

# GAS DRILLING PROGRAM REPORT

An aerial photograph of a gas drilling site. A tall, lattice-structured derrick stands in the center. Surrounding it are several white trailers, some with vehicles parked nearby. A chain-link fence runs across the middle ground. The background shows a wooded area with trees and a body of water in the distance under a cloudy sky.

PREPARED BY THE PLANNING  
AND ZONING COMMISSION:

VICTOR VANDERGRIF, CHAIR  
CONNIE RUFF  
EDWARD GUTIERREZ  
MICHAEL FORBES  
ANDREW PIEL  
JEFFREY POKRIFCSAK  
CHARLA HAWKES-VINYARD  
KEVIN MCGLAUN  
BRANDON HILL

JUNE 22, 2010

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## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>BACKGROUND TO CITY COUNCIL DIRECTIVE TO P&amp;Z COMMISSION .....</b>	<b>5</b>
<b>ECONOMIC IMPACT OF GAS DRILLING PROGRAM FOR THE CITY.....</b>	<b>5</b>
<u>Mineral Owner</u> .....	5
<u>Taxing Entity</u> .....	6
<u>City's Financial Interest - Final Observations</u> .....	7
<u>Financial Interest of the Average Citizen of Arlington</u> .....	7
<b>CITY COUNCIL AND CITIZEN CONCERNS RAISED ABOUT URBAN DRILLING ACTIVITIES.....</b>	<b>8</b>
<b>ARLINGTON'S DEVELOPMENT HISTORY .....</b>	<b>10</b>
<b>CITY COUNCIL CHARGE TO THE PLANNING AND ZONING COMMISSION .....</b>	<b>12</b>
<b>PROCESS INPUT AND CONTEXTUAL INFORMATION .....</b>	<b>15</b>
<b>GAS DRILLING PROCESS .....</b>	<b>18</b>
<u>Notifications</u> .....	18
<u>Setback and Petitions</u> .....	20
<u>SUP Time Periods</u> .....	22
<u>Platting and Site Boundaries</u> .....	25
<b>GAS DRILLING SITE CONDITION .....</b>	<b>27</b>
<u>Fracing and Flowback</u> .....	27
<u>Landscaping and Fencing</u> .....	29
<b>GAS DRILLING OPERATIONS.....</b>	<b>33</b>
<u>Road Damage and Transportation</u> .....	33
<u>Bonding</u> .....	35
<b>APPENDIX.....</b>	<b>37</b>
<b>MUNICIPAL COMPARISON TABLE.....</b>	<b>119</b>

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## EXECUTIVE SUMMARY

As the board responsible for making recommendations to the City Council, we have worked diligently to review plans, policies, and programs addressing gas drilling aspects in the city since receiving Council's directive. This report is a culmination of that effort and addresses not only the items initially charged to the Planning and Zoning Commission (P&Z), but includes short identifying statements about City Council's expanded directive. This expanded directive provides P&Z a receptive opportunity to further examine the City of Arlington's gas drilling program. These additional items in the expanded directive should be addressed by P&Z and reported to Council by the end of this summer as a second phase of this report. Before commencing on that phase, however, P&Z is presenting its findings in this report to City Council.

The findings in this report conclude the months of discussion and deliberation by P&Z and emphasize differences or agreements for those issues first charged by Council. The issues investigated during this initial process are included below with a summary of the closing highlights also provided for each topic.

- Notifications for Gas Drilling use SUPs and gas well permits
  - similar distances for both stages, 600 feet is the current distance for gas well permits
- Setback distances for gas wells and petition processes for zoning and permitting
  - setbacks addressed during the zoning stage to identify the entire area planned for well head locations and what requirements should be in place to process reduction requests
- SUP time periods
  - a time restriction may allow more orderly development in Arlington because the industrial component of gas drilling is greatly reduced once the site is in operation
- Platting requirements and site boundary concerns
  - the City shall issue no permits for any construction activity or allow any public improvements for a development until a plat is approved and filed of record, but currently gas drilling development is not included under this stipulation
- Well fracing and gas flowback stages of drilling
  - use of fracing alternatives could be increased and promoted to reduce frac pond numbers and acreage and pond designs would be connected to a tiered system
- Landscaping and fencing requirements for drill sites
  - initial screening included on drill sites with a tiered classification system enacted to define screening and fencing standards
- Road damage cost recovery and transportation routing
  - recoup adequate and just costs related to the impact of drill site traffic, and route traffic to minimize dust – the primary compliant regarding drill sites
- Company bonding and liability
  - identification of the risks associated with drilling activities may be best to help devise a bonding scale for individual wells, drill sites comprehensively, or by operator

With investigative and fact finding assistance from city staff, Arlington citizens, and Industry representatives, this report was written to both present City Council with a succinct summary of the Commission's thorough body of work and provide an informative guide for the general public regarding the City's gas drilling program. A similar approach will be taken by the Commission to address the issues covered in the second phase. The primary topics for phase two have been identified and are:

- SUP time periods;
- compliance and enforcement;
- noise;
- site remediation;
- pipeline routing and land use;
- seismic activity;
- city staffing needs to properly monitor gas drilling, royalty payments, pipeline routes and construction and seismic activity;
- long-term development and redevelopment impacts of industrial drill sites in urban areas;
- the proactive use of economic incentives and/or cooperative efforts between the City and gas drilling and pipeline companies to identify workable drill sites or pipeline routes that are desirable from the City's perspective for development as a gas drilling location; and
- air quality.

The P&Z will once again conduct work session meetings and gather information from city staff, Arlington citizens, and Industry representatives to vet these additional concerns. A concluding report at the end of the second phase would also be drafted by the Commission and brought forward to City Council.

Sustained gas drilling activities in the Barnett Shale first occurred in the early 1980s. The wells were drilled vertically and were not as productive as the horizontal wells of today. Urban drilling increased as technology improved and gas could be extracted from hundreds of feet away. The City of Arlington adopted its first drilling ordinance in 2003 and passed revisions in both 2005 and 2007. The City received its first gas well permit application in March 2006. The number of gas well permit applications has grown each year since the City issued its first permit in June 2006. City Council recognized this rapid growth in urban drilling and charged P&Z to review Arlington's gas drilling program in early 2010. This report was prepared by P&Z as a way to convey our opening findings about gas drilling's impact to the City of Arlington.

## **BACKGROUND TO CITY COUNCIL DIRECTIVE TO PLANNING AND ZONING COMMISSION**

**"Arlington is one of the main drilling hubs in the Barnett Shale,"**

- Mayor Robert Cluck  
April 13, 2010 Star-Telegram

The Barnett Shale is the area's "flu shot," said Ben Loughry, managing partner of Integra Realty Resources' Fort Worth and Dallas offices. "It has created a strong, vibrant economy that is affecting everything that we do..." Loughry said in a January 24, 2008 Star-Telegram article.

While the inoculation from the "flu" of a sluggish economy turned out not to be complete, there is no doubt that the economic activity from the Barnett Shale for those cities fortunate enough to be included in it has turned out to be fortuitous in terms of the protection it has afforded those cities, including Arlington, from the downturn in revenue that otherwise would have been much greater.

### **ECONOMIC IMPACT OF GAS DRILLING PROGRAM FOR THE CITY**

Since 2006 the City has received substantial financial benefit from its favorable geographic position at a sweet spot of an apparently abundant pool of natural gas beneath the surface of the 99.7 square miles of Arlington. The City has and will continue to receive income from its position as a mineral owner and a taxing entity.

#### Mineral Owner

The City owns 6338 acres of property in Arlington. The City has leased 4,995 acres and has 1,343 acres remaining to lease. Natural gas production is in the early stages of development in Arlington. Currently, approximately 20% or 1,067 acres of the City's leased mineral acres have been designated for production. Of the acreage that the City has leased, 2,677 acres are unitized for purposes of production and 2,318 acres are not unitized.

As a mineral owner, the City receives income in four ways. These are lease bonus payments at the execution of a lease; monthly royalty payments from producing leased property; shut-in royalty payments for wells that are capable of producing but are not currently in production; and seismic license fees. This report takes note of the two income streams with the largest financial potential: one-time lease bonuses and monthly royalty payments.

Lease bonus payments to the City on the acreage it has under lease total \$59,217,288. This total in bonus payments was calculated starting with the first lease in fiscal year 2006 through the first quarter of fiscal year 2010. While it is impossible to accurately predict what the City's lease bonus payments will be for its remaining acreage not currently under lease, it is not inconceivable that the City may receive a minimum of \$70 million in total lease bonus payments.

Royalty receipts have been slower to materialize for the City due to a lack of installed infrastructure to take the gas to market and a relatively low market price of natural gas that may discourage production. Nevertheless, the amount of royalty payments to the City since 2006 through the first quarter of fiscal year 2010 is substantial and climbing. The City has received a total of \$10,728,752 in royalty payments, \$6,193,332.24 in fiscal year 2009 alone. The City received \$2,345,569.38 in royalty payments through the first quarter of fiscal year 2010. If the city remains on this pace through the remainder of fiscal year 2010 it will likely reap an approximate financial benefit of nearly \$10 million in royalty payments in the current fiscal year.

The current revenue stream in monthly royalty payments appears to be just the tip of the iceberg of the amounts the City could see in the coming years. As with the lease bonus payments, any projection of future royalty payments is sheer speculation and subject to numerous production factors beyond the City's control. Nevertheless, if the City projects fiscal year 2010 royalty receipts of close to \$10 million on the 1,067 acres currently allocated for production, then it would work out to approximately \$8,800 per acre in annual royalty revenue. Assuming an identical trend, if all 6,300 acres of city property were allocated for production, then the City could enjoy approximately \$50 million in total annual royalty revenue. While this total is unlikely to be achieved in a given fiscal year, this scenario illustrates the potential revenue if an identical leasing and production trend is achieved. Over time, the royalty revenue is substantial and much greater than the lease bonus payments.

### Taxing Entity

The City will reap substantial financial benefit from ad valorem tax revenue based upon the increased value of both business personal property and the mineral interest in the real property associated with natural gas production. The early trends are staggering financially in a very positive way for the City. Taxable value of mineral interests in Arlington increased 7,081% between fiscal years 2008 and 2009. For the next several years the increase in ad valorem tax revenue should only get better for the City.

The taxable value of business personal property directly attributable to gas drilling activity rose from \$2,153,120 in fiscal year 2007 to \$21,412,770 as production began in earnest. The taxable value of business personal property in fiscal year 2009 leveled out somewhat to \$22,284,770. More startling was the increase in the taxable value of the mineral interest. In fiscal year 2008 the total taxable value of mineral interests in Arlington was \$1,942,310. In fiscal year 2009 the total taxable value of mineral interests in Arlington jumped to \$137,546,920. The financial result of this increase in property values was an additional \$1,035,709.35 in estimated ad valorem tax revenue for the City in fiscal year 2009. This is the anticipated tax collection based on certified appraised value. In fiscal year 2008 the ad valorem tax revenue was \$151,340.91.

How good can this revenue stream get? As with the potential revenue stream derived from being a mineral owner any projection is speculative in nature. There are some facts and figures, however, that can be used to give one a sense of the size of the financial windfall to the City. The assessment of the mineral value on each piece of property is completed by the firm of Pritchard & Abbott on behalf of the Tarrant Appraisal District (TAD).

A mineral interest is only assessed when the owner is receiving royalty payments. Only a fraction of Arlington's mineral interests are in production and because of this fact it is easy to project that ad valorem taxes collected for mineral accounts in Arlington will likely increase in the coming years. The amount of ad valorem taxes attributable to the assessed value of mineral interests is dependent on the mineral valuation in any given year. The mineral valuation is based on the production profile, natural gas price, operating expense, and discount rate used to determine present value. Every year each variable is reassessed, which makes projecting ad valorem tax revenue difficult.

A definitive study on the potential rise in fair market value and resulting ad valorem taxes has not been done for the City of Arlington. Pritchard & Abbott completed a study for the City of Fort Worth that was presented to the Fort Worth City Council on March 10, 2009. The goal of the study was to predict property tax revenues for the City of Fort Worth from Barnett Shale activity for the 2009 through 2028 tax years. Barnett Shale activities included in the study were mineral interests associated with active leases as of January 1 for each future year. The study did not include land, drilling or service rigs, compressor stations, pipelines, personal property, or anything other than the mineral interests. The assumptions made on drilling activities during the 20-year period that might produce additional income and thus increased property value were conservative.

The results of the Pritchard & Abbott study indicate that Fort Worth should receive approximately \$82 million in ad valorem taxes from the Barnett Shale valuation increase in fiscal years 2009-2013 and a total of approximately \$429 million in fiscal years 2009-2028.

#### City's Financial Interest – Final Observations

A preliminary City study indicated that gas drilling use, at least in the short term, yielded the highest ad valorem tax value to the City when compared to multi-family, retail, and commercial sites. The total ad valorem tax value per mineral acre for gas drilling sites averages \$1,764,693. Only one property in Arlington, which averages \$2,098,523 an acre, has a higher added value. However, like royalty receipts, the ad valorem tax value for business personal property and mineral interests will fluctuate.

A word of caution is in order on lease bonus payments, royalty payments, seismic license fees, business personal property taxes, or ad valorem taxes. These income streams are not perpetual. The City will benefit financially from royalty payments and property taxes for an undetermined timeframe. As indicated in the Pritchard & Abbott study to the City of Fort Worth, the payment stream will likely increase initially, level off, and then start to decrease. The profile of these payment streams is dependent on multiple variables such as the level of drilling and production activity; the price of natural gas; and associated installed infrastructure such as pipelines, compressors, valve sites, etc. Care should be taken not to rely on these income streams for purposes of the annual budget or ongoing fiscal obligations of the City.

#### Financial Interest of the Average Citizen of Arlington

A significant number of Arlington citizens rent their home or apartment and thus receive no direct financial benefit from gas drilling.

There is very little financial data available regarding mineral payments to homeowners. Few homeowners have received royalty payments to date and thus not seen any income or increase in their property value. The data that is available indicates that the royalty payment to an individual homeowner is relatively modest.

It is clear that the parties or entities that stand to gain the most financially from the gas drilling are the City, UTA and the owners of large amounts of land.

It appears that few homeowners or citizens of Arlington understand either their potential for individual gain or property tax increases.

## CITY COUNCIL AND CITIZEN CONCERNS RAISED ABOUT URBAN DRILLING ACTIVITIES

Until recently, the rush to capture the mineral interests and bring the gas to market caused most communities to gloss over any concerns that they otherwise might have wished to investigate more thoroughly before proceeding with urban gas drilling. While Arlington was more prudent in terms of its initial ordinance and approval process than most cities, its City Council has nevertheless seen fit to revisit that ordinance in light of a growing number of concerns expressed by council members and Arlington citizens. In addition, several years of business activity in the urban areas of the Barnett Shale have given the gas drilling companies a sufficient degree of knowledge to express needs of their industry to maximize production while minimizing harm to a particular community.

### City Council

The Arlington City Council wishes to balance the desire to maximize production and thus revenue for the City and its citizens with its strong desire to protect land use in the City and promote the best possible long-term growth patterns.

**“There is more urban drilling now. We’re closer to structures – homes, churches – than we ever have been.”** – Mayor Robert Cluck

**“I just want us to do this right. I’m not anti-gas wells, because I think a lot of people benefit. But I want us to do it appropriately and with a vision of what this means to our future.”** – Councilmember Sheri Capehart

### Citizens

The quotes below are a sampling of the comments received by P&Z during this review process. Some were emailed concerns while others were written statements presented during the work sessions. These comments were not paraphrased by the P&Z and do not represent all public comment on this subject. These quotes are not an exhaustive list of concerns by the citizens of Arlington.

“My issues have always been the same – safety, property value, timeline and quality of life. It is becoming a common thread that neighbors are told one thing such as the drill location and after signing a contract and/or waiver they find out that the ‘sales pitch’ is not the reality. I think the goal should be to set rules, standards and business practices that don’t encourage the gamesmanship that exists between residents of Arlington and the drillers.” – Todd Harshman

“Please recommend complete elimination of the right to reduce the minimum distance between a wellhead and a residence from 600 feet to 300 feet. The 300 foot setback presumes that the drillers will comply with all safety requirements, but as has been shown with noise, dust, nighttime fracing and other violations, the drilling companies are quite ready to treat \$2,000 fines as a cost of doing business. Wells need to be far enough away from residences so that a safety mistake or, more likely, an intentional safety violation can occur without risking the lives and homes around the well. Three hundred feet just does not allow for such mistakes or violations. The November 5, 2009 gas pipeline explosion in Bushland, near Amarillo, totally destroyed a house that was about 280-290 feet away and scorched and melted parts of houses 600 feet away. Similar explosions, such as the one in Brad, Texas, on December 6, 2006, have occurred with similar amounts of force while drilling.” – Stewart and Deborah Greenlee

"Arlington's Drilling Ordinance is one of the most permissive in the Dallas-Fort Worth-Denton urban area when it comes to the protection afforded Arlington citizens from the threats drilling poses – threats that are not yet fully understood. In addition to the risks of fire and explosion – instances which have occurred several times already in the Barnett Shale alone – these threats include the lowering of our already poor air quality, ruining the quality of our groundwater (which this area will be increasingly dependent on in the absence of new reservoirs), and damage to the surface geography from underground subsidence (from sinkholes and the like, which has already been documented as having occurred in areas where hydraulic fracturing is practiced)." – Edward Pischedda

"The dust is still a pain and with the mud coming off the drill pad and coating the haul road I see no end. Also the trucks on the pad site constantly turning and grind the base material with the rear tires will continue to create fine dust particles that are picked up by the wind and end up on our vehicles. When it rains our vehicles look like we live on a dirt road until the mud is rinsed off the road, also the increased dust on drives and walks that get tracked into our homes. The air condition filters require to be changed more frequently..... Also our pools and filtration devices are suffering; when summer arrives I will not be a very happy home owner with the additional pool maintenance added to my concerns. What additional measures can be considered?" – Tim Wegienka

"Arlington needs to review the most recent amendments to the Mansfield Drilling code (regarding noise). The noise section....defines parameters related to ambient noise definition; defines acceptable noise levels, daytime and nighttime; defines exceedences to allowable levels; and addresses lower noise bandwidths." – Bill Tillotson

"The permanent industrialization of Arlington concerns me. These drill sites will have a light industrial feel to them for 20 plus years and after that the land can only be used for limited purposes." – Kimberly Frankland

## **ARLINGTON'S DEVELOPMENT HISTORY**

Since the dawn of its rise from an agricultural to an urban community, Arlington has wrestled with the need to balance the need to protect residential use and quality of life issues with the equally important need to promote and support a diversified Tax Base. The following quotes demonstrate the push/pull dynamics of this balance.

"Our city, no different from countless other municipalities, is faced today with the problem of growing expenses and revenues which have not kept pace with that mushrooming growth and its resulting demands. The situation is such that it calls for a careful study as to just where we are and, more importantly, where we are going."

The call was to establish a City Planning Commission. "Cities of under 10,000 such as ours can get out of hand, residentially and industrially, without proper planning. Such a Commission should devote its time to the study of, and recommendations for, present and future need concerning....industrial development. Through proper zoning we must control our industrial growth. We should take steps to see that beyond doubt our city will remain an ideal residential community, that questionable 'shack' development, both of a commercial and residential nature, should not come to pass here in Arlington. Let us not grow as a matter of expediency, as simply solving of an immediate problem, but rather let us consider now our scope of normal growth, bear the end result in mind, and insure as we now can do that the end result will be all we hope and dream for."

"Much depends on the immediate future ahead of us. There is a unity of purpose in Arlington today that will stand us in good stead. With this spirit, I have every confidence in Arlington."

**- Tom Vandergriff, Mayor, Arlington, Texas, Summer of 1953**

"Community leaders realized that by careful planning and selection, profitable industries not only would provide jobs for Arlington people themselves, but would enhance greatly the taxable values. Care was taken to keep a suitable buffer zone between new industries and residential areas.

**- Article on controlled growth in Arlington, the Christian Science Monitor, March 18, 1961**

"Civic leaders became aware that they might be submerged in the growth of Big D and its rival city (Fort Worth). They began to plan seriously for the future. Arlington has good economic assets. There is ample water for industrial and domestic use. Industries were welcomed but not allowed to encroach on residential areas. No industrial blight for Arlington."

**- Editorial, Arlington Uses its Civic Assets Wisely, the Houston Post, April 2, 1964**

"If Arlington has growing pains, they will end as the city matures. City fathers say what is needed now is more of the same willingness to extend city utilities beyond present housing, more of the same benevolence about footing the bill to feed a growing boy. The backseat carping of growth's opponents, who would stunt the city with worry about quality of life and future costs, stands in the way of an Arlington that can grow enough to keep its old age healthy, they say.

Offerings by Fox & Jacobs, Fantastic Homes and a myriad of lesser builders spill over the landscape. To the south, thousands of rooftops give testimony to the power of a can-do theology. To the northeast, apartment complexes stand massed, extending the allure of taupe carpeting, wood-burning fireplaces and easy-access parking to young professionals awaiting southward treks of their own.

It's a city where critics give instructions from the sidelines but rarely carry the ball. A coterie of merchants, bankers and investors, who've been in town long enough to know the lay of the land, make most decisions for the sixth fastest growing city of more than 100,000 in the United States. There are almost no opposition groups – to much of anything – as well as relatively few elderly persons and fewer minorities.

The idea that the marketplace should control growth has been so strong in Arlington that no one could tell the city differently, even people paid handsomely for advice. In 1978 work by a Kansas research firm, Oblinger-Smith, came to nothing but talk when the firm told the city council to slow growth or face a \$7 million per year increase in debt through 1990. The study recommended that developers pay more for city service extension. It advised making developers donate school, fire station and park sites. It also recommended city leaders get per-unit cost for housing developments; otherwise, the study said residents would continue blindly, without knowing its true cost.

Since everyone has figures, and no one knows the future, the debate often narrows down to philosophy – and a conflict between those who favor growth as a good force and those who view it skeptically. Some things are certain about costs: pollution will increase, traffic will be heavier, and maintenance costs for the city will take up a larger and larger percentage of the budget. If they are enough to make residents oppose growth, the question then becomes how? The most obvious tactic, if Arlington's leaders were persuaded to restrict growth, would be levying higher costs on developers, so that the cost of new housing would go up swiftly. New residents would effectively be shut out.

The Dallas-Fort Worth Metroplex is one of the hottest in the nation. When you're in the middle of that, it's very difficult not to participate fully.

**- Excerpts from The Arlington Phenomenon, Christine Wicker, Scenic Magazine, The Dallas Morning News, February 18, 1982**

**Was the balance between the protection of residential property and quality of life issues and prudent expansion of the industrial tax base lost in the rush to develop the city and maximize revenue? What lessons, if any, can we learn from the actions of the city leaders in years past and use today in consideration of Arlington's Gas Drilling Program?**

## CITY COUNCIL CHARGE TO THE PLANNING AND ZONING COMMISSION

At the February 16, 2010 City Council Work Session, the Council directed P&Z to conduct a review of various aspects of the City's gas drilling program. The City Council asked for P&Z's review to better understand the impacts caused by gas drilling activities on development and land use patterns in the City of Arlington.

The elements of the City's gas well program City Council asked P&Z to review include:

- **Process Issues:** Specific Use Permit (SUP) notifications, SUP time limits and petitions, and drill site boundary requirements;
- **Site Conditions:** Fracing, landscaping, fencing, and site remediation; and
- **Operations:** Road damage fees, transportation routing, bonding, and gas well flowback.

The City Council charged P&Z with the task of identifying the issues, receiving industry and citizen input, and reporting out its findings in detail. Care was to be taken to balance the need of the City and its citizens to maximize the income from the gas drilling while addressing the concerns as noted earlier.

The P&Z was instructed not to make specific recommendations, but rather to ensure that all issues related to land use be clearly and openly discussed and identified. It was, however, clear from the instructions given to the P&Z that the City Council is considering tougher requirements for natural gas drillers; including notifying more property owners and residents when gas drilling companies apply for permits, road damages fee increases, new wastewater disposal fees, increased landscaping, decreased hours of operations for trucks, and limits on the time that they have to drill on a site after obtaining appropriate zoning—typically a Specific Use Permit (SUP) for gas drilling use.

### *P&Z Meeting Schedule*

March 17, 2010 –	Overview presentation
March 24, 2010 –	Described the City's role as a Mineral Owner, Taxing Entity, and Regulatory Authority. Reviewed economic benefits of drilling, pipeline regulation and licensing, number of permit and SUP applications, Current regulatory processes for notifications, petitions, SUP time periods, property boundaries, and platting requirements.
March 31, 2010 –	Discussed Site Condition Topics, which included fracing, landscaping, fencing, and site remediation.
April 7, 2010 –	Discussed Site Operations, to include road damage, transportation, bonding, and well flowback.
April 14, 2010 –	Natural Gas Topic Summary discussion to recap each of the weekly presentations at one meeting.
April 21, 2010 –	Scheduled meeting date, ongoing discussions during work session
May 5, 2010 –	Scheduled meeting date, ongoing discussions during work session
May 19, 2010 –	Scheduled meeting date, ongoing discussions during work session
June 2, 2010 –	Scheduled meeting date, ongoing discussions during work session

The P&Z met regularly since receiving Council's directive in February and held five work sessions devoted to gas drilling topics. In addition, P&Z also continued gas drilling discussions at their regularly scheduled work session meetings since April 14. The P&Z accepted both public comment and industry representative input at four of the initial work sessions and also provided an opportunity for comments at the subsequent work sessions. A town hall meeting, facilitated by Council Member Capehart, also provided an opportunity for public input to assist P&Z commissioners in their review.

