and gas permits, for a period of time less than 5 years, to craft additional regulations based on new and recently published studies.*

# PC-Referenced Studies

- 2016 study published in the *Journal of Exposure Science and Environmental Epidemiology*, in which scientists concluded that 157 chemicals commonly contained in fracking fluids and wastewater are toxic
- September 2016 issue of *Endocrinology*, which found that prenatal mice exposed to fracking fluids experienced a variety of adverse health effects
- Study scheduled to appear in *Environmental Health Perspectives*, which concluded that an association exists between fracking and nasal and sinus symptoms, migraine headaches, and fatigue

# ***Longmont and Fort Collins Cases***

- Colorado Supreme Court decided two cases in May of 2016 that invalidated:
  - A Longmont ordinance that banned fracking
  - A Fort Collins ordinance placing a five year moratorium on fracking
- Court determined that local jurisdictions cannot ban fracking or enact a lengthy fracking moratorium
- Basis of both decisions was State preemption
- Longmont's safety argument
- Longmont's inalienable rights argument
- Moratorium of the nature and duration recommended by the PC unlikely to withstand a legal challenge
- The legal constraints on adopting local bans and moratoria do not prevent local governments from taking other actions that address public health and environmental concerns arising from oil and gas development

# Public Comments

441 comments were emailed to [oilgascomment@bouldercounty.org](mailto:oilgascomment@bouldercounty.org)

All comments are posted on the County's Oil and Gas website:  
<http://www.bouldercounty.org/dept/landuse/pages/oilgas.aspx>

There are three links on that page:

- 1) Public comments received Sept. 27 – Oct. 12
- 2) Public comments received Oct. 13 to Oct. 31
- 3) Public comments received Nov. 1 to present

# Recommendation

- Following today's staff presentation and public testimony, staff requests that the BOCC discuss the Draft Regulations and provide direction to staff
- On November 17, final action from BOCC

Staff finds that proposed Land Use Code amendments meet the criteria in Art. 16-100 of the Land Use Code in that:

1. *the existing text is in need of the amendment;*
2. *the amendment is not contrary to the intent and purpose of this Code;*
3. *the amendment is in accordance with the BCCP*

- Staff recommends that the Board of County Commissioners **approve Docket DC-16-0004 Amendments to Oil and Gas Development Regulations**

