



Oil and Gas Development: Land Use Considerations

RMLUI March 12, 2015

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Director, Community Development Department

Activity within Greeley city limits

● Working numbers

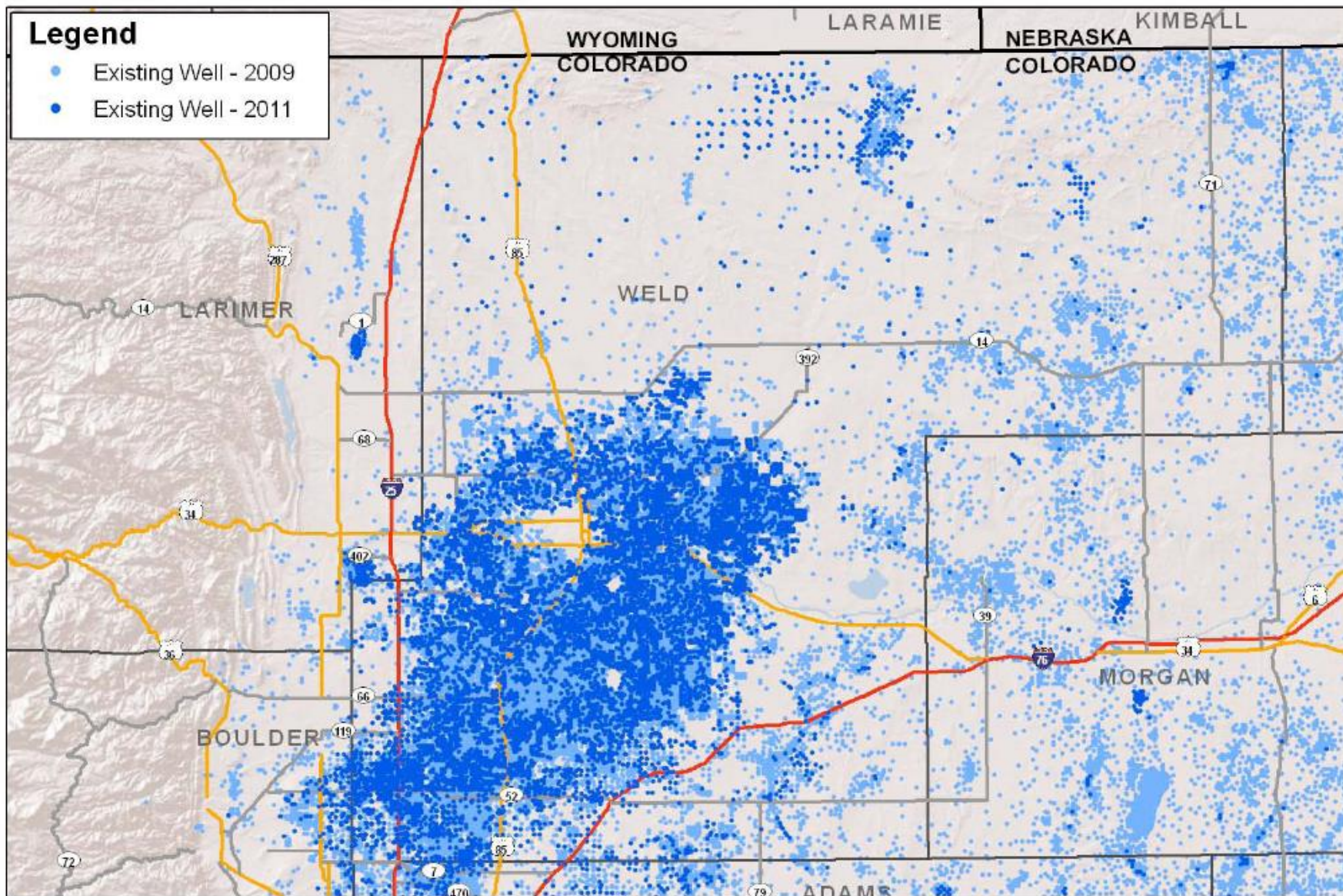
- 435 active wells (approx.)
 - All require Use by Special Review
 - Equals about 800 ac (1.3 sq miles) surface (2.7%)
- 1,221 within city + Growth Area
- 259 inactive wells
 - Includes 161 abandoned & 55 plugged/abandoned

● Generally clustered – multiple wells at each site

- 6 urbanized areas (i.e., not “everywhere”)