Prior to the completion of this report, City Council expanded its charge to the P&Z to include the following matters. This study will be undertaken immediately upon the filing of this report. This charge from the City Council has the working title of Part 2 of the Gas Drilling Program Report. These matters will not be covered in Part 1 of the Gas Drilling Program Report.

### *City Council Charge – Part Two*

During P&Z work sessions, the concerns of the citizens, such as the ones expressed in the preceding subsection of this report, were introduced to the commission. In addition, members of the City Council expressed an interest to further study some additional topics. These items are noted below with a brief descriptive passage for each one. According to the City Council, these items should be addressed by the P&Z over the next 60 days and reported out to the City Council by the end of summer 2010 as part of a second phase review.

#### **Compliance and Enforcement**

- Current Procedure
  - Pre-activity meetings prior to each stage
  - Notifications from operator to City prior to work
  - On-site inspections
  - Annual inspection of each Gas Well Permit
  - Operators cited for violations of approved City ordinances
  - Citizen Everest, phone, and email responses within 24 hours
- Consideration
  - Increase enforcement and oversight of each gas well facility
  - Evaluate current enforcement tools, i.e. financial penalties

#### **Noise**

- Current Procedure
  - Pre-drilling ambient report submitted with permit application
  - Increases over ambient noise level allowed
    - 3 dB nighttime; 5 dB daytime; and 7 dB fracing
  - Continuous monitoring if within 600 feet of protected uses
    - Reports emailed to City daily
- Considerations
  - Increased penalty for noise violations
  - Continuous monitoring required for every drill site
  - Reporting required to be in 1-minute intervals with overages explained
  - Include ordinance requirements regulating pure tones and low frequency noise

#### **Pipeline Routing and Land Use**

- The City's Real Estate Services Division handles pipeline licensing
- The P&Z may be asked to review the current licensing process and procedures
- Timing concerns about pipeline installation may require questioning the approval of drill sites and gas well permits prior to identifying whether produced gas can get to market

#### **The proactive use of economic incentives or cooperative efforts between the City and the Industry to identify workable drill sites and pipeline routes that are desirable from the City's perspective for development as gas drilling locations**

- Most drill sites are chosen because the land is vacant or underdeveloped and thus provides an economic advantage over razing buildings, clearing drill sites, moving businesses or resident, and like development concerns.

### **Site Remediation**

- Include a pre-drilling assessment of the proposed site to identify the current environment and conditions.
- Once the well is abandoned, within 60 days, restore the site to the same land use and land cover classification as identified in the pre-drilling assessment.
  - If site grading is required, the operator must also perform this activity within 60 days after well abandonment.
  - Site equipment and all infrastructure improvements should be removed from above and below the ground surface.
  - Any appurtenances the operator requests to remain should be identified prior to site restoration activities and must be approved by the Director of Community Development and Planning.
- All appurtenances, if remaining, should be clearly identified on an as-built site plan.

### **Seismic Activity**

- The City's Real Estate Services Division reviews applications for Seismic Survey Licensing involving fee owned properties.
- A Seismic Survey License is approved by the City Council and subject to specific conditions.
- Recently operators have requested the use of public right-of-way to conduct seismic testing. The Urban Seismic Specialist Inc., in cooperation with the City of Arlington Water Utilities, conducted a Ground Motion Study to determine the maximum peak particle velocity that a clay pipe buried 7 feet beneath a city street would experience when using an Envirovibe Minivibe, when operating at high drive force. Based on the results of this test, Urban Seismic Specialists, Inc. concluded that the Envirovibe Minivibe, under normal operations, will have no effect on the City of Arlington's buried infrastructure. During testing no observation of physical damage occurred to the asphalt roadway.
- A Seismic Survey License and permit for use of right-of-way is being developed to set conditions and minimum setback perimeters from public infrastructure. City Council will be presented with the final license agreement for consideration.
- The P&Z may be asked to review the licensing process and procedures. Members of the City Council have expressed some concern that there is a potential for long-term economic damage that the City is not being properly compensated for.

### **City Staffing needs to properly monitor gas drilling, royalty payments, pipeline routes, and construction and seismic activity**

#### **Long-term impacts on development and redevelopment of an industrial drill site in urban areas**

- There has been some work on the potential impact in value to homes from a gas drilling site located nearby. Essentially, homes under \$300,000 to 400,000 in value do not seem to be impacted as much as homes in excess of \$300,000 to 400,000 in value. If this study does conclude an impact on higher-end homes what long-term effect does this bode for Arlington in terms of attracting or keeping high-end homeowners?
- What impact will a nearby gas drill site have on potential commercial or retail development and redevelopment in terms of land use?

#### **Air Quality – the City would like to know content and level of gas well emissions and what, if any, impacts these emissions are having on the City**

- Recent air quality studies in other communities have raised concerns have not been definitive regarding the short and long term effects of emissions from gas wells and pipelines.

## PROCESS INPUT AND CONTEXTUAL INFORMATION

### Process Input

Gas Drilling Processes was the topic of the first P&Z meeting on March 24, 2010. During the next two meetings staff presented topics related to Site Conditions and Site Operations, held on March 31 and April 7, 2010, respectively. The summary presentation during P&Z's April 14, 2010 work session reviewed each of these topics and allowed for further discussion. The Process Input section describes each of those weekly topics presented to P&Z in the same order addressed during the work session meetings.

In addition to the P&Z work session meetings, city staff held four weekly meetings with various representatives from gas drilling companies currently doing business in Arlington (the Industry). The same discussion points were raised during the Industry meetings and the input staff received is also included in this report. Public comment was also incorporated into the report based on the comments received at the P&Z work sessions.

Municipal input for this project was received a variety of ways as staff obtained information from local cities. Ordinance requirements were identified by detailed examination of other jurisdiction's natural gas drilling and production regulations. Staff reviewed the ordinances online and in some instances used the language verbatim from those ordinances. Staff followed the online research with phone calls and email messages to contact employees from the various municipalities to learn additional policy requirements and gain clarity of the ordinance stipulations. City staff also initiated gas drilling round-table discussions with employees from those municipalities to further refine the details provided in this report. The jurisdictions represented in these discussions are Arlington, Burleson, Denton, Euless, Fort Worth, Grand Prairie, Hurst, Mansfield, and Southlake. Ongoing discussions are scheduled to occur monthly.

Based on the discussions and process comparisons, an informative study of the various cities having the most and least restrictive rules related to gas drilling was performed. Of the municipalities listed above, Southlake has not yet permitted a gas well, Hurst and Euless have limited experience, and the most restrictive is the City of Arlington. The rankings did not specifically review only municipal gas drilling ordinances, but rather looked at city policy for permitting gas wells in the various cities. This analysis of each municipal process included ordinance reviews; considerations for length of time required to obtain a permit, counting all steps at each stage; policies regarding land use, legal issues, and processing; and consistency.

Arlington is the only city that requires a zoning and permitting stage that does not have administrative permitting capability. Each zoning application and permit is heard by the Arlington City Council. In a matter of timing, the City of Arlington also has the longest permit process. The next most restrictive city is Mansfield. The City of Mansfield also has a zoning component to gas well site approval; however, the permits are approved administratively. The City of Burleson also requires zoning approval by City Council, but gas well permits are approved administratively unless an operator requests an ordinance variance. Denton has a robust drilling history and is exposed to liquid hydrocarbons, so their rules are the most in-depth and cover a wide range of topics. In a similar manner, the City of Fort Worth regulates items not addressed by Arlington's Gas Drilling and Production Ordinance, but does not require a zoning component and permits are typically approved administratively unless it is a new request on a high-impact site. The City of Grand Prairie may be the least restrictive because they do not have a zoning component, permits are administratively approved, and frequent ordinance updates allow oversight to closely match improvements in drilling technology. The table on the next page places each city in order from least to most restrictive related to municipal gas drilling policy.

Least Restrictive		Permit numbers listed below the city				Most restrictive
Grand Prairie 52 sites	Fort Worth 1800	Denton 1606	Burleson 165 (as of 2008)	Mansfield 189	Arlington 167	
No or limited activity:		Eules	Hurst	Southlake		

Contextual Information

Only seven gas well permit applications on three different sites were submitted in 2006, but the City quickly discovered the need to once again revise the GDP ordinance. The number of permit applications was projected to surpass initial expectations and the existing ordinance did not include many of the externalities associated with drilling, i.e., on-site appurtenances, pipelines, compressor stations, mud tanks, and similar secondary concerns. As a result, the drafting process for another ordinance revision began in June, 2006 and Ordinance 07-074 was finally adopted on October 23, 2007.

Ordinance 07-074, as amended, is the current regulation for gas drilling in Arlington. The latest amendment to the GDP ordinance occurred in January 2010 (Ordinance Number 10-012) to state archived documents will be in electronic format. The number of gas well permit applications grew from 7 in 2006, 40 in 2007, 55 in 2008, 68 in 2009 and 52 in 2010 through four months, see Figure 1.

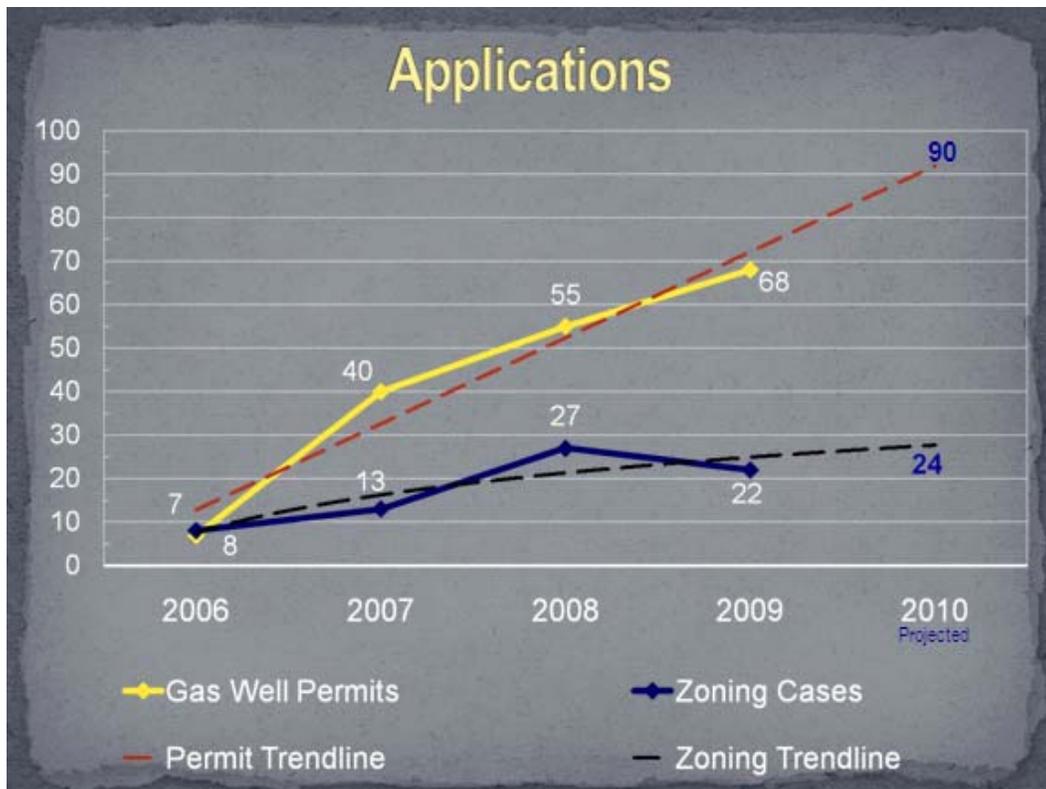


Figure 1

Other than minor revisions, however, the ordinance has not changed from 2007. The new industry in Arlington did not bring inherent knowledge and required city leaders and staff to learn about the drilling process. Initial presentations by the oil and gas industry classified this activity as a temporary use that would not produce long-term impacts.

With a temporary classification, land development concerns were generally not required until a later date associated with completion of the final gas well on the site. Technological advances in the drilling process, knowledge gains by city staff and the general public, and understanding of some externalities associated with drilling and their concerns all contribute to the need for another examination as to whether the current GDP ordinance is adequate. This use is not temporary in nature and should evoke development requirements comparable to other industries in the city. As knowledge is gained through time and stage advancement of urban drilling, it is becoming clearer how future development near a gas well site may not be feasible until the activity is removed and the site restored.

Additional concerns about pipeline routing and installation raises a question about review and approval of drill sites and gas well permits prior to identifying appropriate means to get the produced gas from the site to market. If a drill site does not have an adjacent network of gathering pipelines that can adequately carry the produced gas, then additional pipeline must be installed to serve the site. A means to easily connect the site may not be initially recognized even though time and effort is spent in application review, scheduling a public hearing, holding P&Z meetings, and conducting City Council public hearings for both the SUP and permit. All the upfront effort could still result in a drill site that cannot produce gas for several years because of no pipeline connection. A dormant site may also require additional work once a pipeline route is identified in the future if the site layout did not anticipate the required connection angle.

Operators indicate a need to rework, fracture stimulate, change or replace tubing, and haul produced water off-site until a well is plugged and abandoned. These needs require adequate space to maneuver on the well site and force the operator to maintain a large enough space inside the perimeter to perform these activities. The result is a large industrial site that will undergo ongoing maintenance, well activity, and site transportation for approximately 20-30 years and may not reach the final production stage of the last well for nearly the same time period. A rise in the number of recent applications for additional wells on existing drill sites indicates how drilling may not cease for several years after the initial well is drilled. Site restoration will not occur until production levels for each well make operating the site uneconomical.

With site restoration activities occurring decades in the future, land use patterns will be required to develop around the existing drill sites. Easements, rights-of-way, and future development must all be considered when assessing a proposed gas well site because the typical life span of a site may exceed the scope of a municipal Comprehensive Plan. As a result of each concern mentioned above, the City Council directed P&Z to review the City's gas well drilling program and make recommendations for the long term success of Arlington.

## GAS DRILLING PROCESS

### 1. Notifications

#### Identification of the Issues

Different mailing distances for Property Owner Notifications (PONs) during zoning and permitting stages.

#### Current COA Practice

The City of Arlington requires two stages for issuing a gas well permit.

1. Appropriate zoning, defined as a SUP for gas drilling use
2. Permit application, review, and issuance

SUP PONs are mailed within 200 feet and permit PONs are mailed 600 feet from the well site, see Figure 2.



Figure 2

#### Other Municipalities

City	Property Owner Notifications
<b>Arlington</b>	Sup notices sent 200 ft Permit notices sent 600 ft
<b>Corinth</b>	Sup notices sent 1500 feet from site
<b>Denton</b>	Sup notices sent 200-500 feet from site

<b>Flower Mound</b>	No zoning notices Permit mailed 1,000 ft of proposed well
<b>Fort Worth</b>	No zoning notices Permits mailed 1,000 ft for multiple wells; none for subsequent wells
<b>Grand Prairie</b>	No zoning notices Permits mailed 1,000 ft of proposed well
<b>Grapevine</b>	1,000 ft during zoning stage
<b>Mansfield</b>	600 ft of proposed well during zoning
<b>Southlake</b>	1,000 ft from proposed site during both stages

Staff Comments

An increased notification distance to 1,000 feet is suggested for both stages.

Industry Response

Increase the SUP notification distance to 600 feet. Distance should be measured from the zoning [SUP] legal description provided. If protected uses are affected by a site, 60% waivers must be obtained during the SUP stage. Waiver distance should be measured from the well zone. The waivers should run with the lot, parcel, or tract for the life of the pad site. The waivers would no longer be needed when applying for a gas well permit. If waivers are required at the SUP stage, they will not be required at the permit stage.

Public Input

Require notifications to at least 1,000 feet for each stage.

Highlights of Difference and/or Common Agreement

**All parties indicate a consistent PON mailing distance is preferred. All parties generally agree that a minimum distance of 600 feet is acceptable. The key question is whether to increase the PON mailing distance to 600 feet or 1,000 feet.**

## 2. Setbacks and Petitions

### Identification of the Issues

Confusing requirements when different instances require a super-majority City Council approval and when setback discussions are held during the zoning stage.

### Current COA Practice

During the SUP process:

- Petition of Opposition may be submitted for properties within a 200 foot distance.
- Super majority vote required if property owners representing 20 percent or more of the acreage in that area submit a letter of opposition to the zoning change

If a setback reduction is requested by an applicant during the Gas Well permit process:

- All property owners within a 600-foot radius must be contacted by the operator, and
- at least 60 percent of owners within that radius must support a reduction.
- Super majority vote required if the support does not represent 60 percent of the property owners.

### Other Municipalities

City	Setback Distances
<b>Arlington</b>	600 feet from protected uses, Council can reduce to 300
<b>Corinth</b>	600 feet from protected uses, Council can reduce to 300
<b>Denton</b>	500 feet from residential structures, unless supported by property owners, cannot be less than 250 feet
<b>Flower Mound</b>	500 or 1000 feet depending on the structure
<b>Fort Worth</b>	600 feet from protected uses, Council can reduce to 300
<b>Grand Prairie</b>	500 feet from protected uses, Council can reduce to 300
<b>Grapevine</b>	1000 feet from a park or protected use and 300 feet from any building
<b>Mansfield</b>	600 feet to subdivision unless all owners consent; 600 feet to un-platted residential, public building, institution, school, day care or commercial building unless all owners consent; and 1000 feet to hospital, nursing home or Law Enforcement Center
<b>Southlake</b>	1,000 feet from any habitable structure

### Staff Comments

Processing setback reductions during the zoning stage would more accurately reflect future drilling plans on each pad site. The applicant would be required to identify a drilling zone and all drilling must take place within the identified area. Any planned wellbore outside the identified drilling zone will require an SUP amendment. The setback distances will be measured from the boundary of the drilling zone and property owner support for the reduction during the zoning stage will apply to the site. Once a setback distance is reduced, each permit will not undergo another setback reduction, but the setbacks and reduction requests for subsequent permits will not affect additional property owners not included under the initial gas well permit.

The intent of the current ordinance was to increase the setback distance from 300 feet to 600 feet. Setback reductions were allowed, however, in those instances where an appropriate location could not meet the 600-foot stipulation. The reduction allowance enabled already identified sites to move forward after the ordinance revision and also provided a way to allow a drill site if a well did not meet the protected use setback distance on the same property owner's land. Initial City permit applications were predominately submitted for drill sites in rural settings. The initial setback reduction allowance was not intended for urban settings nor written to impact a vast multitude of property owners for each proposed drill site.

#### Industry Response

If protected uses are affected by a site, 60 percent waivers must be obtained during the SUP stage. Waiver distance should be measured from the identified 'well zone' area.

#### Public Input

Public comment was accepted as testimony at the work sessions, via email, and during the April 8, 2010 District 2 Town Hall meeting. The comments related to setback distances and the City of Arlington's petition processes are listed below.

- Petitions to reduction the 600-foot setback distance should include a prohibition that does not allow gas well companies paying for signatures.
- Increase the percentage of property owners required to support a setback reduction from 60 percent of owners to somewhere between 75-100 percent.
- Setbacks should be measured from the pad site not the well bore.
- Many individuals attending the Town Hall meeting wanted the gas well setback to be at least 600 feet from houses, possibly 1,000 feet.
- Citizens seem to agree 300 feet is too little.
- Do not allow setback reductions; adhere to the 600-foot standard.

#### Highlights of Difference and/or Common Agreement

**The public preference is to not allow setback reductions. The Industry and staff both conclude reductions should be addressed during the zoning stage and measured from a well zone area of allowed drilling. The key question is to whether allow setback reductions. A second related question is if setback reduction requests are allowed, then what requirements should be required to approve the request.**

### 3. SUP Time Periods

#### Identification of the Issues

Zoning approval may be appropriate today, but is not comprehensively addressed when the City's future or vision of an area changes. Gas Drilling is an industrial use that operates in the City for a 20-30 year period. Once approved, gas well industrial development has effectively no time period in which to cease operations. The result is a potential lack of control in managing the City's future vision.

#### Current COA Practice

Gas Drilling use SUPs expire one year after the date of City Council approval unless a gas well permit is issued and drilling commenced. One extension of one year may be administratively granted by the director of the Community Development and Planning Department. After drilling commences, the SUP is indefinitely valid and remains on the property as long as it is an active drill site. Previous SUP applications are mapped on Figure 3.

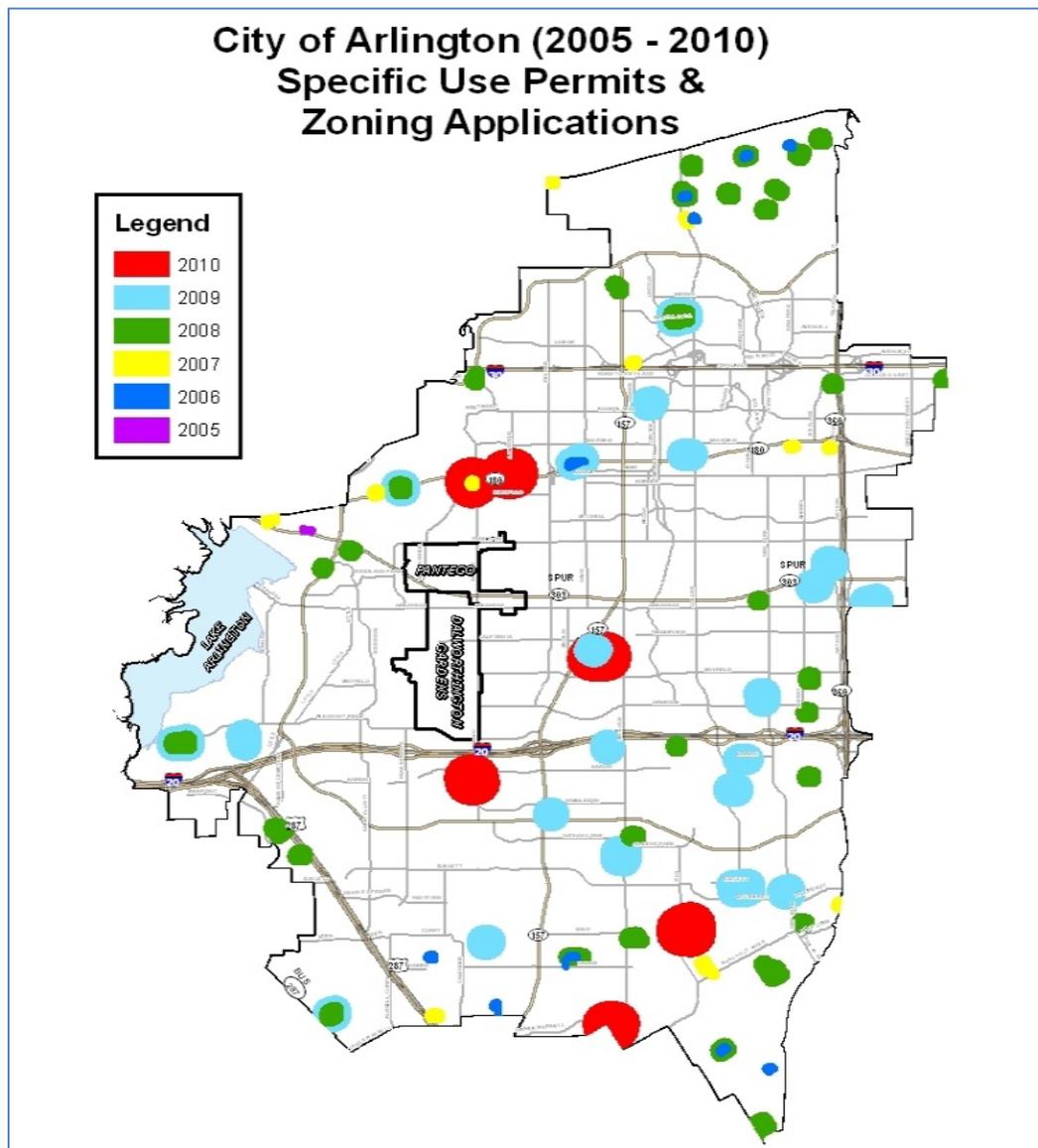


Figure 3

Other Municipalities

City	SUP Time Period
Arlington	None currently
Corinth	None currently
Denton	None currently
Flower Mound	No Zoning Component
Fort Worth	No Zoning Component
Grand Prairie	No Zoning Component
Grapevine	None currently
Mansfield	The SUP authority to drill expires in 2 years after approval if no drilling activities have taken place, and 5 years after approval if drilling has occurred on a site. The City Council may reduce the expiration period to less than 5 years as a condition of the SUP.
Southlake	None currently

Staff Comments

After SUP expiration, even with an active drill site, the operator would go before City Council to update the site status. If gas drilling activities remain on-site after five years, the development must adhere to common infrastructure requirements, e.g., sidewalks, easements, landscaping, driveways, etc. A time limit enables the City to review the impact to traffic and roadways; assess development and redevelopment potential; secure safety from fire, panic, and other dangers; and facilitate the adequate provision of transportation, water, sewage, schools, parks, and other public requirements.

Industry Response

The SUP and first gas well permit to be approved by City Council. All other permit requests approved administratively and/or by City staff (Planning Director). Allow for an appeal process to the City Council if there are disagreements from stipulations imposed by staff. Administrative approvals will streamline the timeline in which the wells could be drilled.

In staff's recommendation, a time limit on a SUP is supported to give the city an additional chance to review the impact of the site, assess development and redevelopment and other public requirements, etc. Industry feels that the City has this review ability during the permit process. Currently the industry must go before Council for each drilling permit, giving the City the ability to review the site at that time.

In addition, once a drill site is zoned and the first well is drilled, the land will remain a drill site until production on that site ceases. After five years or whatever time might be considered for the SUP time limit, the well or wells on that location will not go away and allow the land to then become available for new development, the well(s) will continue to produce. Therefore, the city's only decision would be to prohibit additional drilling on the location, which is already achievable during the permitting process. Many factors determine when an operator is able to drill a well, such as leasehold acquisition, rig availability, road access, and the lengthy permit process in the City of Arlington which can take anywhere from nine-twelve months for the zoning and permitting of the first well.

Public Input

No specific time period comments were received from the public.

Highlights of Difference and/or Common Agreement

The industry opposes SUP timelines. The main reason provided for this opposition is the uncertainty related to the amount of time necessary to adequately drill at a site and capture the minerals. The City's permitting policies require a detailed examination before a permit is issued and administrative authority may facilitate more wells being drilled in a regular timeframe. The City, however, may find a time limit favorable to assess development needs on a particular property used as a drill site. The key question is whether to apply a time limit for gas well operations to allow the City Council the opportunity to reconsider decisions based on changed conditions or future opportunities.

#### 4. Platting and Site Boundaries

##### Identification of the Issues

A site boundary is typically described by a metes and bounds legal description that may not utilize the entire current lot or tract configuration. This situation could create a need for additional covenants to incorporate off-site conditions and often results in improper site addressing that may add difficulty to responders trying to locate a site entrance.

##### Current COA Practice

The SUP boundary is currently identified by a metes and bounds legal description and permits a drill site to occupy a portion of a larger property—a doughnut hole effect. The ‘hole’ enables drill site operators to claim adjacent zoning is similar to the drill site and the surrounding property is undeveloped. Landscape standards in the City’s Zoning Ordinance are based on the site’s adjacent zoning or development.

##### Other Municipalities

City	Plat Requirements and Boundary Delineation
<b>Arlington</b>	Platting not required; boundary described by metes and bounds description
<b>Corinth</b>	Platting not required; boundary is the entire site
<b>Denton</b>	Any person who proposes drilling and gas production of natural gas on a tract of land located within the corporate limits or within Division 1 of the City’s Extraterritorial Jurisdiction, and is not required by [the City’s Development Code] to prepare a preliminary plat or final plat, shall prepare a Gas Well Development Plat
<b>Flower Mound</b>	Platting not required; site boundaries shown on permit plans
<b>Fort Worth</b>	Platting not required; Site Plan submitted with permit application. Boundary defined as the area used for drilling, development and production, and all operational activities associated with gas production.
<b>Grand Prairie</b>	Platting not required, but Site Plan submitted with permit application; boundary means the premises used during the drilling or re-working of a well or wells located there and subsequent life of a well or wells or any associated operation
<b>Grapevine</b>	Platting not required; site delineated during zoning
<b>Mansfield</b>	Site plan, landscape and irrigation plans, vehicular routing plan, pipeline routing map, grading and utility plans required with SUP and gas well application; boundary established by SUP with a metes and bounds description of each surface use (drill site, frac pond, road, etc.). The zoning boundary must include all area that is disturbed such as graded slopes.
<b>Southlake</b>	Site plans identify boundary and must be labeled prior to zoning stage.

### Staff Comments

Having the entire property included in the SUP boundary allows enforcement of landscaping standards around a drilling pad site and streetscaping could be installed per City Ordinance. A platting requirement would insure adequate infrastructure for development, identify access easements for future lots, promote orderly development in Arlington, allow proper site addressing, and be consistent with existing Subdivision Regulations. According to Section 3.01B the City's Subdivision Regulations, "the City shall issue no permits for any construction activity or allow any public improvements for a development until a plat is approved and filed of record." The platting process also is currently used to assign property addresses. Gas wells developed on an existing property are given the current parcel address. In the event a drill site utilizes another roadway for access, emergency responders are not directed to the correct location. Platting the sites enables the City to identify the correct parcel and assign an appropriate address to the drill site.

### Industry Response

In lieu of platting, a covenant should be placed on the entire lot or tract the gas well site is located on. The covenant should be for landscaping requirements placed on a site, due to adjacent protected uses or proximity to major thoroughfares. The covenant should cease to exist upon the development, platting, or sale of the property for future development. Covenant provisions would be required on all new surface use leases dated xx/xx2010. Operator would make a good faith effort to obtain such covenants on existing surface use leases, but cannot guarantee surface owner's consent. If a surface lease or property owner does not allow the installation of landscaping on their property, allow for the operator to pay into a "tree fund". The denial of installing landscaping on a leased property must be obtained in writing, and from the current owner, or his assigned agent.

As staff indicates in their description, industry prefers an alternative method to platting the property proposed for a drill site. This preference stems heavily from the fact that operators often do not own the land but have surface use agreements with property owners for the drill site. If the property is operator owned, <Chesapeake> would be willing to negotiate a covenant to be placed on the property allowing installation of requested landscaping and work with the city on a case by case basis for any needed easements.

In addition, platting is not needed to ensure that first responders are able to properly locate the site. The city is able to provide a 911 address given by the city fire department to provide an accurate location for emergency response personnel.

In lieu of platting, a **concept plan** could be prepared and submitted showing how the remainder of land, adjacent to a proposed pad site, could conceptually be developed.

### Public Input

Direct platting input was not received during this process; however, during prior zoning or permitting cases, citizens have previously expressed concern over the potential for future development at locations occupied by a drill site. Public comments did recommend that site boundaries could follow current parcels and tracts instead of the current metes and bounds description.

### Highlights of Difference and/or Common Agreement

**City staff recognizes the multiple benefits derived from platting and while the industry agrees these benefits constitute sound development practices, they prefer another method. The industry's covenant proposal requires additional oversight to ensure consistency with all other approving documents. In the event of discrepancies, enforcement documents should be clear.**

## GAS DRILLING SITE CONDITIONS

### 1. Fracing and Flowback

#### Identification of the Issues

- Frac pond design standards,
- Work hours for related flowback activity,
- increased truck traffic during the fracing process, and
- the amount of water needed versus supply rates for each drill site.

#### Current COA Practice

Fracing is the process of injecting water, steam, or gas into a natural gas well to improve natural gas recovery. All wells in the City of Arlington to this point were fraced with water. To ensure an operator is able to frac at the rate required to break open the shale, several storage methods have been devised to hold water. The most common method is utilizing an on-site frac pond. Alternatively, frac tanks could be hauled to the site to store water, similar to an on-site frac pond. In lieu of an on-site frac pond, an operator may utilize an off-site frac pond and transport the water to the drill site via above ground temporary water lines. The City recently devised a process to regulate the temporary water lines and use of this option may increase.

The flowback stage is typically performed after the fracing of a well. Once the fracing process is complete, a rig drills out the bridge plugs and allows gas to flow through the perforations and up the steel casing. After the plugs are drilled out, the well flows naturally and this stage is considered the well flowback. The City of Arlington currently only permits flowback activity during daytime hours unless permission is granted by the inspector.

#### Other Municipalities

City	Fracing Operation Requirements
<b>Arlington</b>	On-site and off-site frac ponds and frac tanks all allowed. No pond design or screening standards. Flowback conducted during daylight hours only, unless permission granted by the Inspector.
<b>Corinth</b>	Activity limited to daytime hours
<b>Denton</b>	Fracing restricted to daytime hours unless City is notified that the Operator will be working before or after daylight hours for safety reasons.
<b>Flower Mound</b>	Fracing limited to daytime hours unless an Operator obtains permission for nighttime operations.
<b>Fort Worth</b>	All operations shall be conducted during daytime hours. Flowback operations are exempt from work hour restrictions, but subject to noise restrictions and a watchman are required at all times. Frac ponds require a permit from the City and approval from: <ul style="list-style-type: none"> <li>• Fire Department;</li> <li>• Water Department;</li> <li>• Transportation and DPW; and</li> <li>• Planning and Development.</li> </ul>

<b>Grand Prairie</b>	All formation fracturing operations shall be conducted during daylight hours unless the operator has notified the inspector that fracing will occur before or after daylight hours to meet safety requirements. Air, gas, or pneumatic drilling shall not be permitted.
<b>Grapevine</b>	Flowback allowed during daylight hours
<b>Mansfield</b>	Work hours limited to daytime hours only. No increase allowed for generated noise levels over daytime decibel limit.
<b>Southlake</b>	Frac ponds or surface fresh water ponds are not permitted.

Staff Comments

Frac ponds should be designed as a feature with restoration time limits and requirements for annual maintenance standards. Alternative water storage methods should be encouraged to reduce the number of frac ponds in the city. Pond designs should adhere to the Tiered levels described under Site Condition section Number 2, Landscaping and Fencing, of this report. Flowback operations should be permitted 24/7 and required to maintain the same decibel level increases allowed during drilling. The Ordinance should stipulate that when a location requires additional on-site water storage, e.g., if activity is within a neighborhood or closer than 600 feet to a protected use, the operator must specify how they will mitigate traffic.

Industry Response

The Industry's comments were provided via email on April 29, 2010. The submitted recommendation is to create a "Tier/Type" system for frac pond designs in accordance with the table below. The Industry also recommends an allowance for flowback operations 24/7 by Ordinance if operators provide required notices.

<b>Tier</b>	<b>Location of Pond</b>	<b>Typical Pond Characteristic</b>	<b>Fencing/Landscape</b>
<b>1</b>	Adjacent to right-of-way (ROW) or protected uses	Design as a water feature	6-foot black vinyl coated chain link fence, informal planting around pond, street trees
<b>2</b>	Adjacent to ROW, not adjacent to protected uses	Design as a water feature	6-foot black vinyl coated chain link fence and street trees
<b>3</b>	Not adjacent to ROW or protected uses	Design to maximize water capacity and not a water feature	6-foot black vinyl coated chain link fence, no landscape required

Public Input

The public has expressed interest and concerns regarding the safety and maintenance of the frac ponds concerns over stagnant water pools as ideal breeding grounds for mosquitoes. Public safety is also a concern and fencing of some sort should be installed around the perimeter of the pond.

Highlights of Difference and/or Common Agreement

**A tiered system for pond design is agreeable by staff and the Industry. Staff would suggest a high level of fencing and landscaping in each tier.**

## 2. Landscaping and Fencing

### Identification of the Issues

- Initial screening of drill sites
- Landscaping controls outside the pad boundary along street frontages or shared property boundary
- Opaque masonry wall requirements

### Current COA Practice

The Gas Well Ordinance currently requires that within 30 days after completion of the final well, all operation sites shall be completely enclosed by a solid masonry wall and vegetation. There are no specific landscape requirements, unless stipulated as part of the Specific Use Permit and/or Permit process. Fences are currently not required on drill sites during initial drilling as long as 24-hour on-site supervision is provided. A secured entrance gate containing shall be provided. All gates are to be locked when the operator is not within the site.

### Other Municipalities

City	Landscaping and Fencing
<b>Arlington</b>	30 days after completion of the final well, all operation sites shall be completely enclosed by a solid masonry wall and vegetation.
<b>Corinth</b>	8-foot chain link fence for well heads and masonry wall upon site completion. Landscaping also required.
<b>Denton</b>	6-foot solid screen fence for all well heads within 500 feet of residential structures. Buffer requirements dependent on adjacent zoning district.
<b>Flower Mound</b>	Around all structures associated with drilling, four options are allowed within 45 days of production. The options are: 1) vegetation, 2) natural and manmade screens, 3) fence screening, or 4) escrow fund payment.
<b>Fort Worth</b>	25% minimum retention and < 25% of same species 25% minimum evergreen species 75% located between site and protected uses/ROW
<b>Grand Prairie</b>	Landscaping required at street frontages Shrubs around site and fences must sufficiently screen
<b>Grapevine</b>	Landscaping must be installed around the site and all fences to sufficiently screen.
<b>Mansfield</b>	A site must be enclosed with: A wrought iron fence with double row of dense evergreen plantings, to form a solid screen that is at least eight feet tall at the time of planting; or A screening wall of at least 2 complimentary masonry construction materials with non-dwarf variety shrubs planted 3-foot on center, with a 3-foot minimum height at planting and a mature height at least 6 feet. Masonry construction material means brick or natural or manufactured stone, laid up unit by unit and set in mortar and that are at least two inches thick.
<b>Southlake</b>	8-foot masonry wall within 60 days of completion of the first well on the site and an 8-foot chain link fence is required around all equipment inside the masonry wall.

Staff Comments

A tiered system should be devised for landscaping, fencing, and frac pond designs. All landscaping and fencing should be installed within 30 days after spudding the first well on the site. These requirements should be maintained by the drill operators from the time of installation until the site is restored. The initial installation covers the growing trend where Operators permit additional wells on existing pad sites. The map in Figure 4 highlights the trend of more permits applied for on existing sites than at new locations. By installing landscaping with the initial well, all subsequent permits will already comply with the requirements.

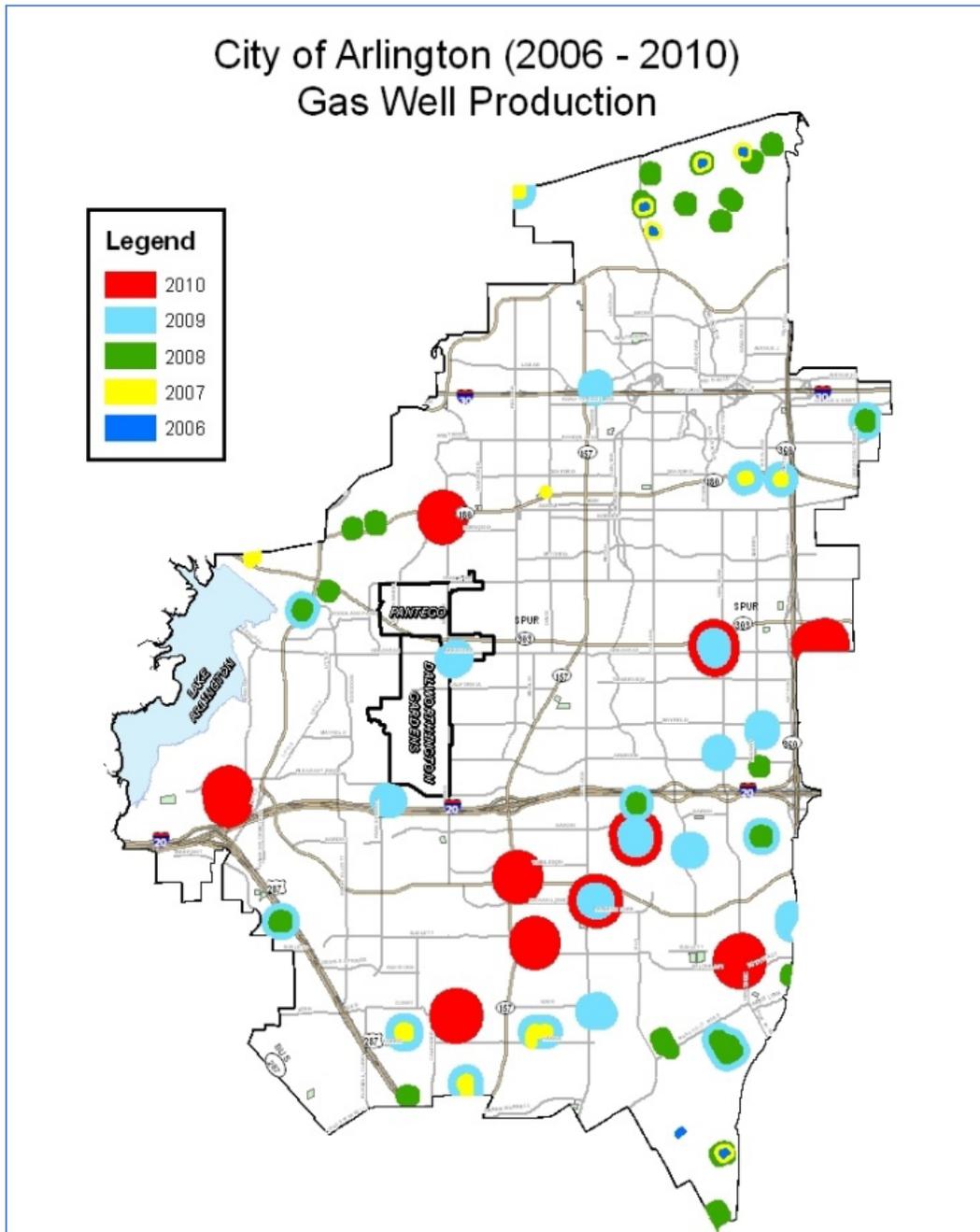


Figure 4

The tiers are:

- **Tier I:** used when drill sites are within 600 feet of a protected use. Requirements include a masonry wall or similar treatment, with maximum 75 percent opacity around the drill site, a 40-foot transitional buffer around the property, a 10-foot enhanced streetscape setback, and frac pond designs incorporate these areas as a site feature.
- **Tier II:** used when drill sites are located in or adjacent to commercial business areas or zoning districts. Requirements include decorative wrought iron fencing with masonry columns, a 20-foot transitional buffer around property, a 10-foot enhanced streetscape setback, and frac pond designs incorporate these areas as a site feature.
- **Tier III:** used in industrial areas or for secluded properties when compatible zoning districts surround the drill site. Requirements include a minimum fencing material standard of natural tone, a vinyl or masonry fence, a 0-10 foot transitional buffer around the property, a 10-foot streetscape setback, and no frac pond design standards.

### Industry Response

The Industry's comments were provided via email on April 29, 2010. The submitted recommendations identify their preferred option to screen both the pad sites and frac ponds. The recommendation for frac pond screening follows the "Tier/Type" system previously identified in Section 1 (Fracing) of the Gas Drilling Site Condition Topics.

Pad Sites: Street trees will be required along the right-of-way for pad sites except in areas which are not visible from public rights-of-way or are located in industrial or heavily commercial areas. Limits of the street trees should be the same distance as the limits of the pad adjacent to the nearest right-of-way. If trees are not allowed due to surface use lease requirements, allow for:

1. Payment into a tree fund for the number of street trees required; or
2. Allow trees to be planted within city right-of-way.

Frac Ponds: Follow "Tier/Type" system for frac pond design.

Industry supports a tiered approach to landscaping both the frac pond and the pad site because we believe a one-size-fit all approach is not applicable. An approach that provides flexibility to allow the site to fit more acceptably with the surroundings, whether industrial or otherwise, would fit the goals of the city, the surrounding neighbors and the operators.

However, we do not support the requirement for a masonry wall in any area due to decreased visibility into the site for safety reasons. With a masonry wall, security cannot see what is inside before entering the site and a wall provides a nice enclave for individuals trying to hide. In addition, the masonry wall often does not fit with the surroundings and draws more attention than well placed landscaping and a vinyl coated chain link fence that blends in with the green tones of the landscaping. A masonry wall often becomes a greater distraction than the well site itself and we are finding that more landscaping is being requested to hide the walls. A nicely built vinyl coated chain link fence with adequate landscaping will create the desired barrier to the well site.

We would strongly oppose staff's recommendation for Tier 1 landscaping requirements described on page 20 of their draft report. Even with sites that are heavy residential and < 600' setback, there may be instances where a masonry wall would be impractical and visually look out of place (ie, Steeples). Additionally, we would strongly oppose the requirement for a 40' transitional "buffer" around the property. We are trying to make our locations as small as possible already, and we have and continue to seek surface locations without this buffer consideration. The addition of a 40' buffer would essentially condemn at least a few of the locations we are working, or would require us to utilize even more land that we are currently seeking so that our site would be dimensionally able to support the planned work.

Public Input

Landscaping and masonry wall isn't done for many years. Need nice fencing and landscaping. Pruitt site has no fencing or landscaping after two years.

Highlights of Difference and/or Common Agreement

**Initial landscape screening is preferred by all parties. The tiered system should be enacted to define landscaping standards. Permanent walls should have some openness for visual inspection for emergency responders, a safe drill site for inspectors, and an opportunity to quickly scan a drill site for possible hazards and swiftly assess the site's risk.**

## GAS DRILLING OPERATIONS

### 1. Road Damage and Transportation

#### Identification of the Issues

The most frequent complaint received by the City regarding gas wells is over dust in the air or mud and debris on the roadways. The condition of roadways leading to a drill site causes equal concern for the City. Processes are needed to assess the amount of road damage and how these damages are mitigated. Additional concerns arise when site traffic routing impacts property owners that do not benefit from the subject gas well.

#### Current COA Practice

A road damage fee is paid by the Operator prior to the commencement of drilling activity. The fee is based on a Road Damage Assessment Study and is calculated based on access miles, an assessment per lane mile, and the route mileage. Vehicles in excess of three tons associated with drilling are restricted to streets designated as either truck or commercial delivery routes, wherever capable. The City Council may restrict hours of operations and routes traveling through a designated school zone. Prior to forwarding a gas well permit application to Council, staff reviews the plan and works with the applicant to direct traffic along the most feasible route.

#### Other Municipalities

City	Road Damage and Traffic Routing
<b>Arlington</b>	Upfront fee assessed per well. Vehicles in excess of three tons associated with drilling are restricted to streets designated as either truck or commercial delivery routes, wherever capable.
<b>Corinth</b>	Road repair agreement.
<b>Denton</b>	Road repair agreement.
<b>Flower Mound</b>	Bond or letter of credit required.
<b>Fort Worth</b>	Bond or letter of credit required. Vehicles in excess of 3 tons are restricted to streets designated as either truck routes or commercial delivery routes. All routes must be approved by the Gas Inspector before the permit is issued. The Inspector has the authority to require an alternate route to minimize the impact to surrounding uses.
<b>Grand Prairie</b>	Road maintenance agreement. Vehicles in excess of 3 tons are restricted to streets designated as either truck routes or commercial delivery routes.
<b>Grapevine</b>	Bond or letter of credit required.
<b>Mansfield</b>	A Road Damage Remediation agreement is required with a minimum fee of \$5,000 per well (\$30,000 max). Traffic route is approved as part of the SUP zoning. Deliveries for site construction, rig mobilization and demobilization, and well servicing are limited to daytime hours.
<b>Southlake</b>	Road repair agreement.

### Staff Comment

- Re-evaluate Road Damage Fee calculation.
- An update to the existing study will provide more accurate figures.
- The figures need to be updated regularly to reflect precise trip numbers and changes in construction methods, practices, and costs.
- Utilize current city practices to when assess road damage fees, to include:
  - The City currently maintains an overall condition index (OCI) of each roadway, which represents the condition rating of a road segment
  - The upfront fee could reflect the OCI of the transportation route associated with the gas well permit
  - On the permit anniversary date, coordinated with the annual inspection, the OCI is reviewed and assessed to determine whether roadway deterioration exceeded the average annual deterioration recorded prior to utilizing the approved transportation route for gas drilling traffic.

Since dust is a frequent complaint for industrial uses, typical industry driveways are paved with asphalt or concrete to minimize the amount of generated dust or roadway debris. Current Texas Department of Transportation requirements often force the operator to utilize a gravel roadway with a mud shaker. The City of Arlington, however, does not have a similar stipulation and could approve a paved access road.

### Industry Response

Reevaluate the current unit numbers and continue using the same method and process for the assessment of a road damage fee. Include language in ordinance to allow for administrative approval of changes to approved transportation routes. Route changes are sometimes needed because of construction/improvements to existing roadways and required changes by state agencies.

Industry understands the need to control dust but does not support the requirement for concrete or asphalt lease roads. To reduce the impact of dust we propose a compromise of a concrete driveway approach (to the right of way) followed by a flex base lease road with approved dust suppressant applied to the road and pad location. A dust suppressant can be applied on a routine basis once per year on each pad and lease road location. The concrete drive approach will create a barrier to prevent any flex based material from accumulating on the public streets. It is important to note that TxDOT does not allow lease roads to be permanent material, such as concrete, during drilling operations. In addition, a permanent concrete road could unnecessarily encumber private property on which we have a lease for a drill site and become problematic for the property owner during future development.

### Public Input

Gravel is accumulated on side roads and is dangerous, notably to children on bicycles. One man lives near Bardin/Bowen Rd site and can hardly get around because of the truck traffic; he said [operator] is not living up to their lease. Gas well access roads need to be paved as is required of other industrial sites. Shaker needs to be placed between drill site and access road.