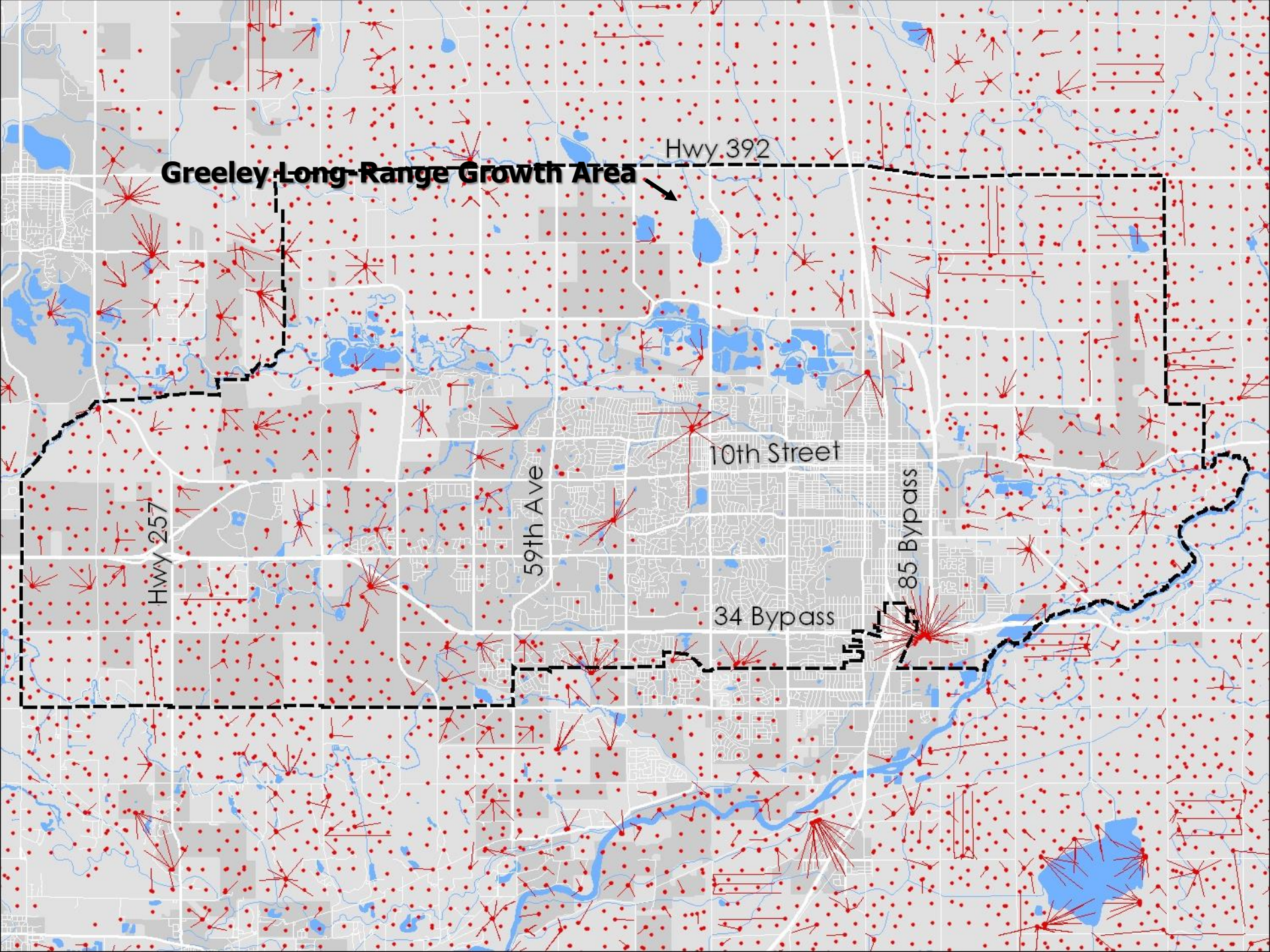
Legend

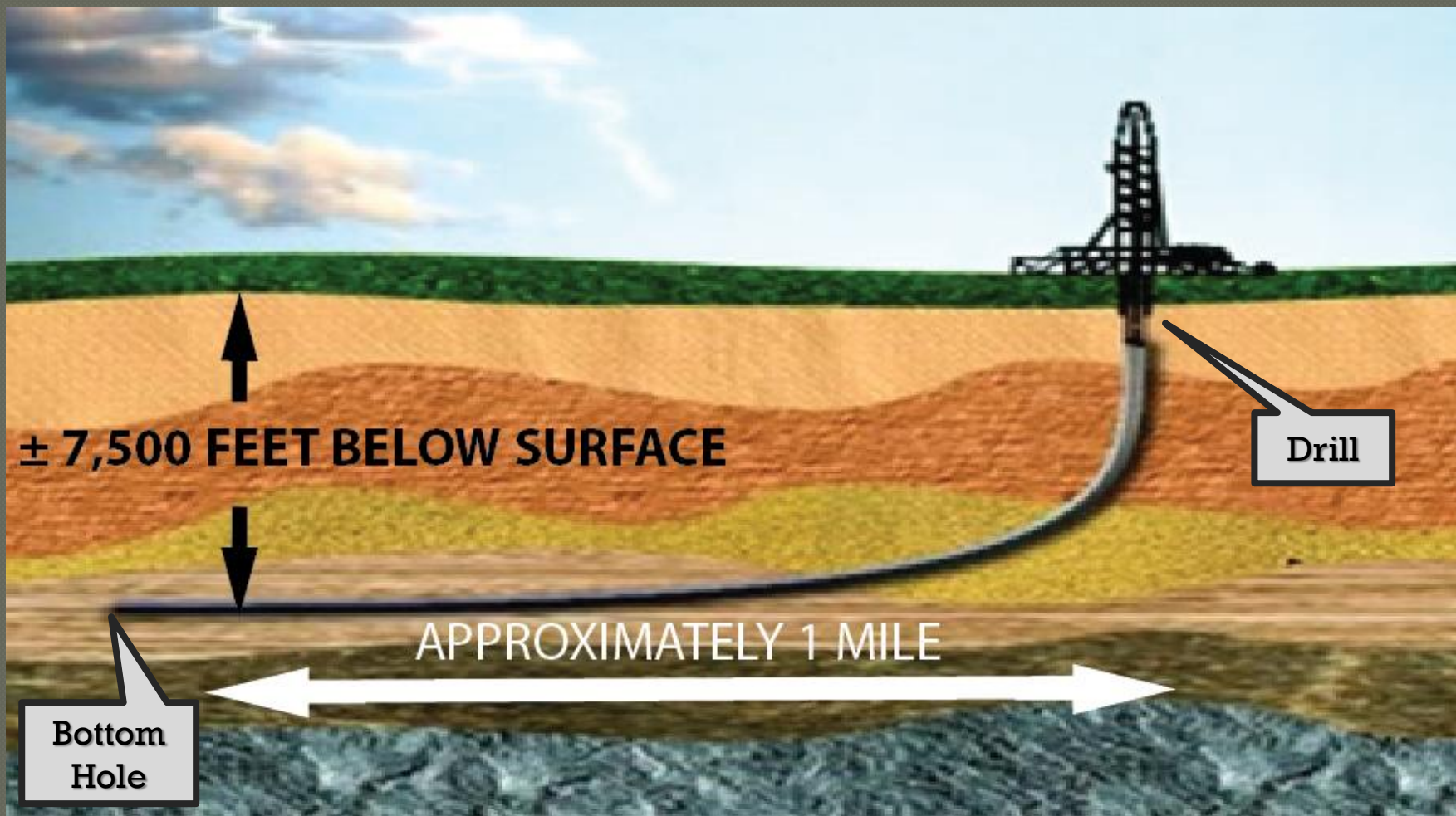
- Existing Well - 2009
- Existing Well - 2011



COGCC Oil & Gas Wells (Jan 11th, 2011)







Typical Equipment



Typical
Tanks



Typical
Separators



Typical
Wellheads

Context

● Land use process