### Highlights of Difference and/or Common Agreement

**Both the Industry and staff recommend utilizing the current method, but reevaluating the calculation and process for assessing a road damage fee. The ability for administrative changes to a transportation route would enable quicker response in the event of construction detours or roadway deterioration on an approved route. The need to pave the access drives with asphalt or concrete in and out of the drills sites will lessen the negative impacts, like airborne dust and mud accumulation on streets.**

## 2. Bonding

### Identification of the Issues

The City of Arlington currently holds 1/14 of all Chesapeake municipal bonds. With national operations in hundreds of municipalities, this amount appears high to Industry representatives.

### Current COA Practice

Prior to issuance of a Gas Well Permit the Operator shall provide a security instrument in form of a bond or irrevocable letter of credit. The principal amount of the bond or letter of credit shall be \$50,000 dollars for any single well. Reduction of the bond to \$10,000 can be requested after completion of the well. A Letter of Credit shall be issued by a reliable bank authorized to do business in Texas. Since each bond is held per well, the release of any individual bond currently requires site restoration activities even if additional wells are still in operation on the site.

### Other Municipalities

Bond comparisons were not performed for each municipality. The three municipalities sharing the longest border adjacent to the City of Arlington are included below.

City	Bond Requirements
<b>Fort Worth</b>	<u>Drilling Stage</u> \$150,000 between 1-5 wells \$50,000 for each well over 5  <u>Production Stage</u> Up to 75 wells: \$100,000 75 to 150 wells: \$150,000 More than 150 wells: \$200,000
<b>Grand Prairie</b>	Number of producing wells and blanket bond amount. Up to 75 wells: \$100,000 75 to 150 wells: \$150,000 More than 150 wells: \$200,000
<b>Mansfield</b>	Established \$100,000 for single well on pad; \$200,000 for multiple wells. Surety bond, letter of credit, or certificate of deposit may be used.

### Staff Comment

A risk assessment analysis would identify adequate bonding totals that could be properly assessed either per well, per site, or per operator. If road damage and complete site restoration is included in the bond, then these activities should be included in an assessment of the City's risk. In the event the risk assessment determines individual bonds are still required per well, an available bond release mechanism should be provided for individual wells on a common drill site.

### Industry Response

Allow for the use of a self-insured policy, allow for a blanket bond for all wells sites for each operator, or create a tiered system for bond requirements. A \$50,000 single-well bond with the option to have a blanket bond in the amount of \$200,000 for an unlimited number of pre-production wells is a good standard. Cap the bond amount at \$1.0 million for all wells for each operator.

A tiered proposal recommendation could look something like this:

1. One site or one well: \$50,000 (minimum bond requirement for an operator drilling their first well on a new site).
2. One site or 1-10 wells: blanket bond of \$150,000.
3. Combination of sites greater than 1 or well count greater than 10: Maximum blanket bond per operator of \$250,000 (once an operator exceeds 10 wells, or adds their second site, the maximum blanket bond requirement is triggered).

Public Input

No specific details regarding bonding were provided.

Highlights of Difference and/or Common Agreement

**The Industry supports a blanket bond; however, a risk assessment would be the best way to determine whether the need exists to provide individual bonds per well. For both alternatives, blanket bond or per well bond, the amount shall be re-evaluated and the release should not be connected to overall site conditions.**

## **APPENDIX**

### **EXHIBIT 1**

The P&Z Commission's March 3, 2010 Meeting Minutes

### **EXHIBIT 2**

The P&Z Commission's March 24, 2010 Meeting Minutes

### **EXHIBIT 3**

The P&Z Commission's March 31, 2010 Meeting Minutes

### **EXHIBIT 4**

The P&Z Commission's April 7, 2010 Meeting Minutes

### **EXHIBIT 5**

The P&Z Commission's April 14, 2010 Meeting Minutes

### **EXHIBIT 6**

The P&Z Commission's May 19, 2010 Meeting Minutes

### **EXHIBIT 7**

April 8, 2010 Town Hall Meeting Concerning Gas Wells

### **EXHIBIT 8**

The P&Z Commission's March 24, 2010 Work Session Presentation

### **EXHIBIT 9**

Industry's March 24, 2010 Response to Presentation Issues

### **EXHIBIT 10**

The P&Z Commission's March 31, 2010 Work Session Presentation

### **EXHIBIT 11**

Industry's March 31, 2010 Response to Presentation Issues

### **EXHIBIT 12**

The P&Z Commission's April 7, 2010 Work Session Presentation

### **EXHIBIT 13**

Industry's April 7, 2010 Response to Presentation Issues

### **EXHIBIT 14**

The P&Z Commission's April 14, 2010 Work Session Summary Presentation

**EXHIBIT 1**

**Planning and Zoning Commission's March 3, 2010 Meeting Minutes**

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**MINUTES**

**WORK SESSION**

**PLANNING AND ZONING COMMISSION**

**COUNCIL BRIEFING ROOM**

**101 WEST ABRAM STREET**

**March 3, 2010  
4:00 P.M.**

The Planning and Zoning Commission of the City of Arlington, Texas convened in work session on Wednesday, March 3, 2010, in the Council Briefing Room of the Municipal Building, 101 West Abram Street, Arlington, Texas, notice of said meeting being posted as prescribed by Chapter 551, V.T.C.A., Government Code, with the following members present, to wit:

Victor Vandergriff	*	Chair
Edward Gutierrez	*	
Jeffrey Pokrifcsak	*	
Connie Ruff	*	
Charla Vinyard	*	
Kevin McGlaun	*	
Michael Forbes	*	
Andrew Piel	*	

**Absent:**

Stacie Stewart	*
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**Staff Present:**

Jim Parajon	*	Director, Community Development & Planning
Maria Sayas Carbajal	*	Planning Manager/Development
Kathy Zibilich	*	Assistant City Attorney

Chair Vandergriff called the work session to order at 4:03 p.m. and stated that the purpose of the meeting was to conduct the following items of business:

## Gas Well Discussion

The City Council had requested the Commission take a look at specific areas of gas well drilling in Arlington, in particular, land and operation issues. Mr. Parajon gave a Power Point presentation on Natural Gas Program Issues. The City Council had been given the same presentation in February.

Key components of the presentation were:

- Senior Citizen Property Tax Exemptions
- Business and Personal Property Taxes
- Agricultural Exemptions Related to Gas Well Drilling Sites
- Pipelines
- Road Damage Fees
- Frac Ponds
- Specific Use Permit Process and Notifications
- Noise
- Landscaping
- Green Completion
- Air Quality
- Enforcement and Compliance

Mr. Parajon pointed out that the public might not know the difference between the trucks operated by gas well companies and the pipeline trucking companies. Gas well company trucks are prohibited from using certain residential streets and roadways while pipeline company trucks need to be where the lines are being laid.

Roadway Damage Fees need to be re-evaluated in regards to calculations. A 2007 study resulted in a fee of \$200 per well. The cost of repairs of damages to roadways far exceeds that amount.

Frac ponds are lined pits used to store fresh water for fracture operations. Recommendations include treating the pits as design features with time limits and annual maintenance.

Specific Use Permit Processes currently let SUPs expire after one year unless drilling has commenced with no expiration after the first well is drilled. Time limits could be set and boundaries could follow current parcels and tracts instead of the current metes and bounds description. Notification petitions could be increased to 600 feet with a setback reduction petition required at the SUP stage.

Noise violation penalties could be increased with reporting done at one minute intervals.

Landscaping could require Streetscaping in addition the current procedures and those requirements might be expected earlier in the drill site development process.

Green Completion relates to the flaring and venting of the wells. More research may be needed to know how it works and the effects on the environment.

Overall, the Texas Commission on environmental Quality (TCEQ) currently studies emissions from gas production and an urban study focus is planned for Arlington and Fort Worth. Current compliance and enforcement procedures are working well and the Fire Department has effective emergency response plans in place.

Chair Vandergriff stated that the Council had asked the Commission to:

- Provide them with information, not a recommendation
- Make comparisons with other areas
- Provide any applicable recent studies that are available
- Avoid the environmental issues and stay with land uses only

It was suggested that the Commission not meet with industry members individually, but all hear the same presentations from the industry as a group during the month of March. Attendance and participation would be very important as well as staying on topic during work sessions. Gas well issues would be presented in sequential order on agendas for the benefit of industry members and residents who might want to attend the meetings. A smaller work group would be formed to decide on the topics and meeting format.

Mr. Parajon suggested three categories for upcoming meeting agendas:

- Site issues such as landscaping
- Operational issues such as frac ponds and water use
- Road damages and impact associated with trucking

Guest speakers from the gas well industry would be invited to present information and answer questions. Input from area residents could be considered as well. It is possible that a packet of good practices could be available to the Council after the April 7, 2010 work session meeting.

It was suggested that Roger Venables with Real Estate Services provide information to the Commission on the monetary worth of gas well production to the City as a whole.

#### **Future Meeting Dates**

- a. Special Planning and Zoning Commission Work Session Meetings, March 24, 2010 at 4:00 p.m. and March 31, 2010 at 4:00 p.m. to discuss Gas Well Issues
- b. Monthly bus tour on March 26, 2010
- c. Planning and Zoning Commission Meeting, April 7, 2010
- d. Monthly bus tour on April 16, 2010

There being no further business to come before the Commission, the work session was adjourned at 5:22 p.m.

**NOTE:** Taped recordings and minutes of all Planning and Zoning Commission work sessions are a matter of public record and are kept on file in Community Development and Planning, 101 West Abram Street, Arlington, Texas. Any Commissioner or interested party has the right to review these tapes and minutes in Community Development and Planning.

**EXHIBIT 2**

**Planning and Zoning Commission's March 24, 2010 Meeting Minutes**

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**MINUTES**

**SPECIAL WORK SESSION  
GAS WELL ISSUES**

**PLANNING AND ZONING COMMISSION**

**COUNCIL BRIEFING ROOM**

**101 WEST ABRAM STREET**

**March 24, 2010  
4:00 P.M.**

The Planning and Zoning Commission of the City of Arlington, Texas convened in work session on Wednesday, March 24 2010, in the Council Briefing Room of the Municipal Building, 101 West Abram Street, Arlington, Texas, notice of said meeting being posted as prescribed by Chapter 551, V.T.C.A., Government Code, with the following members present, to wit:

Victor Vandergriff	*	Chair
Edward Gutierrez	*	
Jeffrey Pokrifcsak	*	
Connie Ruff	*	
Charla Vinyard	*	
Kevin McGlaun	*	
Andrew Piel	*	
Stacie Stewart	*	

**Absent:**

Michael Forbes	*
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**Staff Present:**

Jim Parajon	*	Director, Community Development & Planning
Maria Sayas Carbajal	*	Planning Manager/Development
Darren Groth	*	Gas Well Coordinator
Jason Grimm	*	Professional Engineer
Kevin Charles	*	Landscape Administrator
Justin French	*	Planning Project Manager I/Development
Jennifer Ramirez	*	Planner/Development
Douglas Cooper	*	Planner/Development
Roger Venables	*	Real Estate Services
Stuart Young	*	Real Estate Services
Kathy Zibilich	*	Assistant City Attorney

Chair Vandergriff called the work session to order at 4:04 p.m. and stated that the purpose of the meeting was to conduct the following items of business:

### **Gas Well Discussion**

Mr. Parajon introduced Roger Venables, Real Estate Services, to the Commission and guests stating that the next three meetings would cover gas drilling processes, site issues, and operational issues, with a summary to be given in a fourth meeting. The topics for the first discussion of processes would include notifications, petition processes, and time limits.

Mr. Venables gave a Power Point Presentation previously seen by City Council on January 26, 2010. The presentation covered the City as a mineral owner, as a taxing entity, and as a regulatory authority, as well as a vendor supplying water to the gas drilling operations. For fiscal year 2010, the City currently averages \$700,000.00 per month in royalty receipts.

Natural gas production in the City is still in the early stages in terms of the City's mineral interests. Twenty percent of the City's leased mineral acres are designated for production. Royalty receipts had a significant increase between 2008 and 2009, most notably the taxable value of the mineral interests within the City. The properties with agricultural exemptions retain that exempt status when the property becomes a drill site. The Railroad Commission filings report an increase in mineral acres which have been unitized for drilling purposes. Gas drilling and production as a permitted use has been approved on 66 sites comprised of 312 acres.

The City's roll in pipeline regulation pertains to how and where the pipelines cross public rights-of-way and public land. License agreements are used to insure that gas pipelines are not in conflict with other utilities. License fees are assessed for mapping and coordination with pipeline companies to guarantee updated insurance and bonding.

Mr. Groth continued with the presentation stating that the number of applications had increased since 2006 with 90 gas well permit applications expected in 2010. Many of these activities are on existing drill sites as drilling operators apply for additional permits year after year.

Currently as applications for a zoning change are received by the City, Property Owner Notices (PON's) are sent out to all homeowners within 200 feet of the pad site. When an applicant applies for a drilling permit, the distance for notifications is increased to 600 feet. The proposed change would increase the 200 foot notification radius to 600 feet for zoning changes as with drilling applications.

In regard to Petitions; during the Specific Use Permit (SUP) process, there is a Petition of Opposition for the zoning change within the 200 foot distance. If 20 percent or more of the acreage representatives in that area submit a letter of opposition to the zoning change, a super majority vote by the City Council is then required for that SUP. If a setback reduction is requested by an applicant during the Gas Well permit process, all property owners within the 600 feet radius must be contacted by the drill site operator and at least 60 percent of those within that radius must approve of the reduction for the gas well to be drilled. If the Petitions of Support are below 60 percent, a super-majority vote by City Council is required for the Gas Well Permit. The proposed change would require that the setback reduction requests be submitted during the SUP process with the same conditions and measurements.

Currently SUP's expire after one year with a possible one year extension with administrative requirements for each site. After the first well is drilled, there is no longer an expiration date and the SUP stays with the property as long as it is an active drill site. The proposed change would set a time limit on the SUP process. After expiration, even with an active drill site, the operator goes before City Council to update the site status.

Entire property boundaries could be included in the SUP, thus helping to enforce landscaping standards and streetscape installation. Plat requirements could ensure adequate infrastructure for adjacent development, identify access easements, and promote orderly development in the City. Mr. Groth presented a Municipal Comparison with neighboring cities regarding zoning, notices, and setback distances and processes.

Additional considerations offered were to make SUP's valid for five years, with operators of existing sites being required to update City Council regarding on-site conditions after the five years. Discussion could be held concerning platting or increasing the SUP area to specify the property lines.

Cliff Mycoskie and Jacob Sumpter with Mycoskie, McInnis, and Associates, Inc. presented the Commission with a packet of recommendations from MMA as well as Chesapeake, Vantage, and Titan regarding proposed changes to the City's Gas Well Ordinance.

Kimberly Frankland, 2708 Augusta Lane, Arlington, 76012, addressed the Commission stating that she felt that gas drilling was development of property and should be treated as any other development or business in the City. She thought that it should be platted with easements and liked the proposal of increasing the notifications to 600 feet.

George Schlemeyer, P.O. Box 122138, Arlington, 76012, offered to share his expertise as a veteran of the oil and gas industry with the Commission.

Mr. Groth demonstrated how to access the City's website and the link to the Gas Well Drilling Site for the Commission, the citizens, and the industry representatives.

### **Future Meeting Dates**

- a. Special Planning and Zoning Commission Work Session Meetings, March 31, 2010 and April 14, 2010 at 4:00 p.m. to discuss Gas Well Issues
- b. Monthly bus tour on March 26, 2010
- c. Planning and Zoning Commission Meeting, April 7, 2010, including further Gas Well Discussion
- d. Monthly bus tour on April 16, 2010

There being no further business to come before the Commission, the work session was adjourned at 5:35 p.m.

**NOTE:** Taped recordings and minutes of all Planning and Zoning Commission work sessions are a matter of public record and are kept on file in Community Development and Planning, 101 West Abram Street, Arlington, Texas. Any Commissioner or interested party has the right to review these tapes and minutes in Community Development and Planning.

**EXHIBIT 3**

**Planning and Zoning Commission's March 31, 2010 Meeting Minutes**

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**MINUTES**

**SPECIAL WORK SESSION  
GAS WELL ISSUES**

**PLANNING AND ZONING COMMISSION**

**COUNCIL BRIEFING ROOM**

**101 WEST ABRAM STREET**

**March 31, 2010  
4:00 P.M.**

The Planning and Zoning Commission of the City of Arlington, Texas convened in work session on Wednesday, April 14, 2010, in the Council Briefing Room of the Municipal Building, 101 West Abram Street, Arlington, Texas, notice of said meeting being posted as prescribed by Chapter 551, V.T.C.A., Government Code, with the following members present, to wit:

Victor Vandergriff	*	Chair
Edward Gutierrez	*	
Jeffrey Pokrifcsak	*	
Charla Vinyard	*	
Kevin McGlaun	*	

**Absent:**

Connie Ruff	*	
Michael Forbes	*	
Stacie Stewart	*	
Andrew Piel	*	

**Staff Present:**

Jim Parajon	*	Director, Community Development & Planning
Maria Sayas Carbajal	*	Planning Manager/Development
Darren Groth	*	Gas Well Coordinator
Jason Grimm	*	Professional Engineer
Justin French	*	Planning Project Manager I/Development
Jennifer Ramirez	*	Planner/Development
Douglas Cooper	*	Planner/Development
Kathy Zibilich	*	Assistant City Attorney
Ivan Bland	*	Assistant City Attorney

Upon arrival of the fifth Commission Member which would constitute a quorum, Chair Vandergriff called the work session to order at 4:12 p.m. and stated that the purpose of the meeting was to conduct the following items of business:

## Gas Well Discussion

Commissioner Gutierrez made a motion to appoint a briefing committee of three unspecified members for the purpose of revising the Natural Gas Well Ordinance. Commissioner Vinyard seconded the motion which was approved unanimously.

Mr. Parajon introduced Gas Well Coordinator, Darren Groth, who gave a Power Point presentation on Gas Well Drill Site conditions such as fracing, landscaping, fencing, and remediation.

Frac ponds could have time limits set for the restoration of the ponds with annual maintenance, fencing requirements, and water disposal plans. Frac tanks could be an alternative to ponds as well as temporary water lines connecting to an off-site or adjacent pond. Ponds, which are generally 15 to 17 feet deep, could be incorporated into the site landscaping if needed.

Landscaping of site perimeters maintain setbacks following current zoning conditions. Installation of landscaping could be done at the property boundaries instead of around the interior pad site. Streetscape landscaping could require a ten foot setback.

Temporary fencing is considered at the beginning of the drill site process. As drilling goes on, secure fencing is required around the wellhead. Chain link fencing is required around ponds with an allowance for barbed wire above the chain link if desired. Permanent walls are currently masonry, but opacity standards could be set giving security and well site personnel better visibility. Industrial area sites and residential neighborhood sites could be treated differently. Opaque fencing options could include vinyl-coated chain link or ornamental iron fencing with brick columns.

Remediation of sites is currently required in accordance with the rules of the Railroad Commission. All wells are to be cut and removed to a depth of at least ten feet below the surface and no buildings shall be built over an abandoned well. Only one Arlington site has been reclaimed to date with the frac pond restored to pre-drill condition and the pad site reduced to the final production area. Future development of reclaimed sites would need to be planned around the abandoned well bores.

In closing, Mr. Groth's recommendations were to:

- Broaden the use of the alternative water sources and water choices
- Highlight temporary water line usage and use of existing water sources
- Encourage non-masonry site fencing for security
- Streetscape all sites
- Not allow temporary fencing except around frac ponds
- Tiered site classification depending on zoning and neighboring area

A comparison to other municipalities was presented with the greatest similarities in road damages and traffic issues with the greatest differences being with fencing and screening requirements.

Mr. Parajon pointed out that the City requires a masonry wall around a site at the completion of drilling. The ordinance was written as a temporary use but in reality it is a typical use requiring permanent fencing. Perhaps there needs to be a balance between security and design features. The City currently has 170 wells on 65 different drill sites.

The Commission was interested in the tiered approach and asked Staff to put together a plan addressing both industrial and residential uses, time limits, and the best use of the City's water supply.

Jacob Sumpter with Mycoskie, McInnis, and Associates, Inc. presented the Commission with comments from MMA as well as industry representatives Chesapeake, Vantage Energy, and Titan Operating regarding the Staff's recommendations and proposed changes to the City's Gas Well Ordinance. In regards to frac ponds, the Industry felt that time limits on ponds would limit and diminish the ability of using regional frac ponds for more than one site and possibly promote the need for more ponds. If a pond was located in a more industrial area, with no adjacent protected uses, the treatment and design of the ponds should fit in that area. They felt that standard parameters for fencing around frac ponds needed to be developed and asked the Commission to consider six foot black vinyl coated chain link fencing for all ponds. The industry favored a tiered system for frac pond and landscape designs with each tier having specific requirements. There were also issues with planting street trees on property not owned by drilling operations as well as limited visibility due to landscaping.

George Schlemeyer, P.O. Box 122138, Arlington, 76012, explained the processes involved in plugging well bores following the Rail Road Commissions guidelines and commented on the possibility of development over an abandoned well bore. In regards to water filtration, he felt that it was more economical to buy the water needed for fracing than to clean up frac water for reuse.

Kimberly Frankland, 2708 Augusta Lane, Arlington, 76012, stated that the tiered system was a great idea. She had concerns with not requiring masonry walls around drill sites in high profile locations and residential areas, although she understood the need for security and visibility.

Lorraine Levine, 3508 Halifax Drive, Arlington, 76013, stated that she had concerns with the lack of visibility behind the masonry walls.

### **Future Meeting Dates**

- a. Planning and Zoning Commission Meeting, April 7, 2010, including further Gas Well Discussion
- b. Monthly bus tour on April 16, 2010

There being no further business to come before the Commission, the work session was adjourned at 5:47 p.m.

**NOTE:** Taped recordings and minutes of all Planning and Zoning Commission work sessions are a matter of public record and are kept on file in Community Development and Planning, 101 West Abram Street, Arlington, Texas. Any Commissioner or interested party has the right to review these tapes and minutes in Community Development and Planning.

**EXHIBIT 4**

**Planning and Zoning Commission's April 7, 2010 Meeting Minutes**

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**MINUTES**

**SPECIAL WORK SESSION  
GAS WELL ISSUES**

**PLANNING AND ZONING COMMISSION**

**COUNCIL BRIEFING ROOM**

**101 WEST ABRAM STREET**

**April 7, 2010  
4:00 P.M.**

The Planning and Zoning Commission of the City of Arlington, Texas convened in work session on Wednesday, April 7, 2010, in the Council Briefing Room of the Municipal Building, 101 West Abram Street, Arlington, Texas, notice of said meeting being posted as prescribed by Chapter 551, V.T.C.A., Government Code, with the following members present, to wit:

Victor Vandergriff	*	Chair
Jeffrey Pokrifcsak	*	
Charla Vinyard	*	
Kevin McGlaun	*	
Connie Ruff	*	
Michael Forbes	*	
Andrew Piel	*	

**Absent:**

Stacie Stewart	*
Edward Gutierrez	*

**Staff Present:**

Jim Parajon	*	Director, Community Development & Planning
Maria Sayas Carbajal	*	Planning Manager/Development
Darren Groth	*	Gas Well Coordinator
Jason Grimm	*	Professional Engineer
Justin French	*	Planning Project Manager I/Development
Jennifer Ramirez	*	Planner/Development
Douglas Cooper	*	Planner/Development
Kathy Zibilich	*	Assistant City Attorney

Chair Vandergriff called the work session to order at 3:34 p.m. and stated that the purpose of the meeting was to conduct the following items of business:

## Gas Well Discussion

Mr. Groth gave a Power Point presentation on Site Operations regarding gas well drilling in the City, highlighting road damages, transportation, bonding, and flowback.

Currently, road damage fees are assessed with each permit based on lane miles, roadway type, number of wells on the site, and the condition of the roadway. The fees are determined from a 2007 study of the 2004 assumptions. An update of the fees will consider per-lane assessments, more accurate traffic counts, site ingress and egress, and updated construction costs.

Transportation routes need to be evaluated taking into consideration truck traffic, school zones, and time restrictions. Flexibility and cooperation between the City and Drill Operators will be needed based on road conditions, construction, and detours.

Bonding amounts for each well are currently \$50,000 during drilling and reworking with \$10,000 for producing without reworking the well. The bonds guarantee insurance of liabilities including spills and environmental issues. The per-well fee affects the operator's credit rating and ability to insure so a blanket bond, per operator based on the number of wells, was suggested. Commissioner Piel recommended a requirement of using only Treasury Listed bonding companies which are guaranteed solvency.

Flowback occurs during the fracing process when frac water returns to the surface. The process is very quiet and the industry has requested permission to allow flowback during nighttime hours with the proper notification, currently not allowed by Ordinance.

A site operation comparison of five other cities was presented with particular attention paid to the positive processes used by Fort Worth and Mansfield. Staff recommendations were to:

- Re-examine and update the road damage calculations with upfront fees
- Continue utilizing direct traffic routes
- Blanket bonding per Operator for the entire City
- Allowing Flowback on any day at any hour of the day or night

There was discussion and input regarding the update of fee calculations, bonding, letters of credit, and the long term impact to the roadways. It was noted that frac ponds generate less truck traffic than using tanks and that the number of wells on each site should factor into the application fees. It was suggested that the current Ordinance may not fit with current technology and Commissioner Piel was concerned that the Railroad Commission's standards might not be high enough for an urban setting such as the City of Arlington. Commissioner Vinyard suggested that consideration should be given to each site bi-annually and all agreed that a general summary and evaluation should be done systematically as technology changes.

Cliff Mycoskie with Mycoskie, McInnis, and Associates, Inc. presented the Commission with comments from MMA as well as industry representatives Chesapeake, Vantage Energy, Titan Operating, Range Resources, and Quicksilver Resources regarding the Staff's recommendations and proposed changes to the City's Gas Well Ordinance. In regard to road damage fees, the Industry felt that comparisons to other Cities was beneficial. Consumptive use, also known as truck-axle-trip, could be used to calculate the impact to the roadways. He praised Staff for doing an excellent job of diverting traffic to the State Highways instead of City streets.

Cathy Meachum, 2420 Villa Vera Drive, Arlington, 76017, addressed the Commission with her concerns of commercial truck traffic in the Bowen Road and Bardin Road area just south of Interstate 20 near the Rush Creek Drill Site. It is estimated that 30 wells could be drilled at that location.

Dave Dietsch, 4708 El Salvador Court, Arlington, 76017, commented that frac ponds only help with inbound water, but outbound water still needs to be taken away from the drill site by disposal trucks. He was also concerned with the amount of truck traffic in neighborhoods around drill sites.

Mr. Parajon noted that the Commission had completed their discussions on the three categories and that a follow-up would be presented on topics such as the tiered package approach and time frames. A summary of the three gas well discussions would be presented to the Commission on April 14, 2010, to assist with their decisions and recommendations.

The Commissioners were informed of a District 2 Town Hall Meeting seeking public input on Gas Well Issues to be held on Thursday, April 8, 2010, at 7:00 p.m. in the Cafeteria of Carol Holt Elementary, 7321 Ledbetter Road.

#### **Future Meeting Dates**

- a. Joint Work Session Meeting of the Planning and Zoning Commission and the Planning and Zoning Commission's Gas Drilling Briefing Committee, April 14, 2010
- b. Monthly bus tour on April 16, 2010

There being no further business to come before the Commission, the Gas Well Discussion portion of the work session was adjourned at 4:47 p.m.

**NOTE:** Taped recordings and minutes of all Planning and Zoning Commission work sessions are a matter of public record and are kept on file in Community Development and Planning, 101 West Abram Street, Arlington, Texas. Any Commissioner or interested party has the right to review these tapes and minutes in Community Development and Planning.

**EXHIBIT 5**

**Planning and Zoning Commission's April 14, 2010 Meeting Minutes**

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**MINUTES**

**SPECIAL WORK SESSION  
GAS WELL ISSUES**

**PLANNING AND ZONING COMMISSION**

**COUNCIL BRIEFING ROOM**

**101 WEST ABRAM STREET**

**April 14, 2010  
4:00 P.M.**

The Planning and Zoning Commission of the City of Arlington, Texas convened in work session on Wednesday, April 14, 2010, in the Council Briefing Room of the Municipal Building, 101 West Abram Street, Arlington, Texas, notice of said meeting being posted as prescribed by Chapter 551, V.T.C.A., Government Code, with the following members present, to wit:

Victor Vandergriff	*	Chair
Jeffrey Pokrifcsak	*	
Kevin McGlaun	*	
Connie Ruff	*	
Andrew Piel	*	
Stacie Stewart	*	
Edward Gutierrez	*	

**Absent:**

Charla Vinyard	*
Michael Forbes	*

**Staff Present:**

Jim Parajon	*	Director, Community Development & Planning
Maria Sayas Carbajal	*	Planning Manager/Development
Darren Groth	*	Gas Well Coordinator
Jason Grimm	*	Professional Engineer
Justin French	*	Planning Project Manager I/Development
Jennifer Ramirez	*	Planner/Development
Douglas Cooper	*	Planner/Development
Kevin Charles	*	Landscape Administrator
Kathy Zibilich	*	Assistant City Attorney

Chair Vandergriff called the work session to order at 4:04 p.m. and stated that the purpose of the meeting was to conduct the following items of business:

## Gas Well Discussion

Mr. Groth gave a Power Point presentation summarizing the previous three work sessions regarding Drill Site Processes, Site Conditions, and Site Operations in the City. Through discussions and feedback, the Tiered Classification of the pad sites was identified for change. Tiers are based on zoning and requirements are to be constructed up front and maintained by the drill operators. Suggested were:

Tier I, possibly used where drill sites are adjacent to residential areas, could require a masonry wall or similar treatment around the site, a 40-foot transitional buffer around the property, a ten foot enhanced streetscape, and ponds as a design feature.

Tier II, where drill sites are adjacent to commercial areas, could require wrought iron fencing with masonry columns, a 20-foot transitional buffer around property, a ten foot enhanced streetscape, and ponds as a design feature.

Tier III, in an industrial area, could require vinyl coated chain link fencing with a zero to ten foot transitional buffer around the property, a ten foot streetscape, and frac pond standards.

Suggested Ordinance revisions included:

- Specific Use Permit (SUP) expiration dates
- Definition of a site boundary
- Flowback activity allowed 24/7

Suggested policy changes included:

- Notification distances and neighborhood meetings prior to the SUP
- Use of easements in lieu of platting
- Use of temporary water lines
- Requirement of access drive paving
- Removal of major equipment when site is dormant

Items suggested for additional review from the Commission were:

- Road damages and the fees involved
- Bonding requirements per site

Other cities in the area have higher notification distances and there was discussion on sending notifications at the SUP stage as well as making all notice distances equal. A risk assessment of bonding was suggested using information from other cities. The City assesses the costs of repairs so it was suggested that benchmarks of existing road conditions be taken before site work begins, with periodic re-assessments and negotiations with drill operators thereafter. The Commission compared bonds and fees for road repairs. Bonds are currently \$50,000 per site and subject to be called during their time frame at the City's discretion. Fees are collected and remain in place long after bonds expire when roads may develop problems and need repair. There was much discussion on how to prove damages by drill operations and the road damages possible during the various stages of a drill operation. A combination of bonds and per bore fees, higher than currently assessed, was suggested. It was noted that trucks hauling to a Tier III site might be using streets in Tier I and Tier II areas.

Chair Vandergriff pointed out that the City Council would be the policy maker and that the Planning and Zoning Commission would need to identify the issues for Council consideration. He suggested a reporting format of:

- Identifying the issues in a matrix style
  - Outlining the COA current practices
  - Clear comparison to other cities for benchmarking
  - Comments for consideration or a list of ideas and how they may interrelate
- He also asked for information on several additional cities not listed in an earlier comparison, as well as any additional recommendations from the Staff and responses from the Industry.

It was suggested that Citizen's questions might be used in compiling the list of issues and that, financially; the Citizenry may not be gaining as much as the City and the gas companies are. When notifications are mailed out, it was suggested that more information be included in those Property Owner Notices to explain to the public the details of the SUP, invite them to any potential neighborhood meetings, and increase communication with residents. General information is available on the City website and those who call the Community Development and Planning Department can have questions answered by Staff during business hours.

Meeting notes from the District 2 Town Hall Meeting on April 8, 2010, were given to the Commission as well as copies of an article from the Star Telegram published April 13, 2010, entitled "Arlington considers tighter rules for natural gas drilling".

Cliff Mycoskie with Mycoskie, McInnis, and Associates, Inc. presented the Commission with comments from MMA as well as industry representatives Chesapeake, Vantage Energy, Titan Operating, Range Resources, and Quicksilver Resources regarding the Staff's recommendations and proposed changes to the City's Gas Well Ordinance.

Todd Harshman, 5520 Silver Maple Drive, 76018, read a statement to the Commission regarding safety, property values, timelines, and quality of life. He asked that the Commission consider timelines, setbacks, landscape and streetscape standards, sound walls, frac ponds, reclamation, and notifications.

Bill Tillotson, 7704 Frio River, 76001, asked the Commission to consider the recent noise standards used in Mansfield. He compared velocity to speed in regard to sound and suggested that the City standards could be raised in order to protect residents from excessive noise levels.

Chair Vandergriff announced that the Commission would have the opportunity for additional service in the near future as they contribute input on the Economic Incentive Package in the City.

### **Future Meeting Dates**

- a. Planning and Zoning Commission Meeting, April 21, 2010

There being no further business to come before the Commission, the work session was adjourned at 5:59 p.m.

**NOTE:** Taped recordings and minutes of all Planning and Zoning Commission work sessions are a matter of public record and are kept on file in Community Development and Planning, 101 West Abram Street, Arlington, Texas. Any Commissioner or interested party has the right to review these tapes and minutes in Community Development and Planning.

**EXHIBIT 6**

**Planning and Zoning Commission's May 19, 2010 Meeting Minutes**

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**MINUTES**

**SPECIAL WORK SESSION  
GAS WELL ISSUES**

**PLANNING AND ZONING COMMISSION**

**COUNCIL BRIEFING ROOM**

**101 WEST ABRAM STREET**

**April 14, 2010  
4:00 P.M.**

The Planning and Zoning Commission of the City of Arlington, Texas convened in work session on Wednesday, April 14, 2010, in the Council Briefing Room of the Municipal Building, 101 West Abram Street, Arlington, Texas, notice of said meeting being posted as prescribed by Chapter 551, V.T.C.A., Government Code, with the following members present, to wit:

Victor Vandergriff	*	Chair
Edward Gutierrez	*	
Jeffrey Pokrifcsak	*	
Connie Ruff	*	
Charla Vinyard	*	
Kevin McGlaun	*	
Michael Forbes	*	
Andrew Piel	*	

**Staff Present:**

Jim Parajon	*	Director, Community Development & Planning
Maria Sayas Carbajal	*	Planning Manager/Development
Darren Groth	*	Gas Well Coordinator
Kevin Charles	*	Landscape Administrator
Justin French	*	Planning Project Manager I/Development
Sharon Hurd	*	Planning Project Manager I/Development
Douglas Cooper	*	Planner/Development
Jennifer Ramirez	*	Planner/Development
Kanet Rattanathamwat	*	Civil Engineer
Jennifer Cobbs	*	Civil Engineer
Jason Grimm	*	Professional Engineer
Kathy Zibilich	*	Assistant City Attorney

Chair Vandergriff called the work session to order at 3:36 p.m. and stated that the purpose of the meeting was to conduct the following items of business:

## Gas Well Discussion

Chair Vandergriff noted that the City Council would like the Commission to keep in mind items for Part II of the Gas Well Report as they put together Part I of the report. There would be no set timeline to complete the report and the Commission should take as much time as needed to do the best job possible. It was suggested that the report consist of three core issues:

- Economic impact to the COA and individual citizens now and in the future
- Balancing of the desire to maximize revenue and land use
- Identifying the general issues in Part I and Part II of the Gas Well Report

The task would be to filter the issues into the least number possible, combining similar issues into one so as to make it simple and easy to understand. Part I of the Report should address processes, sites, and operations.

The Commissioners discussed the draft copy of the Gas Well Report one item at a time. It was suggested that additional attention be given to the issue of land use, pipelines and City ROW's, truck routes, notifications, and long term effects to the residents and business operators. Industrial uses in residential areas were discussed. Commissioners suggested that maps and flowcharts would be helpful in their consideration of the issues. The importance of Staff and Industry input as well as the concerns of residents was stressed.

Commissioner McGlaun suggested the report state the factual information on the processes followed by what was learned from the Industry, the public's comments, a comparison to other Municipalities, and ending with consideration for the Council.

Commissioner Ruff suggested increased and clearer notifications, including a list of issues and FAQ's with clear answers and explanations for better communication with everyone involved with, and affected by, gas well drilling. She felt that tenants of homes and businesses should be notified as well as the property owners.

It was noted that classifying gas wells as a temporary use may not be accurate since the life of a drill site could last for two or more decades. Also, items required after completion of a pad site such as screening, landscaping with maintenance, and road repairs might be required at the onset of the project instead of years down the road. Production is a significant impact to the City and can last for many years and sub-stations may have a negative effect on residential growth.

Commissioner Vinyard suggested gas drilling be viewed as a permanent change to the look of the City and that drill sites should meet certain aesthetic requirements now and in the future. Commissioner Forbes suggested three key points: effective land use, operations and how to maintain them, and the future maintenance of properties. It was agreed that Part 1 topics include a balance of the economics versus land use and long term impact of those uses. Suggestions for Part II included noise abatements and Brownfields as drill sites.

Kimberly Frankland, 2708 Augusta Lane, 76012, addressed the Commission stating:

- The industrialization of the City was a great concern
- Masonry walls and heavy landscaping would help all tiers of the drill sites
- Drill sites, even in industrial areas, were detrimental to the City
- The City should restrict the minimum distance between drill sites
- SUP's do need time limits
- Notifications should be sent out to all within a 1000 foot radius
- The definition of a masonry wall was unclear
- The landscaping requirements needed for each tier was unclear
- Landscaping was important and that dust and dirt were issues in all tiers
- Unsightly equipment on drill sites was a concern
- The current setback distance is disruptive to the community
- Permanent industrialization was happening with the current ordinance
- She preferred a slow down on approving every drill site request

Ken Feil, 409 North Elm, 76011, said he had long term concerns and asked if any economic impact studies had been done on the revenue of a drill site versus the value of several homes on the same tract of land. He was concerned with the future landscape of the COA and the inability to build structures over an abandoned site.

Kim Feil, 409 North Elm, 76011, stated that when looking at the terrain of the City, she had concerns with pollution and the quality of life. She requested that samples be taken of the air and land to see what the impact could be due to drill sites.

Cathy Meachum, 2420 Villa Vera, 76017, agreed with the previous speakers and their concerns with the long term effects of gas well drilling. She praised the Commission for their work to address the long term issues, but had concerns with creating an ugly city with industrial wastelands discouraging new residents from moving in.

### **Future Meeting Dates**

- a. Joint Work Session Meeting of the Planning and Zoning Commission and the Planning and Zoning Commission's Gas Drilling Briefing Committee Meeting on May 26, 2010 at 4:00 p.m. in the Council Briefing Room **CANCELLED**
- b. Planning and Zoning Commission Meeting, June 2, 2010
- c. Monthly bus tour on June 4, 2010

There being no further business to come before the Commission, the work session was adjourned at 5:30 p.m.

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## EXHIBIT 7

### April 8, 2010 Town Hall Meeting Concerning Gas Wells

#### NOTES:

1. Noise
  - a. One thinks we need to revamp the gas well ordinance, especially related to noise levels. He said other cities have better ordinances and fines for not complying with a sound level should be raised to \$20,000
2. Emissions
  - a. One concerned about quality of air around the school
  - b. One person concerned about benzene.
  - c. Another said no benzene is released during drilling operations. He said it is only emitted when the gas is wet gas. Arlington's gas is dry gas.
  - d. Lady who works for gas company said VOCs (volatile organic compounds) are the real emissions culprit
  - e. Do we require recovery units on tanks?
3. Notification about gas well
  - a. One person wants notification to 1000'
  - b. Another wants more notification—even about *possible* well sites
  - c. A person said notification should be at least 600' and preferably 1000'
4. Pipeline
  - a. What can we do about pipeline companies?
  - b. Resident was not notified about a pipeline being installed behind her house, which resulted in ground shaking, big equipment, trucks, dust, etc. Wants to know who is notified and when?
  - c. Pipeline trucks are running down Ledbetter—a small country road.
5. Compressor Station
  - a. What are we doing about the noise levels at compressor stations? Do they use hospital mufflers?
6. Overall gas well regulations
  - a. Are we monitoring the rules and regulations we now have in place? How often? Who? These well sites (she is close to the Pruitt well) are filthy, trucks run all night, Ledbetter Rd is full of cracks, truck ended in ditch, etc. — who's watching?
  - b. Resident heard, just that night, loud noises and trucking. He said they also frac at night and said gas companies make so much money they don't care about the little penalty money we charge.
7. Petitions/Agreement to waive the 600' distance
  - a. Should be a prohibition against gas well companies paying for signatures.
  - b. Instead of 60% of owners, it should be 75%-100%
  - c. Another said it should be 80%-90%
8. Inspections
  - a. How many city staffers are employed to specifically inspect well sites?
  - b. How many complaints have there been concerning gas well operations?

- c. Can we hire inspectors? Let the gas companies pay for them. Could we have independent inspectors?
  - d. When and how often are inspections of wells and well sites?
- 9. Communication
  - a. Do we have a 24-hour hotline for gas well problems/emergencies?
  - b. What percent of complaints are valid?
- 10. Roads
  - a. Gravel is being accumulated on side roads and is dangerous, notably to children on bicycles.
  - b. One man lives near Bardin/Bowen Rd site and can hardly get around because of the truck traffic. He said Chesapeake isn't living up to their leases
  - c. Gas well access roads need to be paved as is required of other industrial sites.
  - d. Shaker needs to be placed between drill site and access road.
- 11. Miscellaneous
  - a. A penalty should be to shut down the operation for a day or so in addition to money.
  - b. Concern about the industrial look of Arlington and its future growth. We aren't holding any big areas for future development.
  - c. People can't sell their homes around the Pruett well, which has been up two years.
  - d. Pruett site has no fencing or landscaping after two years.
  - e. Look at drill sites as long term operations
- 12. Aesthetics
  - a. Landscaping and masonry wall isn't done for many years
  - b. Need nice fencing and landscaping
- 13. Distance of well to protected uses
  - a. Several seemed to want wells to be at least 600' from houses, one said 1000'
  - b. All who spoke on this subject seemed to agree 300' is too little
- 14. Process
  - a. Require notification to at least 1,000 feet
  - b. Require petitions to be signed without monetary payment
  - c. Do not allow setback reductions, adhere to 600-foot standard
- 15. Conditions
  - a. Use Mansfield noise model
  - b. Find a way to increase fines
  - c. Require access drive to be paved
  - d. Require removal of major equipment when activity not occurring
  - e. Require landscaping, etc. up front
  - f. Require pipeline companies to submit truck routing
- 16. Questions
  - a. Do we have a way to contact an inspector 24 hours per day?

## **EXHIBIT 8**

The P&Z Commission's March 24, 2010 Work Session Presentation

Pages 58-83



# Natural Gas Program Summary

Planning and Zoning Commission Work Session

March 24, 2010

# Natural Gas Program Summary (2006-Present)

## CITY AS:

### MINERAL OWNER

- Mineral asset leasing and management

### TAXING ENTITY

- Business Personal Property – Pipelines and drilling equipment
- Mineral Interests Assessed Value – based on market value of estimated recoverable reserves and the corresponding potential future net income discounted to present value
- Land – appraised value of land utilized for exploration and production purposes

### REGULATORY AUTHORITY

- Pipeline Licensing
- Gas Well Permitting



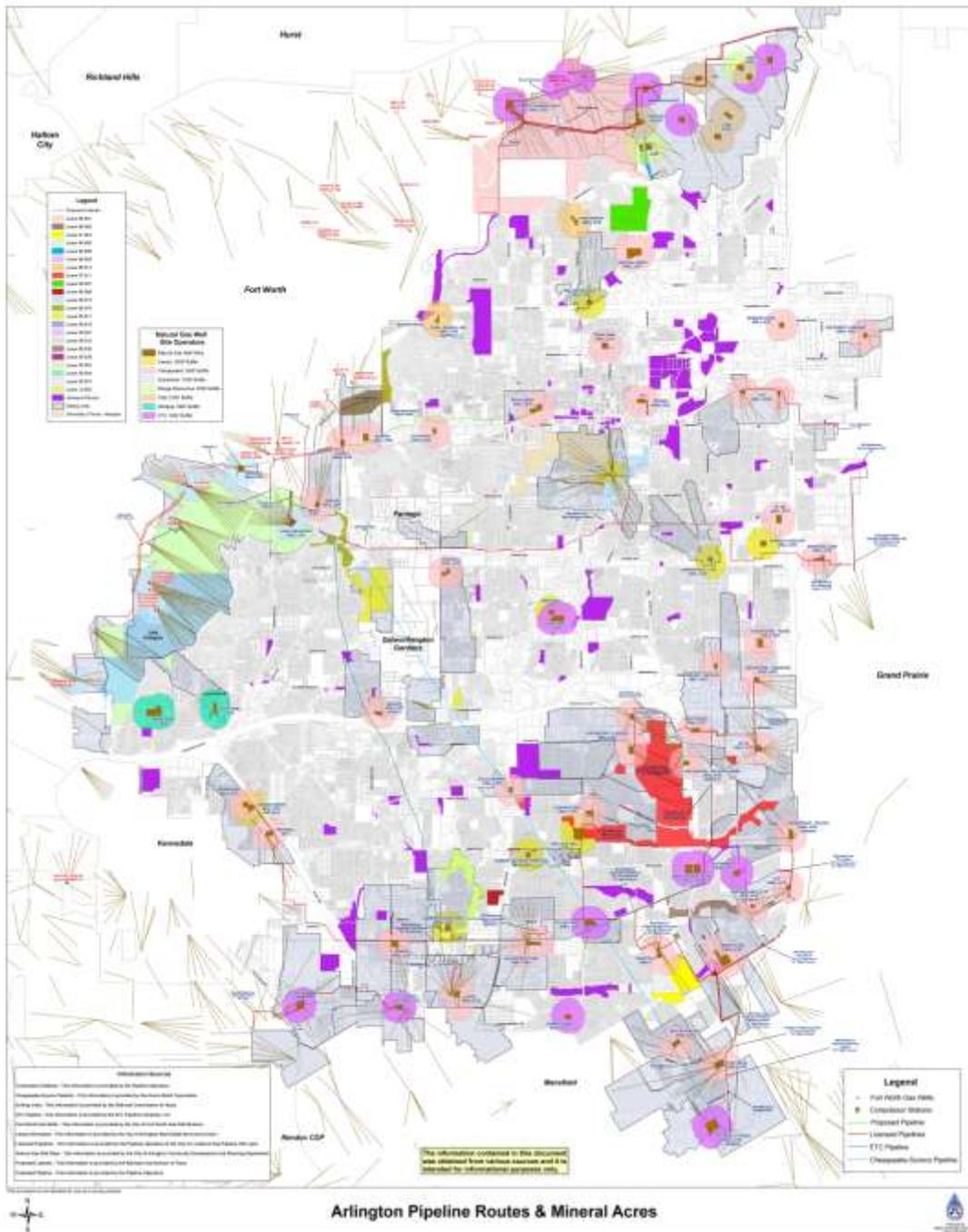
# Drilling Status

(City Minerals Only)

- Total Wells Drilled: 71  
24 located in Arlington
- Wells in Production (City only): 42  
33 located outside Arlington
- Shut-In Wells (City only): 6

# Production Status

- Unitized Acres: 2,677
- Non-unitized Acres: 2,318
- Acres in production: 1,021

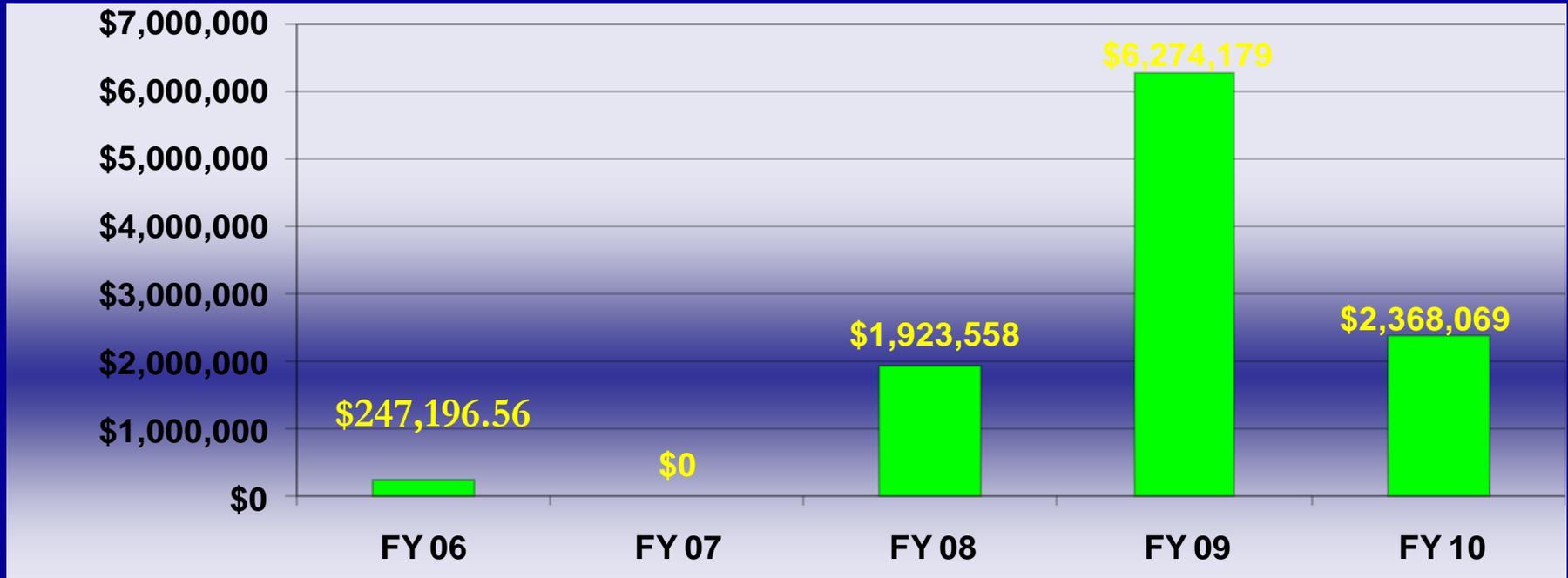


# Total Program Receipts by Year

	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>*FY 2010</b>	<b>TOTAL</b>
<b>Lease Bonus</b>	\$4,772,774.85	\$25,470,913.24	\$11,191,985.64	\$17,407,402.81	\$374,211	\$59,217,288
<b>Royalty Receipts</b>	\$247,196.56	-	\$1,942,654.31	\$6,193,332.24	2,345,569.38	\$10,728,752
<b>Shut-In Royalty Payments</b>	-	-	-	\$20,000	\$22,500	\$42,500
<b>Seismic License Fees</b>	\$8,000	\$15,436.58	\$3,790	\$4,817.47	\$3,702.67	\$35,747
<b>Total</b>	<b>\$5,027,971</b>	<b>\$25,486,350</b>	<b>\$13,138,430</b>	<b>\$23,625,553</b>	<b>\$2,745,983</b>	<b>\$70,024,287</b>