- Trained for all types of land use scenarios
- Regulations start with the general, go to specific
- Zoning, subdivision, site planning

● Transparency & public education process

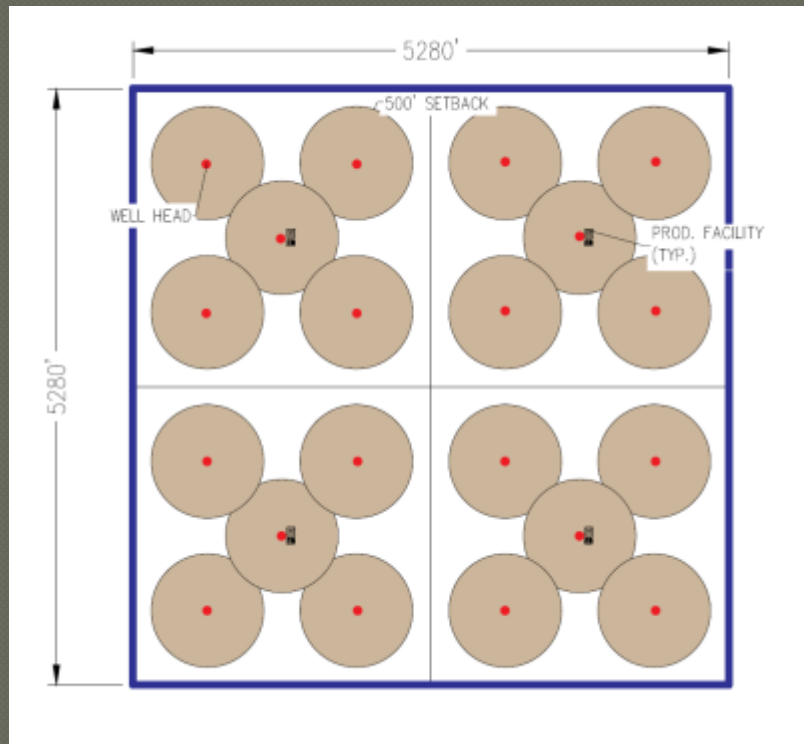
- Oil and gas mineral extraction process
 - Resource page on website
 - www.greeleygov.com/oilandgas