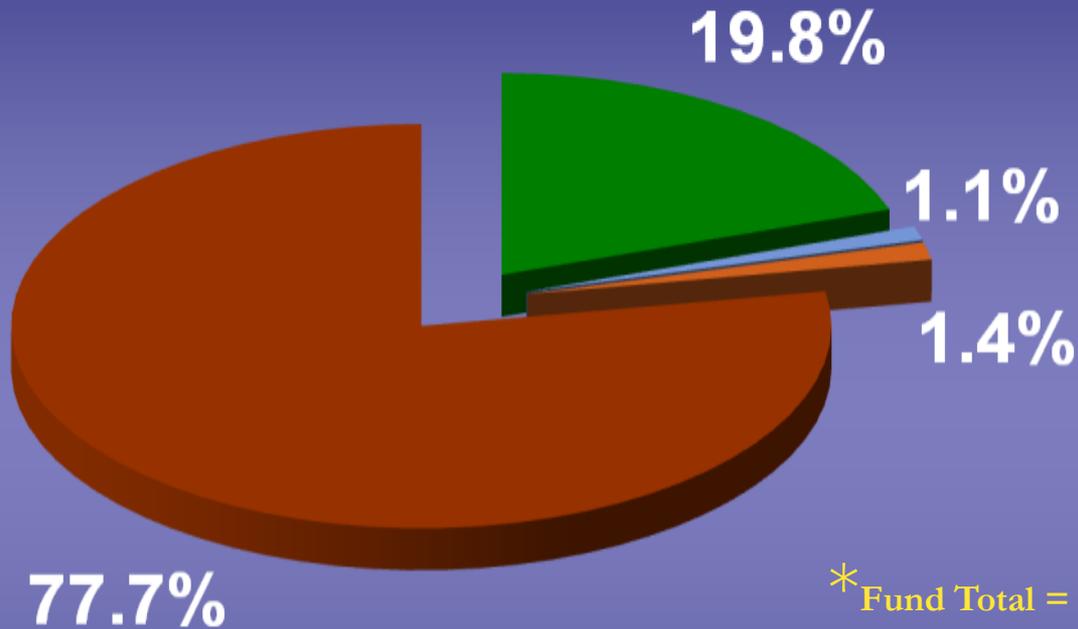
\* NOTE- FY2010 Represents 3 months of revenue activity

# Royalty Receipts by Fiscal Year



\* NOTE- FY2010 – 1<sup>st</sup> Qtr receipts

# Revenue Allocation



\* Fund Total = \$69,988,540

- City
- Expenses
- Land Banking
- Arlington Tomorrow Foundation

# Ad Valorem Tax

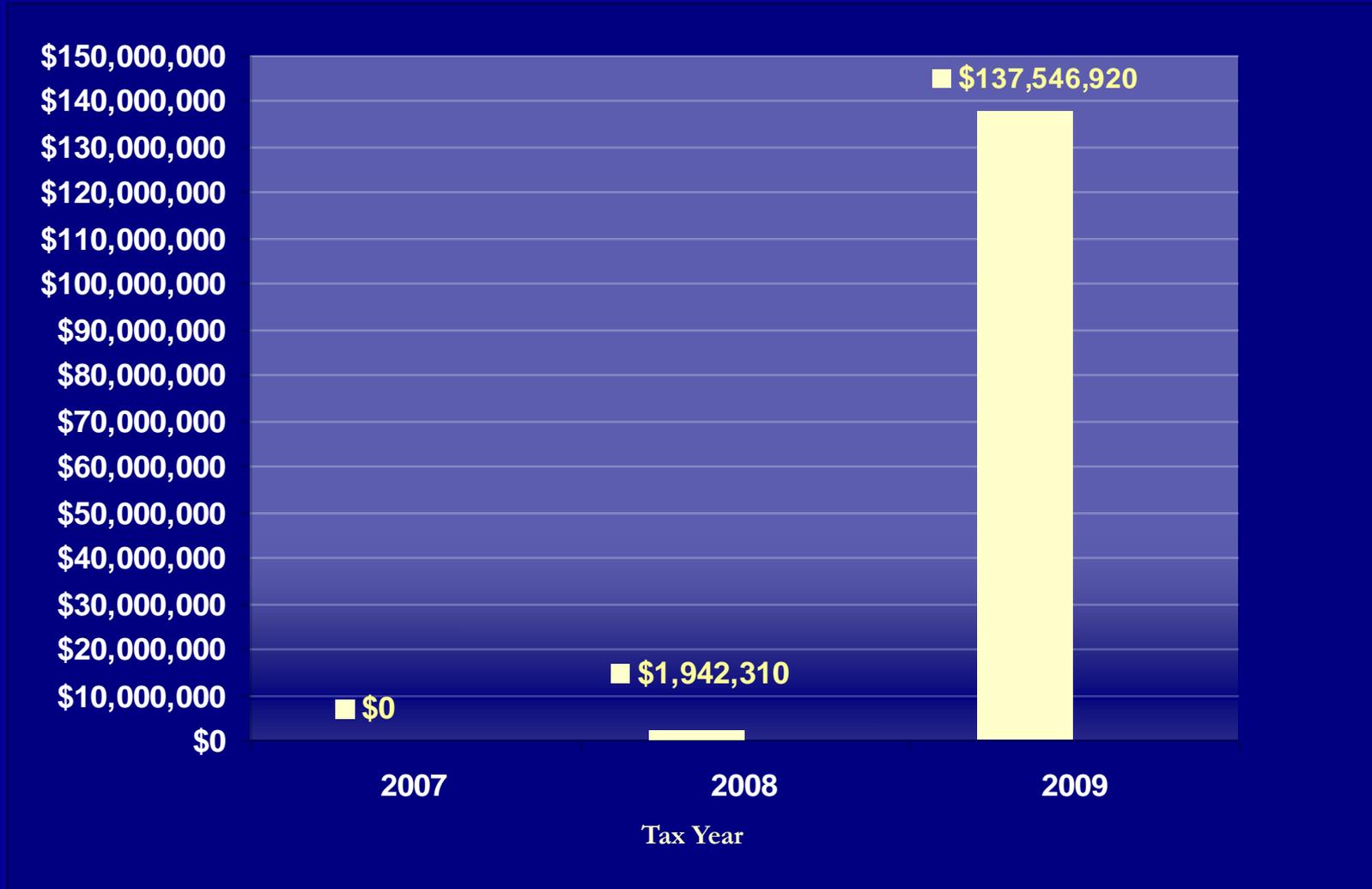
## Business Personal Property Assessed Value (by Year)



Includes pipelines, drilling rigs and compressors

# Ad Valorem Tax

## Mineral Interest Total Assessed Value by Year



# Ad Valorem Tax

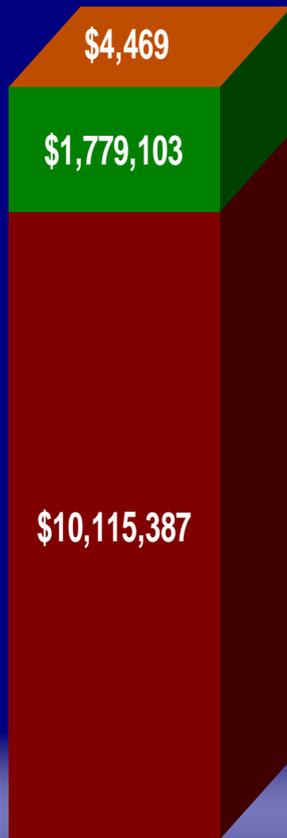
## Taxable Value Summary by Year

Tax Year	Business Personal	Mineral Interest	Totals	Tax Revenue (City Only)
2006	\$3,865,610	\$ 0	\$ 3,865,610	\$ 38,656.10
2007	\$2,153,120	\$ 0	\$ 2,153,120	\$ 21,531.20
2008	\$21,412,770	\$ 1,942,310	\$ 23,355,080	\$ 151,340.91
2009	\$22,284,770	\$137,546,920	\$159,831,690	\$1,035,709.35*
			<b>Total</b>	<b>\$1,247,237.56</b>

\*Note- Anticipated tax collection based on certified appraised value

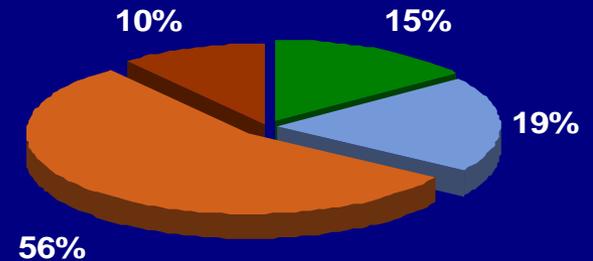
# Taxable Land Value Analysis

## Assessed Values



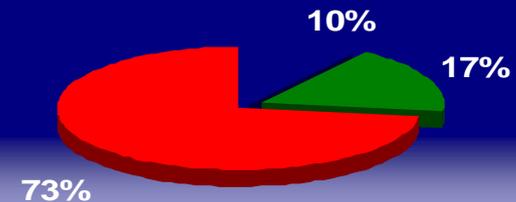
- Ag Exempt Acreage
- Tax Exempt Acreage
- Taxable Acreage

## Acreage Distribution by Zoning



- Ag Acres - 46.62
- Residential Acres - 93.17
- Commercial Acres - 173
- Multi-Family - 32.70

## Taxable Status



- Tax Exempt - 30
- Ag Exempt - 53.9
- Taxable - 228.9

# Alternative Land Use Tax Value Comparison

Use	Acreage	Total Tax Value	Tax Value per Acre
<b>Multi Family</b>			
Gateway Park	9.5939	\$13,717,976	\$1,429,864
Mission Rock Ridge	12.5897	\$17,281,306	\$1,372,654
Bardin Greene	15.8586	\$15,941,030	\$1,005,198
Chesterfield	13.86	\$13,577,000	\$ 979,582
Falcon Lakes	17.45	\$16,407,000	\$ 940,229
Medlin Square	2.1149	\$ 1,448,000	\$ 684,666
<b>Retail/Commercial</b>			
Arlington Highlands	87.638	\$183,909,560	\$2,098,523
Lake Prairie Towne Crossing	61.453	\$ 57,313,381	\$ 932,638
Mansfield Towne Crossing	45.519	\$ 38,818,348	\$ 852,796
Mansfield Town Center	28.029	\$ 20,734,967	\$ 739,758
Creekside Plaza	32.391	\$ 15,404,354	\$ 475,575
<b>Drill Site</b>	<b>78.312</b>	<b>\$138,196,652</b>	<b>\$1,764,693</b>

# Leasing, Production and Tax Value Highlights

- Natural gas production is in the early stages of development with only **20%** of the City's leased mineral acres designated for production
- Royalty receipts **increased 326%** between Fiscal Years 2008 and 2009.
- Taxable value of mineral interests in Arlington **increased 7,081%** between Fiscal Years 2008 and 2009
- Properties with agricultural exemption prior to the construction of a drill site will not lose their agricultural exempt status
- Based on Railroad Commission filings approximately 21,300 mineral acres have been unitized for drilling out of an estimated 63,000 mineral acres in Arlington
- **66 sites** comprised of **312 acres** have been approved for gas drilling and production as a permitted use

# PIPELINE REGULATION

**Natural Gas Pipelines are permitted by the Texas Railroad Commission**

**The City regulates  
where and how they cross  
public rights-of-ways and public land**

**The City uses Pipeline License Agreements to require operators to:**

- **Communicate planned pipeline route and locations**
- **Complete ROW Permit process and plan review**
- **Provide adequate insurance and bonding**
- **Preserve future municipal expansion opportunities**
- **Submit “As-Built” construction plans**

## Summary of Pipeline Licensing

- Licensed linear feet

86,866

- Constructed linear feet “city-wide”:

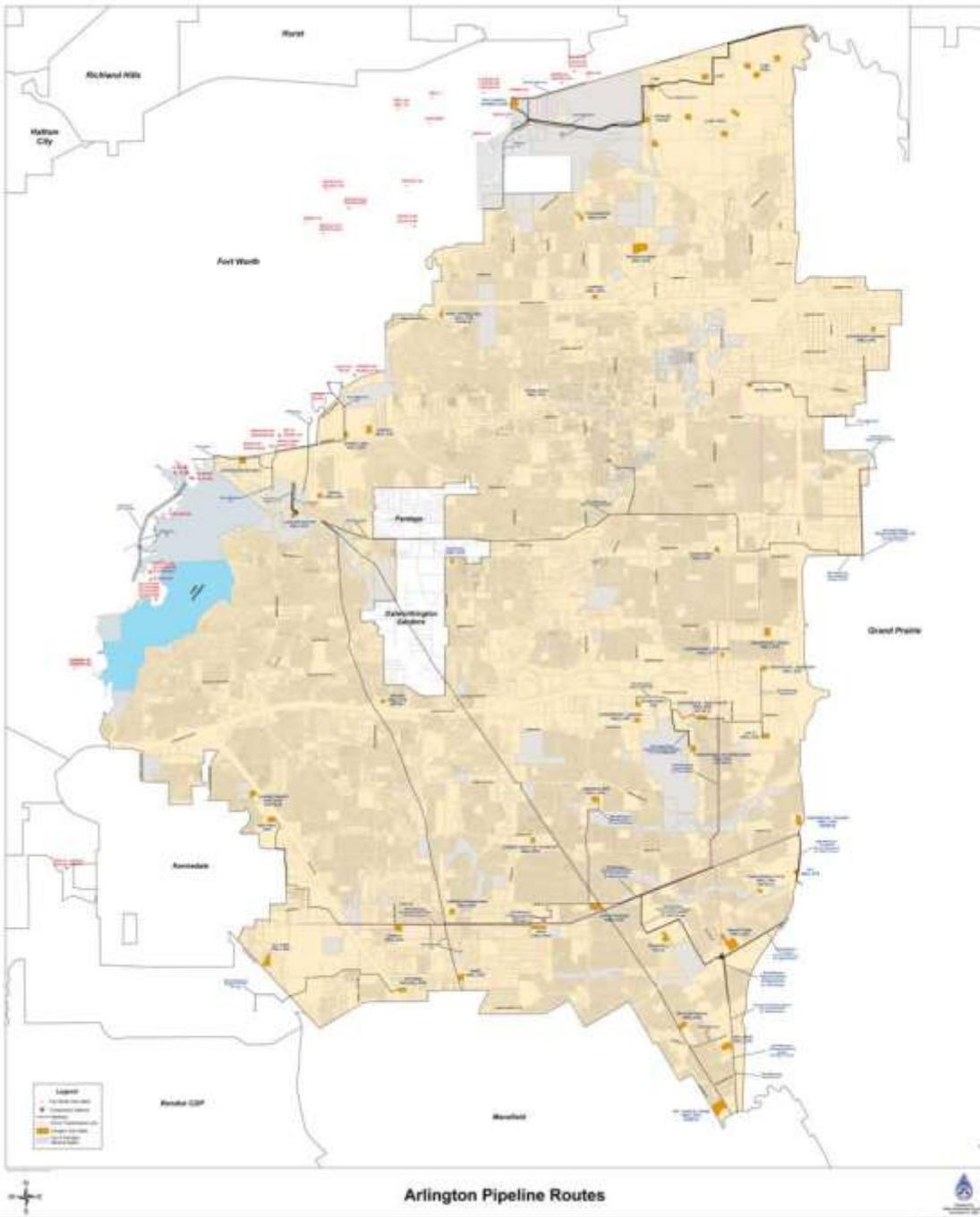
111,177

- Projected linear feet not constructed:

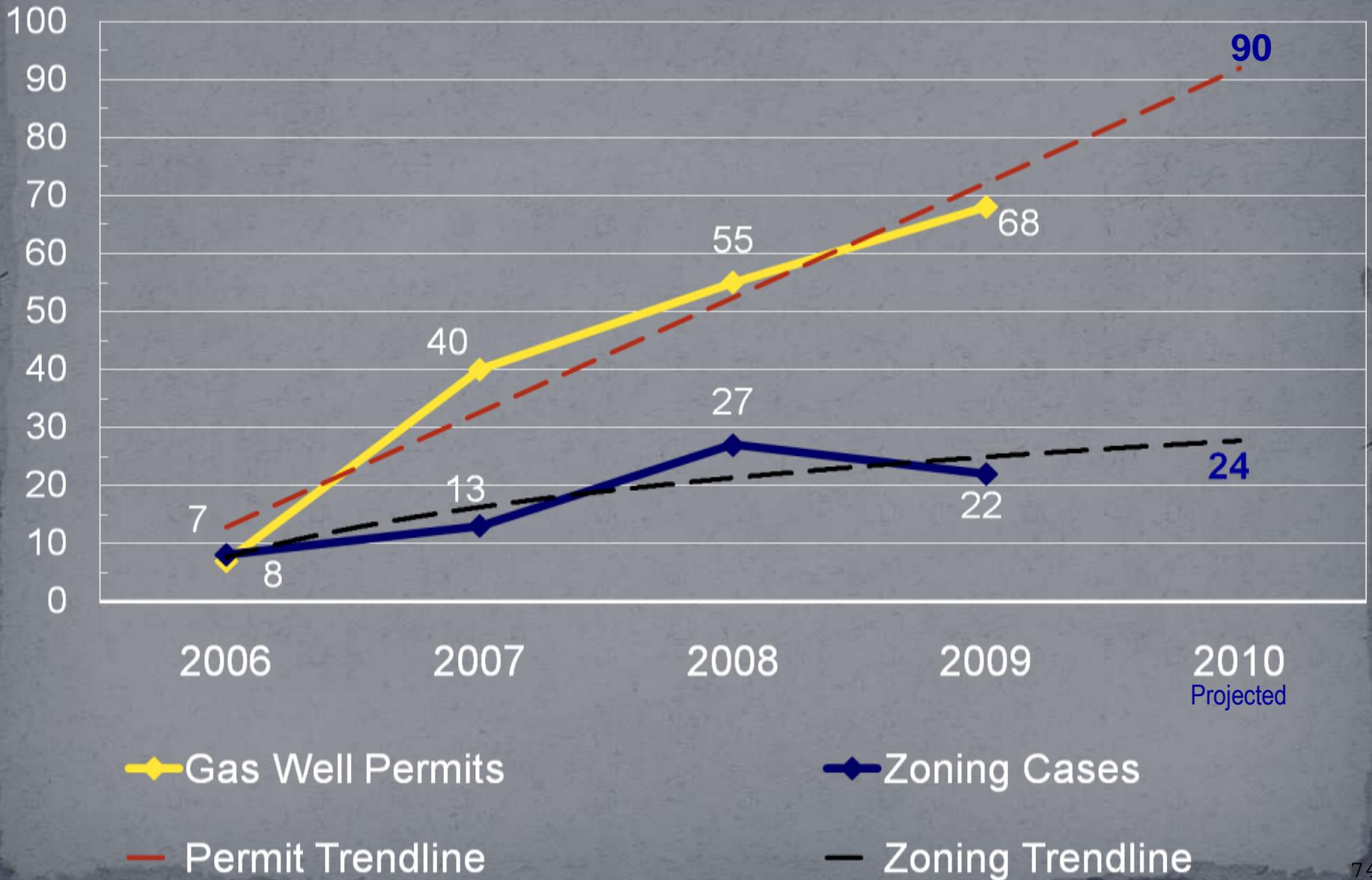
259,692

- Collected license fees

\$3,149,345.85



# Applications

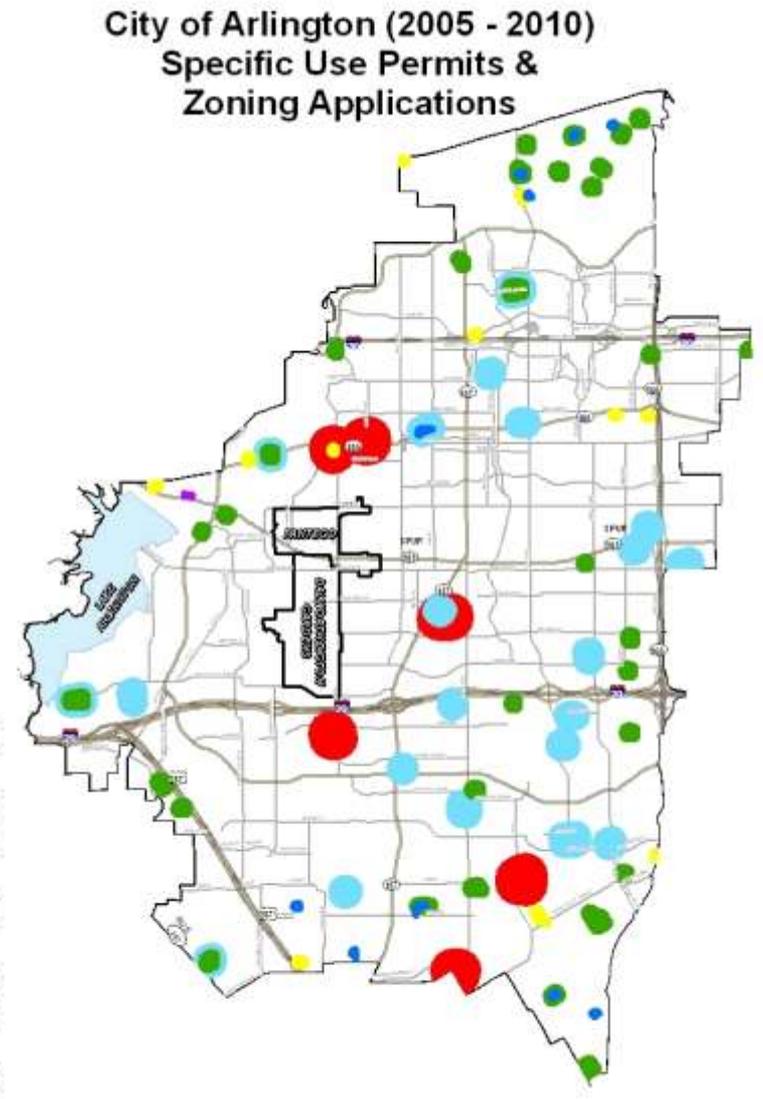


# Specific Use Permits (SUP)

## Zoning Applications

PD prior to October 2007

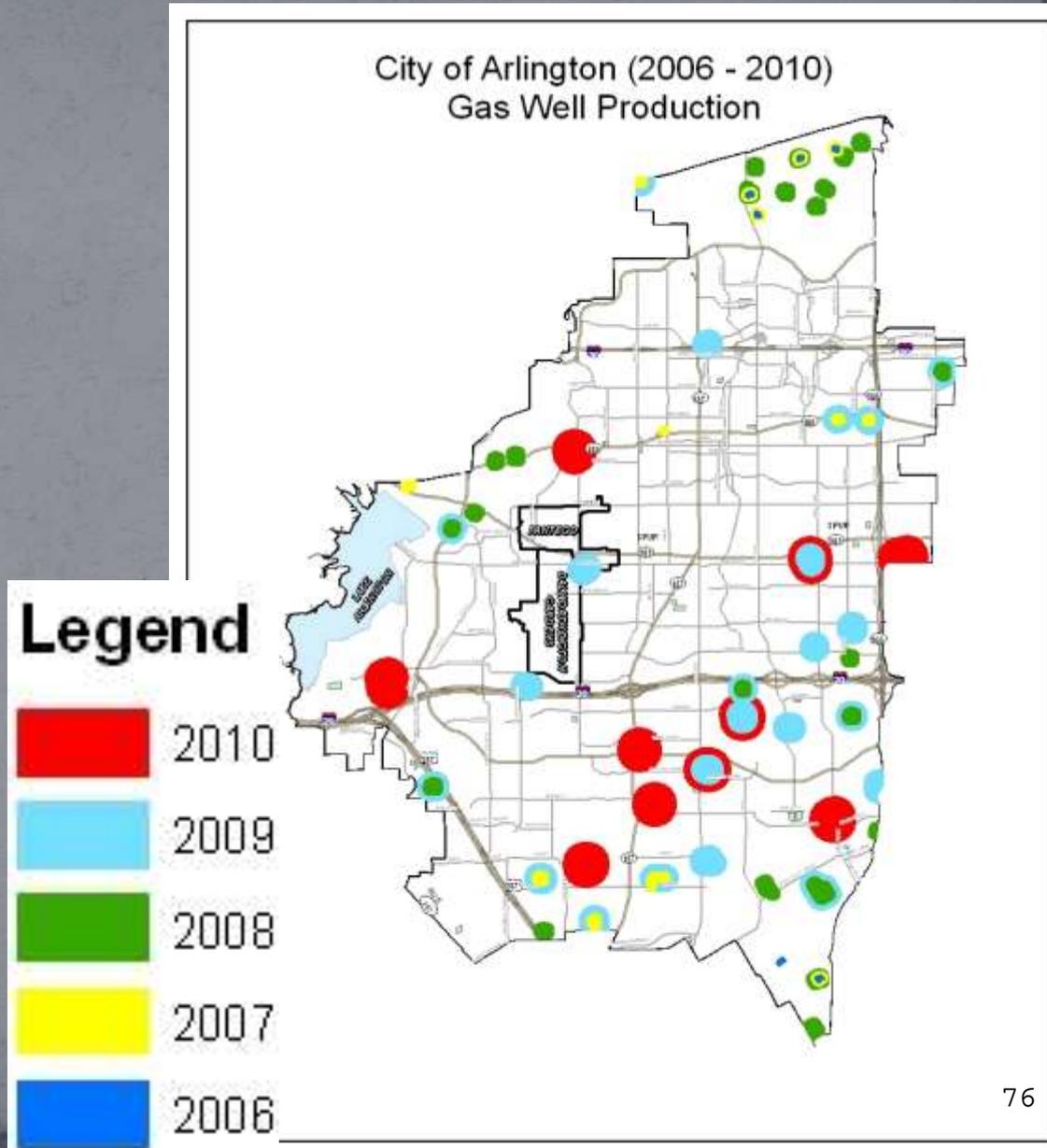
- 2005 – 1
- 2006 – 7
- 2007 – 13
- 2008 – 27
- 2009 – 22
- 2010 – 6  
(as of 3-17-10)



# Gas Well (GW) Permits

## GW Applications

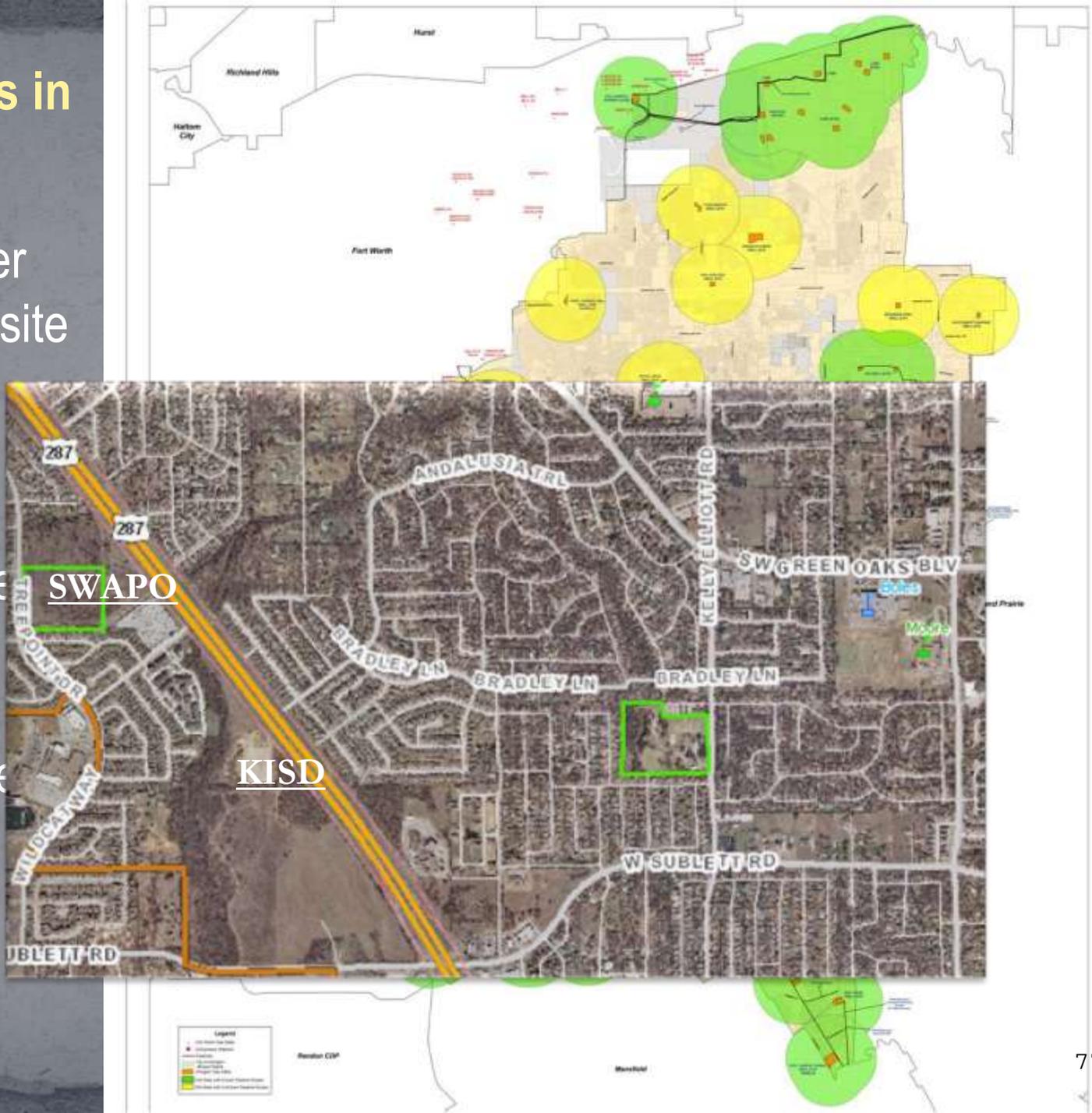
- 2006 – 7
- 2007 – 40
- 2008 – 55
- 2009 – 68
- 2010 – 30  
(as of 3-19-10)



# Known Drill Sites in Arlington

3,000-foot buffer around each drill site

- Green – pipeline identified
- Yellow – pipeline not identified



# Current Processes

## ➤ Notifications

- 200 feet for zoning
- 600 feet for permit

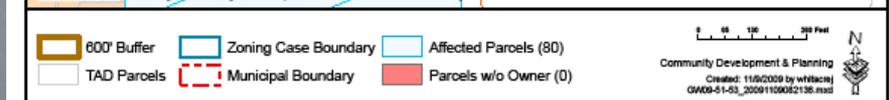
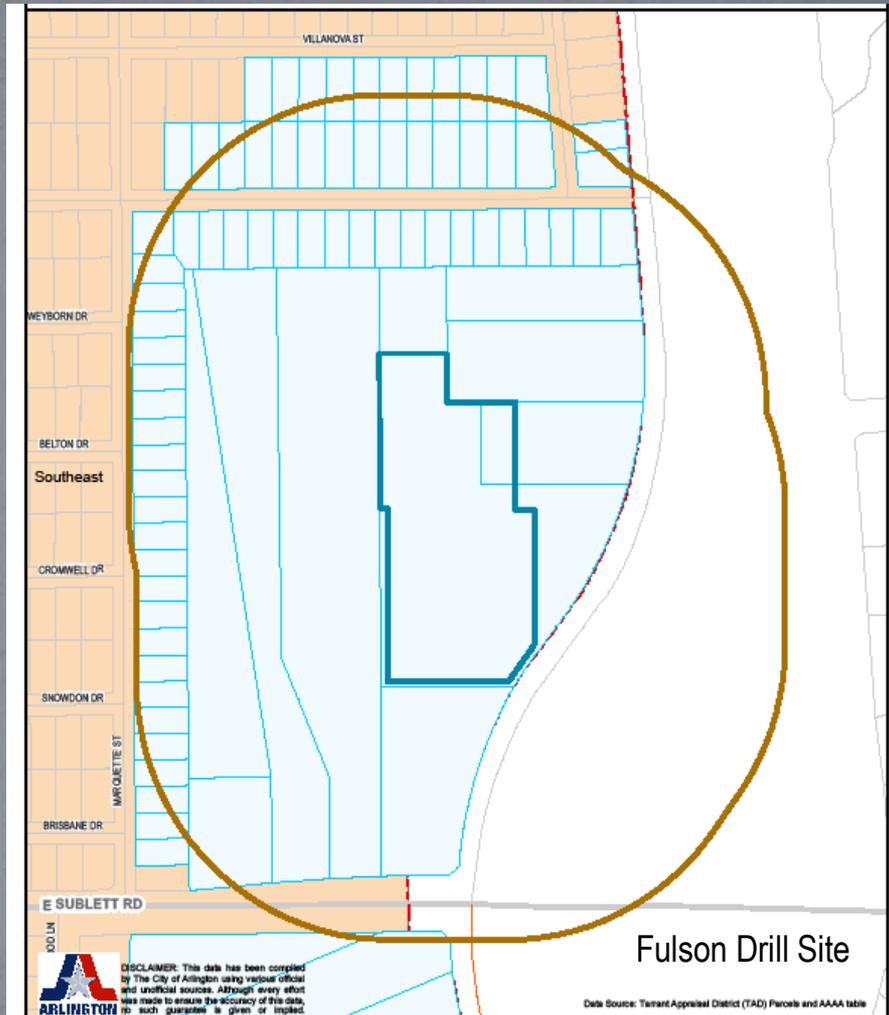
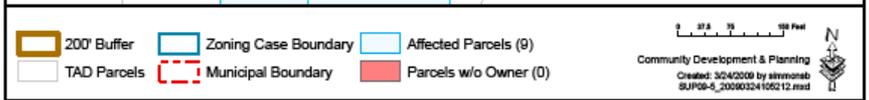
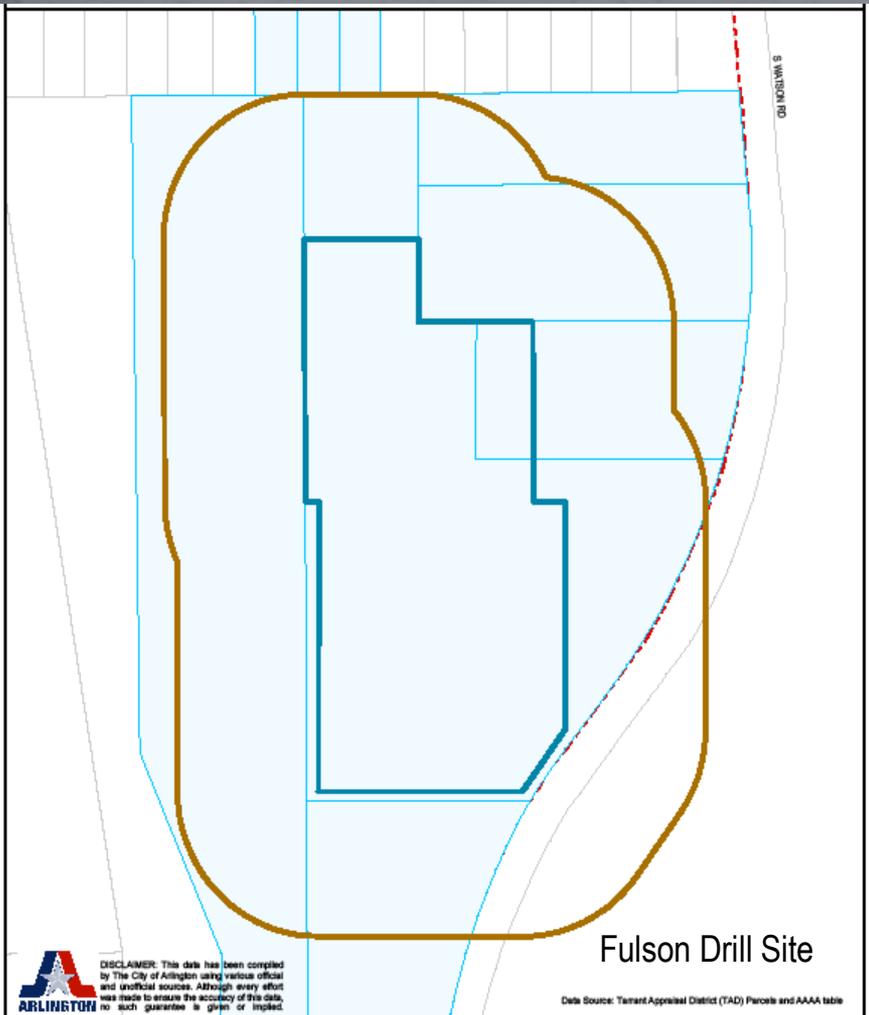
## ➤ Petitions

- SUP – 20% opposed
- GW – 60% support

## ➤ SUP Time Periods

- Expire after 1 year – GW permit issued and drilled
- 1 year extension may be granted
- After 1<sup>st</sup> well drilled, no expiration

# Example Notifications



Zoning Case: 9 notices  
 200 foot notice area (TLG § 211.007c)

Gas Well Permit: 83 notices  
 600 foot notice area (GDP § 5.03E)

# Proposed Changes

## ➤ **Notifications**

- 600 feet for zoning
- 600 feet for permit

## ➤ **Petitions**

- Setback reduction request submitted during SUP stage
- Same conditions and measurements
  - 20% opposed and 60% support

## ➤ **SUP Time Periods**

- Expire after set time period
- Operator goes before Council and updates site status

# Additional Concerns

## Property Boundaries

- **Entire property included in SUP**
  - Enforcement of landscaping standards outside drill site area
  - Streetscape landscaping installed in accordance with City Ordinance
- **Plat Requirement**
  - Ensures adequate infrastructure for adjacent development
  - Identifies access easements for future lots
  - Promotes orderly development in Arlington

# Municipal Comparisons

City	COA	Fort Worth	Grand Prairie	Mansfield	Flower Mound	Grapevine	Southlake
Zoning	Yes	No	No	Yes	Yes, only for centralized facility	Yes	Yes
Notice	-200 ft for SUP -600 ft for GWP	-1000 ft, multiple wells -none for subsequent	-1000 ft of proposed well	-600 ft	-1000 ft of proposed well	-1000 ft	-1000 ft from proposed site
Setback	-600 feet to protected uses -100 feet from other buildings	-600 feet to protected uses	-500 feet to protected uses	-600 ft to subdivision; residence, public building, institution, school, day care or commercial building  -1000 ft to hospital, nursing home or Law Enforcement Center	-1000 ft to parks & residence w/o mineral interest; religious institution; public, hospital or school ; buildings  -500 ft to residence w/ mineral interest; buildings; ENV Areas	-1000 ft from a park or protected use  -300 from any building  -can only be approved in non-residential zoning districts	-1,000 ft from any habitable structure; school; hospital
Reduced Setback Process	-permit stage  - 60% of affected property owners consent (majority) -prove attempt to obtain 60% (super-majority)	-either 1)signed waiver, 100% required; or 2)City Council public hearing	-administrative approval of permits  -setback reduction requires Council approval of a variance	-SUP stage  -Council approval, operator provides waivers from owners of protected properties	-at Oil and Gas Board of Appeals (ZBA) discretion  -\$1,500 appeal fee to reduce setback distances	-City Council discretion at SUP stage  -only to properties within the City limits	-SUP stage  -P&Z recommends and City Council approve

# Recommendations

- Notify 600 feet for both Zoning and Permitting stage
- Reductions processed per site during SUP stage
- Keep SUP and GW petition processes the same
- Measure setback distance from identified drilling zone
- GW Permits expire after 1-year, plus 1-year extension
- Assess permit extension fee with longer timeframe

## Additional Considerations Required

- SUPs valid for 5 years
- SUP Operators of existing drill sites must update Council about on-site conditions after 5 years
- Plat or increase SUP area to specify property line

Industry's March 24, 2010 Response to Presentation Issues

## City of Arlington Natural Gas Program-Issues Discussion Topics

for the

### Planning and Zoning Commission Work Session

March 24, 2010

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Below are comments from **MMA, Chesapeake, Vantage Energy, and Titan Operating**, *in italics and red*, regarding the proposed changes to the City of Arlington Gas Well Ordinance.

#### 1. SPECIFIC USE PERMIT PROCESS AND TIMING:

Current Procedure:

- A. SUP's expire after 1 year-unless permit issued and drilling commenced on the site.
- B. After first drilled well, SUP has indefinite validity (no expiration)
- C. Boundary defined by metes and bounds description

Staff Recommendations:

- A. Set time limit for the SUP (still allow additional SUP's on same site)
- B. SUP boundaries to follow current parcel or tract boundary.

#### **Comments:**

1. *The limit of 5 cases on a P&Z or City Council agenda prolongs the process of drilling wells. (See Staff Recommendation A)*
2. *Setting a time limit on SUP's is a bad idea and could incur the need for additional well sites.*
3. *If drilling operators have to go back thru the process to obtain another zoning request it will prolong the time needed to drill all the wells.*
4. *There are already a number of factors which limit the timing and speed of drilling (i.e. leases, surface use agreements, state requirements, etc.). If the city's goal is to have the wells drilled as fast as possible, this recommendation (i.e. time limit on SUP's) would do the opposite, **not speed things up**.*
5. *The gas well permit process currently sets time limits on the number of wells and when they expire.*
6. *An SUP time limit could duplicate the process of the gas well permit process (i.e. gas well expirations). Setting time limits on an SUP is ultimately doing the same thing twice (i.e. double dipping).*
7. *The goal is to have gas well sites coexist with future or existing development. By defining the drilling area, by metes and bounds, the maximum site area to be used for drilling is outlined. It's a bad idea to have the SUP boundary follow the current parcel or tract.*
8. *This could possibly limit the future development of a larger parcel, if it is encumbered by an SUP for the entire tract. Identifying the drilling/fracing area works well by providing a metes and bounds description.*
9. *Most property owners adjacent to drill sites do not want operators to drill constantly. Adjacent property owners do not want constant drilling for months but rather would like a reprieve for a while before drilling comes back.*
10. *Timelines hurt the economic viability of potential well sites. It is not in the best interest of the gas operators, city, or mineral owners to produces wells when natural gas is at a low price.*

#### **Questions:**

1. *If the SUP boundary is to follow the current parcel or tract, would the future development of the same parcel or tract be affected?*

**Recommendations:**

1. SUP expires 5 years after last well drilled, or
2. The SUP expires if no well has been drilled within 5 years.
3. The SUP and 1<sup>st</sup> gas well permit to be approved by City Council. All other permit requests to be approved administratively and/or staff (Planning Director). Allow for an appeal process to the City Council if there are disagreements from stipulations imposed by staff.
4. Administrative approvals will streamline the timeline in which the wells could be drilled.

**2. NOTIFICATIONS AND PETITIONS:**

Current Procedure:

Zoning:

- A. OPPOSITION; ¾ vote required IF: 20% within proposal; or outside, within 200 feet, protest

Gas Well Permits:

- A. Reduced to not less than 300 feet if: 60% of property owners 300-600 feet around the well consent, or Operator attempts to obtain 60% consent and super-majority vote.

Staff Recommendation:

- A. Increase SUP notification distance to 600 feet.
- B. Require setback reduction petition at SUP stage.

**Comments:**

1. An option to consider is to allow the Planning and Zoning Commission and City Council to consider the SUP and first drilling permit only, requiring the setback reduction petition at zoning.
2. Additional wells could be reviewed and approved administratively unless the operator is requesting an increase in the drill site size and also allowing the ability to appeal any stipulations, made by staff, to the City Council.
3. Wells not located within 600' of protected uses should be approved administratively by the Planning Director. The City of Fort Worth has this in their ordinance.
4. Notification of 600' from boundary of pad is OK.

**Questions:**

1. Absentee landowners are not counted. How does the city define an absentee landowner?
2. Is vacant property considered a protected use?
3. Can vacant residential properties be excluded from the protected use list?

**Recommendations:**

1. Increase the SUP notification distance to 600 feet. Distance shall be measured from the zoning (SUP) legal description provided. If protected uses are affected by a site, **60% waivers must be obtained during the SUP stage**. Waiver distance shall be measured from the well head(s). The waivers shall run with the lot, parcel, or tract for the life of the pad site. The waivers would no longer be needed when applying for a gas well permit.
2. If waivers are required at the SUP stage, they will not be required at the permit stage.

### 3. PLATTING: NOT INCLUDED IN THE COUNCILS INITIAL PRESENTATION

#### Staff Recommendation:

- A. Platted lot vs. non-platted
- B. Gerrymander the p. line to avoid notification
- C. City needs easements, dedication etc in platting
- D. Difference in development of another property

#### Comments:

1. *Platting affects the end user as well as the gas operator.*
2. *Compare gas pads to franchise utilities. Gas pad is like an electric substation in regards to use and appearance. Electric substations are more visible than most gas well pads.*
3. *Require platting at the development of the final well.*
4. *If platting becomes required, allow the plat to be approved with deferred conditions. Future development would not like deferred conditions.*
5. *City wants gas well operators to dedicate city easements and right-of-way, which is difficult if the operator has a SUA (Surface Use Agreement), and is not the property owner.*
6. *The way leases are written, cannot get easements from land owners. Gas well operators will have hands tied.*
7. *Sometimes conditions of a lease do not allow platting of property. Gas well operators do not have control of this if in the lease.*
8. *Gas well sites do not need utility extensions.*
9. *Gas well operators are not gerrymandering the sites to avoid notification. They are purely following ordinance requirements and trying to locate sites and wells in locations which affect the fewest number of people.*
10. *Platting requires a number of things which can encumber a property and limit the future development (i.e. easements, access to lots).*
11. *Gas operators have to respect previous lease agreements. Platting may be excluded from an agreement.*
12. *We feel the platting requirement stems from requiring landscaping on the street frontages for some gas well sites. As some sites are not located on property owned by gas well operators it is sometimes difficult to receive approval from land owners. We believe staff feels like platting a property will allow for the enforcement of landscape installation.*

#### Questions:

1. *If the city desires street frontage landscaping, can gas well operators just ask for approval from land owner and not encumber the property with easements, which may negatively affect the ultimate development of the property?*

#### Recommendations:

1. *In lieu of platting, a **covenant shall be placed** on the entire lot or tract the gas well site is located on. The covenant shall be for landscaping requirements placed on a site, due to adjacent protected uses or proximity to major thoroughfares. **The covenant shall cease to exist upon the development, platting, or sale of the property for future development.** Covenant provisions would be required on all new surface use leases dated xx/xx2010. Operator would make a good faith effort to obtain such covenants on existing surface use leases, but cannot guarantee surface owner's consent.*
2. *If a surface lease or property owner does not allow the installation of landscaping on their property, allow for the operator to pay into a "tree fund". The denial of installing landscaping on a leased property must be obtained in writing, and from the current owner, or his assigned agent.*
3. *Enable the use of "deferred conditions" for gas well sites. Platting shall not be required for gas well sites as leases may not allow for it. Conditions could be deferred when platting is required for future development (i.e. Conditions must be applied when the remaining property is developed for another use).*

## **EXHIBIT 10**

The P&Z Commission's March 31, 2010 Work Session Presentation

Pages 87-99

# Natural Gas Program Summary

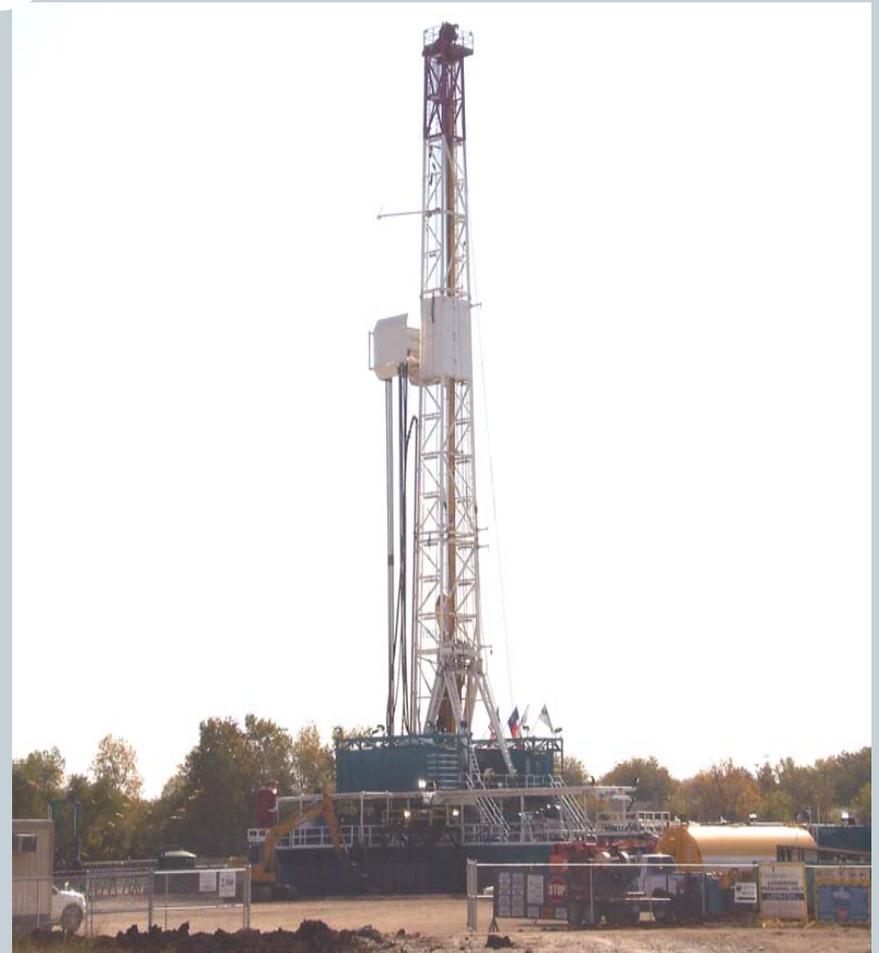
Planning and Zoning Commission Work Session