Jurisdictional Considerations

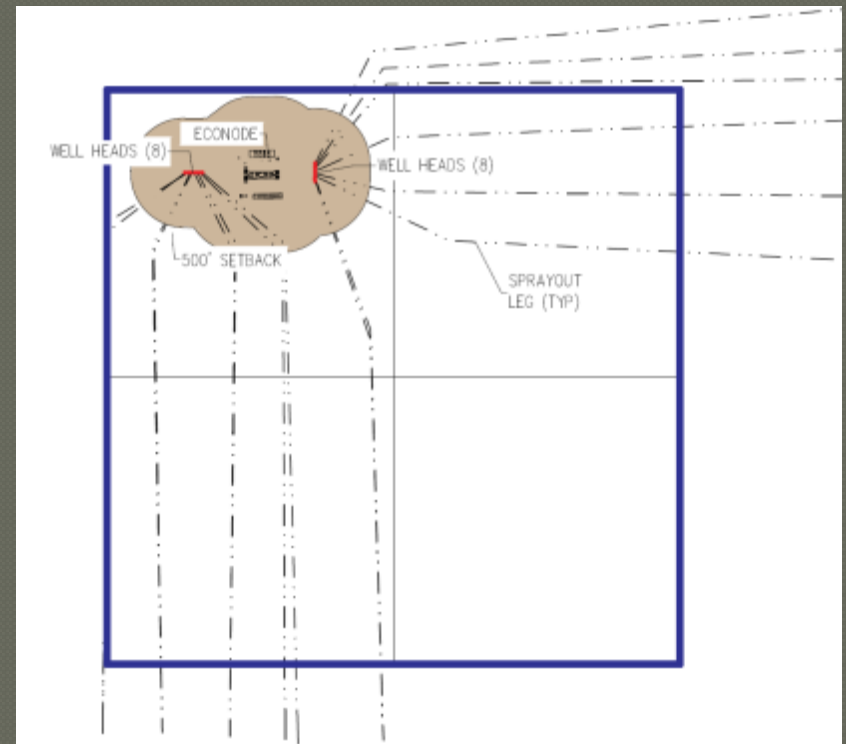
- Mineral extraction is exercising a private property right
- Mineral rights may or may not be severed from the surface property right
- Operations are regulated by the state
- Basic land & surface regulation is relegated to local government
- Handled in context of broader land use controls

Access Road	
Flow Line	
Tank Battery	
Existing Well	
Proposed Well	

Vertical vs. directional in a section of land



Vertical
Wells



Directional
Wells

RMC ROCKY MOUNTAIN CONSULTANTS INC.
800 DELAWARE AVE., SUITE 800, DENVER, CO 80202
(303) 733-6262 (800) 670-6666 FAX (303) 733-6262

EAGLE VALLEY
REPLAY A
FOR: MELODY HOMES, INC. JOB NO. 83-0008.022-09

25

2 OF 3



ORIGIN - Property Information Map

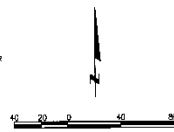
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LEGEND

--- PROPERTY LINE
--- TRUCK
--- EXISTING OVERHEAD POWER
--- EXISTING SANITARY SEWER
--- PROPOSED ACCESS ROAD
--- PROPOSED WELL



BUFFER YARD REQUIREMENTS

DESCRIPTION	BUFFER TYPE	LANDSCAPING BASE STANDARD	BUFFER WIDTH	BUFFER LENGTH	PLANT MULTIPLIER	LANDSCAPING REQUIRED	LANDSCAPING PROVIDED**
WEST PROPERTY LINE (ALONG 11TH AVENUE)	BUFFER TYPE C	3 SHADE TREES 2 ORNAMENTAL TREES/TREE 3 SHRUBS 3 EVERGREEN TREES 6 TYPE 2 SHRUBS 8 TYPE 1 SHRUBS	40 FEET	350 FEET	0.60	1 SHADE TREES 5 ORNAMENTAL TREES/TREE 3 SHRUBS 3 EVERGREEN TREES 13 TYPE 2 SHRUBS 16 TYPE 1 SHRUBS	0 SHADE TREES 3 ORNAMENTAL TREES/TREE 3 SHRUBS 3 EVERGREEN TREES 13 TYPE 2 SHRUBS 16 TYPE 1 SHRUBS

**MEETS THE SCREENING INTENT OF THE REQUIRED BUFFER WARD.

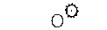
PLANTING LEGEND

PROPOSED TREES



PLANT CODE. SEE SCHEDULE FOR GENUS, SPECIES AND QUANTITY.

PROPOSED SHRUBS



PLANT CODE. SEE SCHEDULE FOR GENUS, SPECIES AND QUANTITY.

NATIVE SEED



SEE SEEDING NOTES

PLANT SCHEDULE

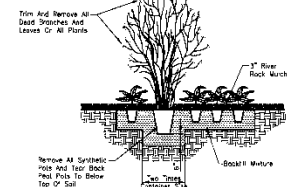
CODE	SPECIES	COMMON NAME	SIZE	QUANTITY
DE-001	DECIDUOUS TREES			
PI	PIEDMONT PINE	AUSTRIAN PINE	6'	13
PP	PICEA PARVENSIS	COLORADO SPRUCE	6'	10
OR-001	ORNAMENTAL TREES			
OR	ORNAMENTAL TREES	RUSSIAN HANDBOOK	1-1/2" CALIBER	5
EV-001	EVERGREEN TREES			
JU	JUNIPERUS SPARTANAE	BROADLEAF JUNIPER	5 GALLON	10
SH-001	SHRUBS			
SH	SHRUBS	SNOW CHERRY	5 GALLON	13

LANDSCAPE NOTES

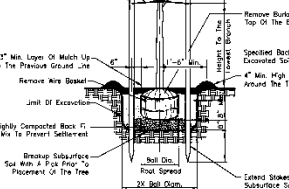
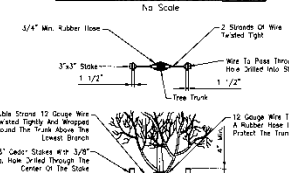
1. ALL LANDSCAPING MUST BE IRRIGATED FOR 2 YEARS OR UNTIL LANDSCAPING BECOMES ESTABLISHED.
2. NO PLANT MATERIAL WITH MATURE GROWTH GREATER THAN THREE (3) FEET IN HEIGHT SHALL BE PLANTED WITHIN POTABLE WATER, SANITARY SEWER, OR NON-POTABLE IRRIGATION EXISTENCE.
3. NO SHRUBS SHALL BE PLANTED WITHIN FIVE (5) FEET OR TREES WITHIN TEN (10) FEET OF A POTABLE AND NON-POTABLE WATER MAINS, FIRE HYDRANTS, SANITARY SEWER MAINS, OR POTABLE WATER, SANITARY SEWER, AND NON-POTABLE IRRIGATION MAINS AND SERVICES.
4. TREES SHALL BE BALLED AND BURLAPPED.

SEEDING NOTES

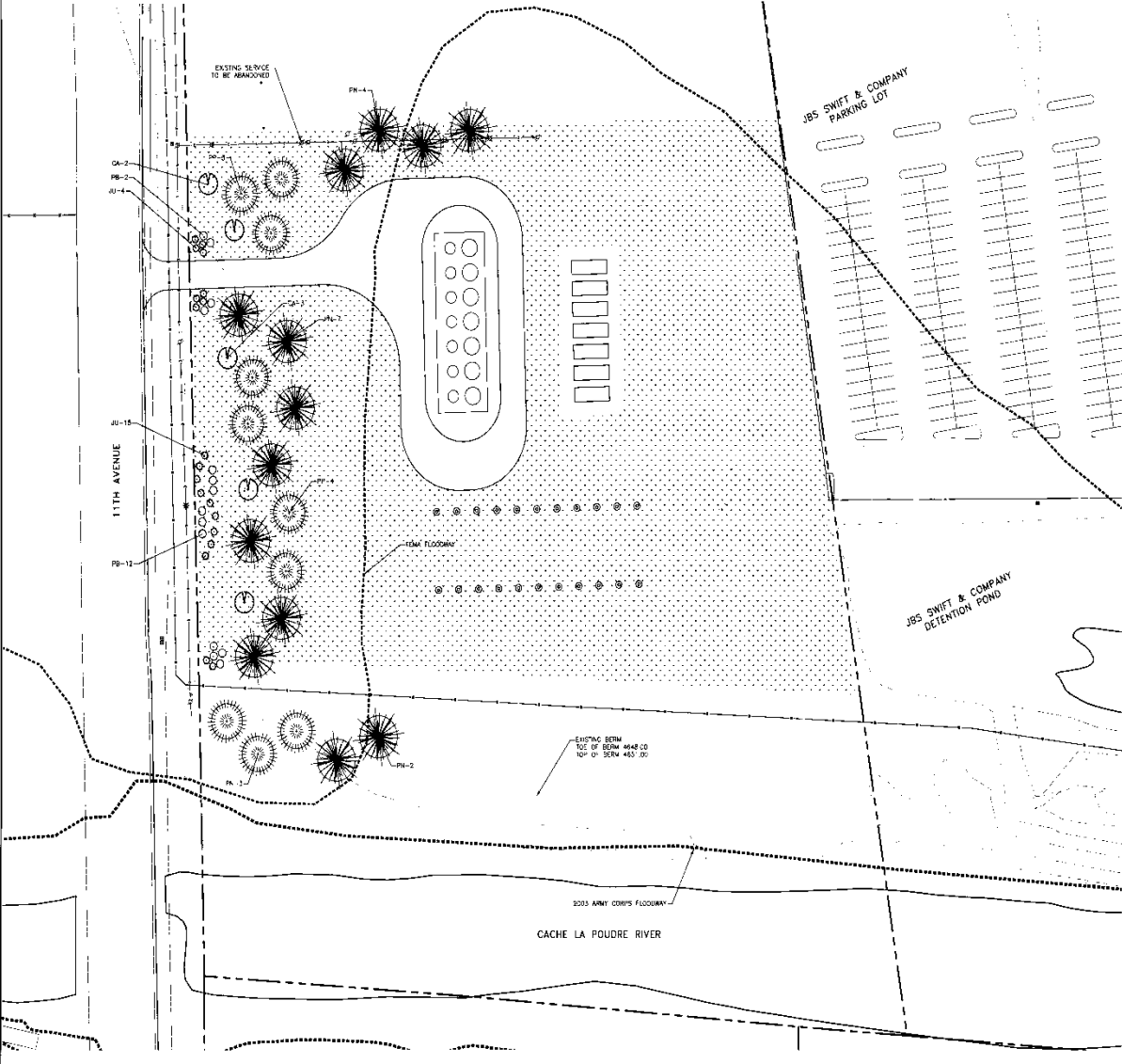
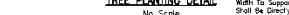
1. NATIVE SEEDING SHALL BE "LOW GROW MIX" AS SPECIFIED IN TABLE 14.1.3.0(1) OF SECTION 4 "VEGETATION AND IRRIGATION" IN THE CITY OF GREELEY'S STORM DRAINAGE DETENTION AND CONSTRUCTION SPECIFICATIONS.



SHRUB & GROUND COVER PLANTING DETAIL



TREE PLANTING DETAIL



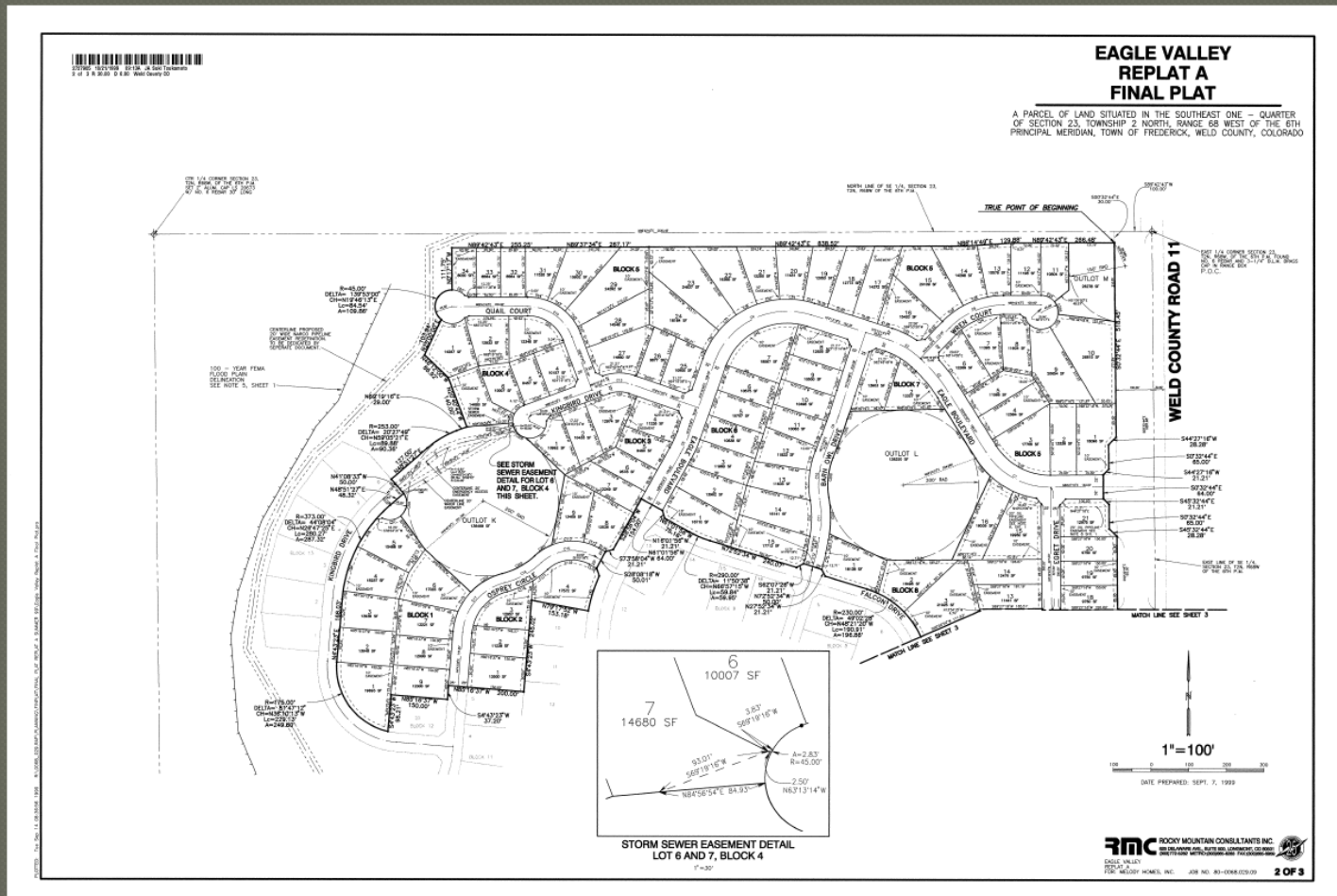
Before vs. After Other Development

- Colorado law sets rules for downhole spacing of wells
- Surface locations are different if drilling comes before vs. after surface development
- Spacing can change with a mutual Surface Use Agreement
- If drilling (or potential drilling) comes BEFORE development, then
 - Subdivision plats accommodate drilling windows (or Surface Use Agreement)
 - Or, if no objection from mineral owners, plat as desired

Before vs. After Other Development

- Notice must be provided to mineral owners at least 30 days prior to platting/surface development decisions (i.e., zoning, preliminary plan, USR)
- This was a key addition to state law to ensure mineral owners are notified of surface plans

Example of a subdivision plat designed around oil/gas well locations (example is not in Greeley)



Before vs. After Other Development

- If drilling comes AFTER surface development in the area, then
 - Drilling facility must meet 500' setback (set by the State), OR per variance criteria set by State statutes
 - Some other setback might be allowed by local regulations

Before vs. After Other Development

● Greeley oil & gas setbacks

- 150' from roads, trails, railroads, and “low-density areas”
- 200' from occupied buildings (“high-density”)
- 350' from educational, hospital, etc. (“high-density”)
- Option for less (blast wall, etc.)

350' Exception Zone



OIL & GAS CONSERVATION COMMISSION

Development Code Criteria

- ◉ Chapter 18.56, Oil & Gas Operations
- ◉ USR §18.20.070
 - Comp Plan
 - Compatible with surrounding land uses
 - Site physically suitable
 - Traffic flow/parking
 - Cumulative effect of USRs in area

SCREENING PLAN

School Property Line

chool

New Evergreen
Trees

New Trees in
Open Space

New Street
Trees

Site

66th Ave

West 4th St









Common Questions

- Fracking impact on water quality
- Quantity of water used in fracking
- Disposal of fracking waste water
- Composition/environmental aspects of drilling fluids
- Forced 'pooling' arrangements
- Noise, traffic, air quality for adjacent properties
- Sub-surface degradation/impact on surface uses

State Interests

- ◉ State setbacks
- ◉ Other COGCC considerations:
 - Mitigation of impacts
 - Downhole monitoring
 - Coordination with state/fed (water/air)
 - Surface monitoring (drill setup, noise)
 - Chemical tracking/records management

City Interests

- ◉ Local control on matters that are not state interest
 - Colorado Supreme Court ruling in 1992
 - Traditional function of local land use control
- ◉ Matters of State interest vs. matters of Local
 - Not always easy to discern
 - A matter of administration
 - The Grey Area: “creating operational conflicts”

MOU Clauses

- Working with mutual understanding & trust (through an MOU) creates better outcome
- Commitment to communication & coordination
- Recognize respective authorities
 - Of city: local land use code, including design & development standards
 - “Harmonize” such regulations
 - COGCC will defer to City, where existing plans

Land Use Considerations

- Effects & opportunities from directional / horizontal
- “Leap-frog” concerns
 - Doubling setbacks (4.5 ac → 18 ac)
 - Conceptually, if no development within 500' of existing wells, 1/3 of future would be unbuildable



ORIGIN - Property Information Map

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350' Exception Zone



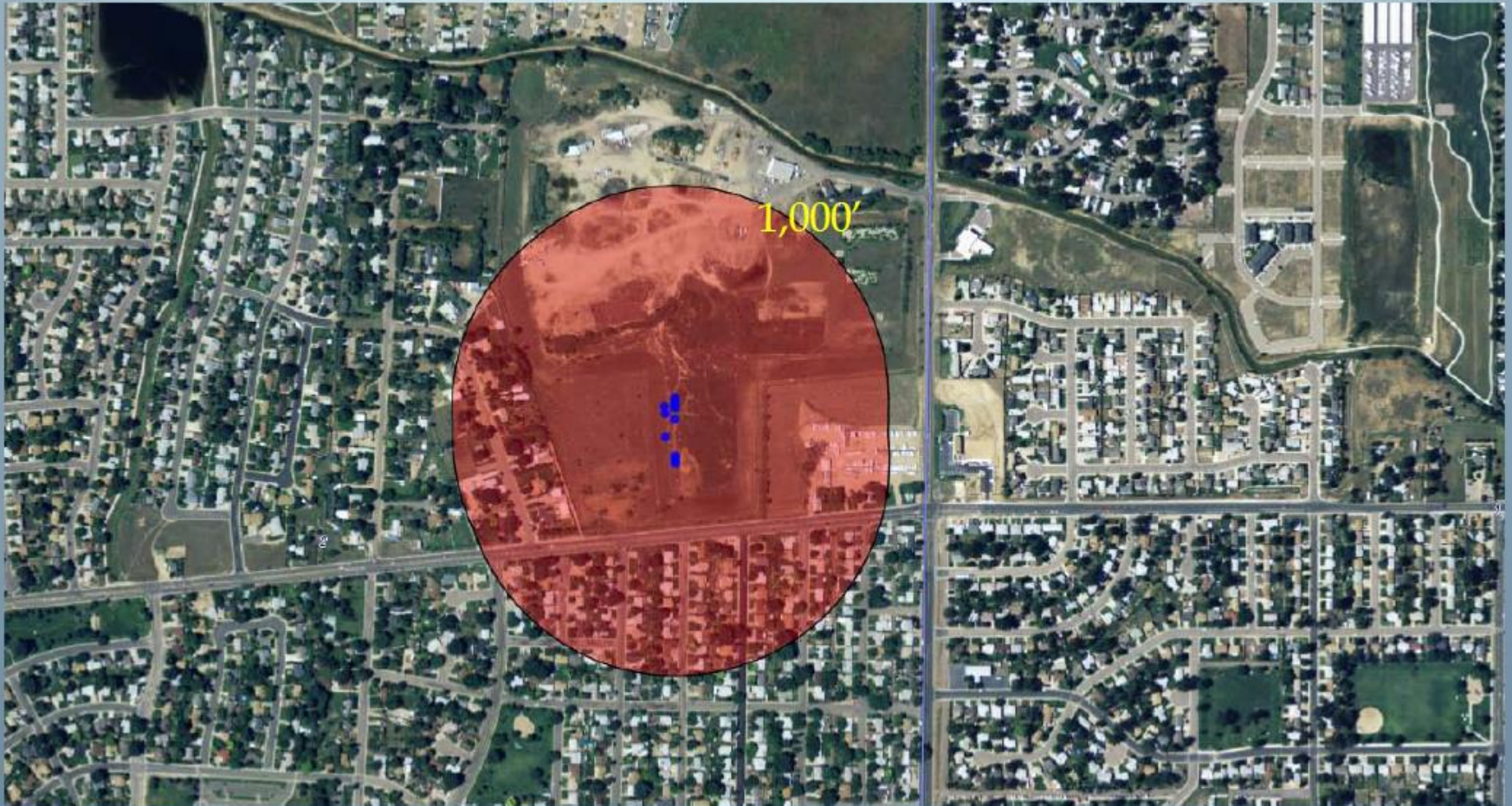
OIL & GAS CONSERVATION COMMISSION

500' Zone



OIL & GAS CONSERVATION COMMISSION

1,000' Zone



OIL & GAS CONSERVATION COMMISSION

Theoretical land use impacts

- 500' radius (1000' diameter) = 18 acres
- 2000' radius (4000' diameter) = 288 acres

DATA SPECIFICS

Buffer Impact Area for active** well locations within the Greeley City limits

Buffer Distance	Acres	Sq. Mi.	% of City (47.25 sq. mi.)
Existing City (200')	828	1.3	2.7%
Proposed COGCC (500')	4,738	7.4	15.7%
Proposed COGCC (1000')	11,668	18.2	38.6%

* Active wells are those with status codes for permitted, drilling, shut-in, and producing

** See attached map for visual representation

- Buffer Impact Area for active** well locations within the Greeley Future Growth Area – i.e., the Long Range Expected Growth Area (includes existing built City limits)

Buffer Distance	Acres	Sq. Mi.	% of LREGA (91.1 sq. mi.)
Existing City (200')	2,540	4.0	4.4%
Proposed COGCC (500')	14,923	23.3	25.6%
Proposed COGCC (1000')	36,157	56.5	62.0%

** Active wells are those with status codes for permitted, drilling, injecting, shut-in, and producing

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Questions?