March 31, 2010

Rice Loh  
Drill Site

# Site Condition Topics

- 1) Fracing
- 2) Landscaping
- 3) Fencing
- 4) Remediation



Stoner Drill Site

# Fracing

## ➤ **Frac Ponds**

- Time limits for restoration
- Annual maintenance
  - Aesthetics, weeds, pond full
- Fencing requirements
- Water disposal upon frac completion
- Design as a feature

## ➤ **Frac Tanks**

- Number of tanks
- Additional Roadway Impact

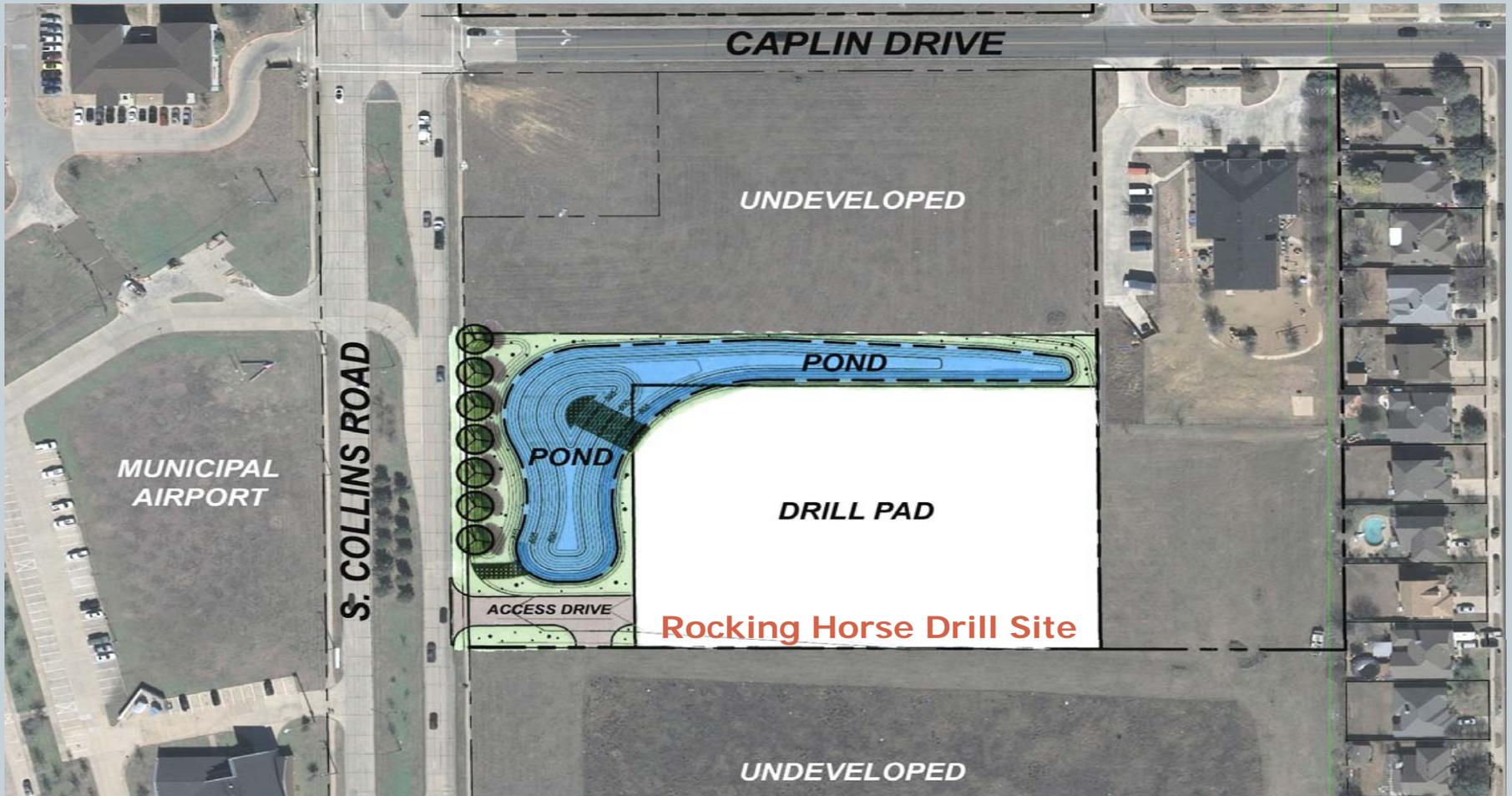
## ➤ **Temporary Water Lines**

- Connect to off-site pond
- Reduce number of ponds



Fulson Drill Site Frac Pond

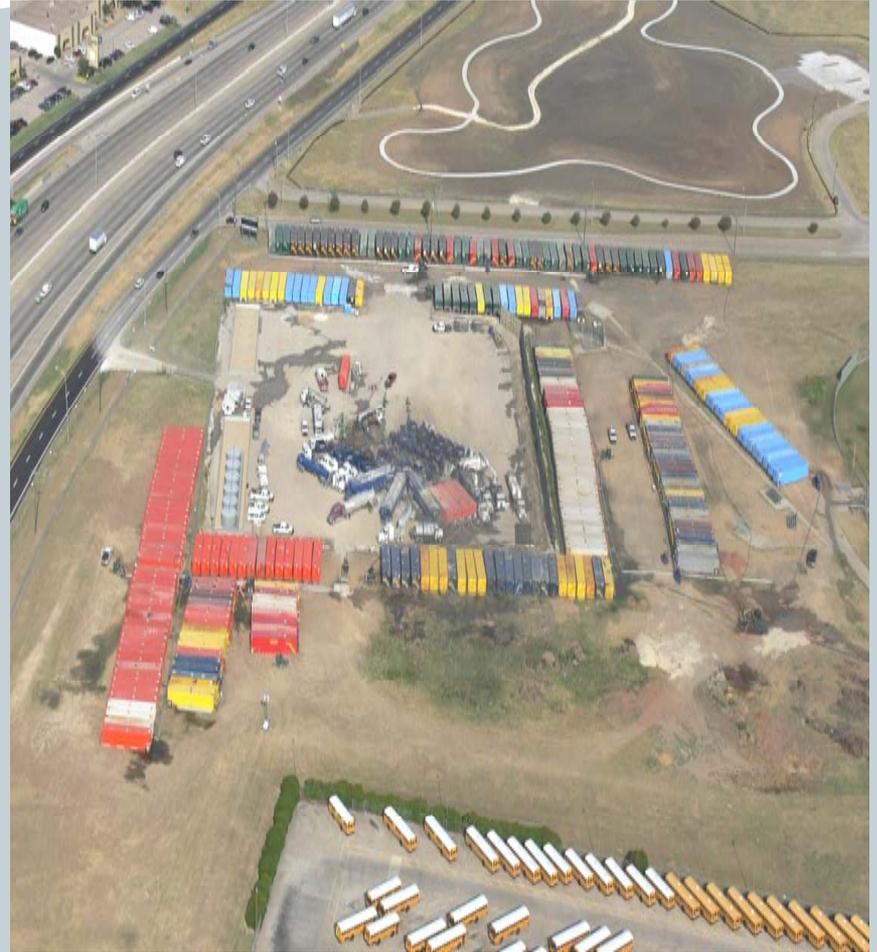
# Frac Pond Design



# Pond Alternatives



Temporary Water Lines



Frac Tanks

# Landscaping

## ➤ Site Perimeter

- Maintain setbacks
  - Follow current zoning conditions
  - 20 feet controlled access freeway
  - 10 feet other public streets
  - 40, 30, or 20 feet at property line
- Install at property boundary, not around interior pad site

## ➤ Streetscape

- 10-foot landscape setback required



MITX Drill Site. View from Debbie Lane.

# Streetscape Landscaping



Streetscape Installed

Randol Mill Road

No Streetscape

Collins Street

# Fencing and Walls

## ➤ Temporary Fencing

- Entire site or appurtenances
  - Currently required only around wellhead
- Secured gate
  - Site or wellhead
- Required around frac ponds
  - Chain link specified in Ordinance



## ➤ Permanent Wall

- Currently masonry required
- Set maximum opacity standards...



# Zoning Ordinance Opacity Rules

- **Adjacent to parkland or open space**
  - 50 percent openness
  - Ornamental metal with columns
  - May plant vines and/or shrubs along fence
  
- **Fences in front yard**
  - 75 percent openness
  
- **Level based on surroundings**



Acceptable

# Fencing Options



# Remediation

- **Already Required**
  - All wells shall be abandoned in accordance with the rules of the Railroad Commission
  - All well casings shall be cut and removed to a depth of at least 10 feet below the surface
  - No buildings shall be built over an abandoned well.
  - One Arlington site
    - Restored frac pond area to pre-drilling condition
    - Reduced pad site to final production area



Example Site Restoration

# Recommendations

**1) Broaden use of alternate water sources**

**2) Highlight temporary water line usage**

- Promote use of existing water sources (natural and frac ponds)
- Enable ROW crossings

**3) Encourage non-masonry site fencing**

- Maximum opacity

**4) Streetscape all sites**

- Operator owned and operator leased
- Recognize standards if privately owned

**5) No temporary fencing**

- Final site product at start of drilling
- Exempt frac pond fencing

**6) Tiered site classification**

- 6) Pond, wall, landscape

Industry's March 31, 2010 Response to Presentation Issues

## City of Arlington Natural Gas Program-Issues Discussion Topics

for the  
**Planning and Zoning Commission Work Session**  
March 31, 2010

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Below are comments from **MMA, Chesapeake, Vantage Energy, and Titan Operating**, *in italics and red*, regarding the proposed changes to the City of Arlington Gas Well Ordinance.

1. **FRAC PONDS:**

Current Procedure:

- A. Lined pit used to store fresh water for fracture operations
- B. Temporary fencing required around perimeter of the pond

Staff Recommendations:

- A. Set time limits for site restoration
- B. Require design to treat pond as a "feature" (landscaping and physical design and location on the site).
- C. Require annual maintenance of ponds.
- D. Encourage alternatives: frac tanks or existing pond sources.

**Comments:**

1. *Putting a time limit on frac ponds would limit the capability of using regional frac ponds for more than one site.*
2. *Utilization of existing frac ponds would be a helpful tool in limiting the number of future ponds.*
3. *The design of a frac pond should be treated as a feature and not as an industrial use if adjacent to a protected use or highly visible area.*
4. *If a pond is located in a more industrial area, where there are no protected uses, the treatment and design of the pond should fit the area in which it is located.*
5. *Landscape should not be installed in areas in which it will be removed at a later date due to the restoration of the site (i.e. after drilling has ceased and the frac pond is no longer needed).*
6. *Annual maintenance of ponds and new landscaping would help in keeping the sites appealing to look at. Chesapeake already has a maintenance program for ponds.*
7. *Alternative water sources should be considered as each site is unique in its capacity to providing the amount of water needed for fracing wells.*
8. *One water option should not take precedence over the other. Each site is unique.*
9. *Discussions between City Staff and Gas Drilling operators should be encouraged in order to determine the best alternative for providing water for fracing.*
10. *There are many items which factor into what the final water supply could or should be (i.e. water capacity, existing water line sizes, restrictions on surface use agreements for pad site which may not allow frac tanks or frac ponds etc.).*
11. *Standard parameters for fencing around frac ponds needs to be developed. Consider using a 6' black vinyl coated chain link fencing for all frac ponds.*

**Recommendations:**

1. Create a "Tier/Type" system for frac pond designs. (See below)

<b>Tier (Type)</b>	<b>Location of Pond</b>	<b>Typical Pond Characteristic</b>	<b>Fencing/Landscape</b>
1	Adjacent to right-of-way, adjacent to protected uses	Pond designed as a water feature	6' black vinyl coated chain link fence, informal planting around pond, and street trees
2	Adjacent to right-of-way, not adjacent to protected uses	Pond designed as a water feature	6' black vinyl coated chain link fence and street trees
3	Not adjacent to right-of-way, not adjacent to protected uses	Pond designed to maximize water capacity. Pond <b>not</b> designed as a water feature	6' black vinyl coated chain link fence, no landscape required

**2. LANDSCAPING/FENCING:**

Current Procedure:

- A. As identified in the approved SUP
- B. Required 30 days after completion of final well
- C. Site enclosed by masonry wall and vegetation; however, Council may approve an alternative

Staff Recommendation:

- A. Require Streetscaping to screen site from Rights-of-way

**Comments:**

1. When adjacent to protected uses or roadways consider requiring landscape adjacent to protected uses and roadways be installed within 90 days of the first well being drilled.
2. Consider using a 6' black vinyl coated chain link fence for pad sites and frac ponds.
3. If the SUP and drilling permit were considered at the same time, the limits and placement of proposed landscaping could be determined in a more timely manner.
4. The distance to the city right-of-way should be considered when requiring the installation of landscaping along roadways. See below "Tier/Type" table

**Recommendations:**

1. Pad Sites:
  - a. Street trees will be required along the right-of-way for pad sites except in areas which are not visible from public rights-of-way or are located in industrial or heavily commercial areas. Limits of the street trees shall be the same distance as the limits of the pad adjacent to the nearest right-of-way. If trees are not allowed due to surface use lease requirements, allow for:
    - i. Payment into a tree fund for the number of street trees required.
    - ii. Allow trees to be planted within city right-of-way.
  - b. Fencing- See below "Tier/Type" table.

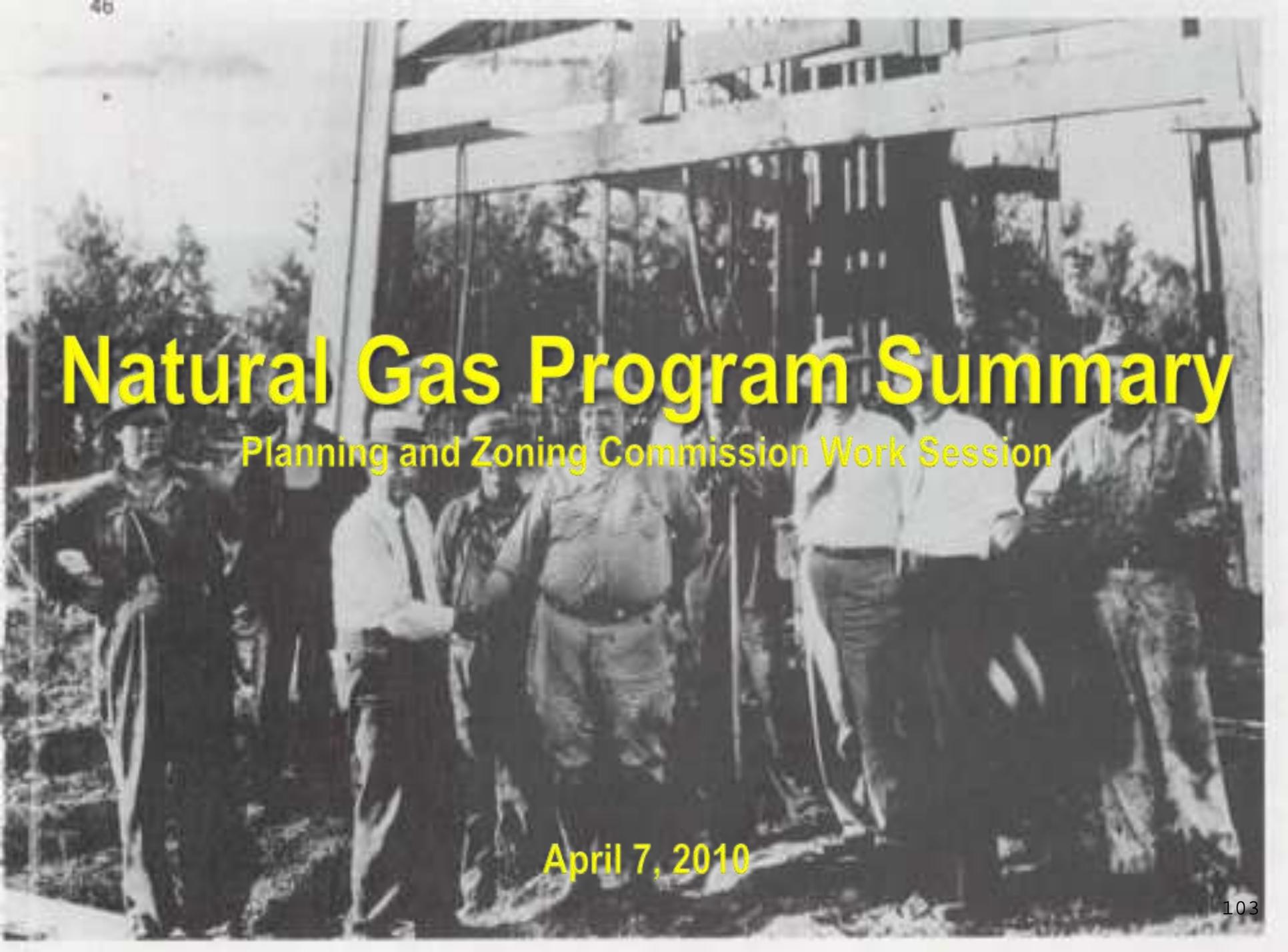
**2. Frac Ponds:**

<b>Tier (Type)</b>	<b>Location of Pond</b>	<b>Typical Pond Characteristic</b>	<b>Fencing/Landscape</b>
1	Adjacent to right-of-way, adjacent to protected uses	Pond designed as a water feature	6' black vinyl coated chain link fence, informal planting around pond, and street trees
2	Adjacent to right-of-way, not adjacent to protected uses	Pond designed as a water feature	6' black vinyl coated chain link fence and street trees
3	Not adjacent to right-of-way, not adjacent to protected uses	Pond designed to maximize water capacity. Pond <b>not</b> designed as a water feature	6' black vinyl coated chain link fence

## **EXHIBIT 12**

The P&Z Commission's April 7, 2010 Work Session Presentation

Pages 102-111



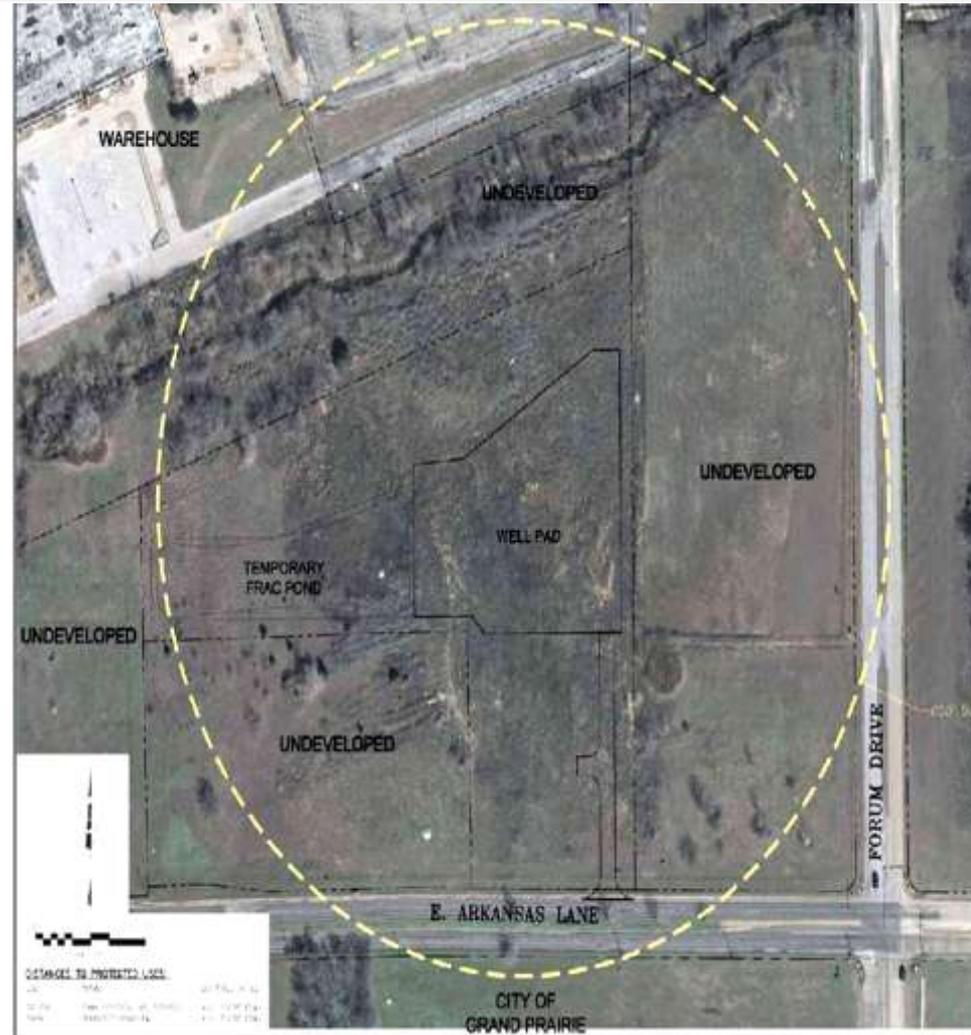
# Natural Gas Program Summary

Planning and Zoning Commission Work Session

April 7, 2010

# Site Operations

- 1) Road Damage
- 2) Transportation
- 3) Bonding
- 4) Flowback



Arkansas Drill Site

# Road Damage

- **Assess Fee Based On:**
  - Lane miles
  - Roadway type
  - Number of wells
  - Condition of roadway
- **2007 Study**
  - Based on 2004 assumptions
- **Update Analysis**
  - Per-lane assessment
  - Accurate traffic counts
  - Site ingress and egress
  - Current construction costs
- **Road Repair Agreement**
  - Tied to identified damage



# Fee Calculation

<b>Per lane mile</b>	<b>Current</b>	<b>Example</b>
Type I	\$1,011	\$1,076 est.
Type II	\$515	\$548 est.
Type III	\$293	\$356 est.
Type IV	\$608	\$647 est.
Type V	\$608	\$647 est.
Type VI	\$368	\$447 est.
Type VII	\$110	\$132 est.
Type VIII	\$106	\$148 est.
Type IX	\$92	\$121 est.
Type X	\$92	\$122 est.

Based on preliminary scenario of updated construction costs only and could be utilized as an interim resolution. Further study for a solution is suggested. 106



# Bonding

- **Current Amounts**
  - \$50,000
    - During drilling and reworking
  - \$10,000
    - Producing without reworking
  
- **Operator costs**
  - Approximate \$6 million bond
  - Affects credit rating and ability to insure
  
- **Blanket Bond**
  - Require amount per each operator in City of Arlington
  - Total based on well numbers



# Flowback

- **Comes from fracing**
  - Frac water returns to surface
  - Majority of water 3 to 7 days after fracing
  - Quiet operation
- **Performed during daylight hours per Ordinance**
  - Inspector may approve nighttime operation
- **New wording**
  - Notification required
  - Nighttime flowback allowed
  - Adequate infrastructure near protected uses (tanks)



	<b>Arlington</b>	<b>Fort Worth</b>	<b>Grand Prairie</b>	<b>Mansfield</b>	<b>Flower Mound</b>	<b>Grapevine</b>
<b>Road Damage</b>	Fee based on mileage, road type, and assessment	Bond or letter of credit (LOC)	Road maintenance agreement; changing to upfront fee	Remediation agreement & upfront fee (min. \$5,000; max \$30,000)	Bond or LOC	Bond or LOC
<b>Traffic Routing</b>	Designated truck or commercial routes	Designated truck or commercial routes	Designated truck or commercial routes	Public streets	Arterials, collectors, or local commercial	Arterials, collectors, or local commercial
<b>Bonding</b>	Bond or LOC; \$50,000 per well, reduced to \$10,000	Bond or LOC <b>Drilling:</b> 150K 1-5, +50k per >6 <b>Production:</b> 100k ≤ 75 150K 76-150 250K > 151	Bond or LOC, \$50,000 per well or blanket bond	\$100K per well or \$200K per site (blanket bond)	Bond or LOC; \$50,000 per well, reduced to \$10,000	Bond or LOC; \$50,000 per well, reduced to \$10,000 or blanket bond
<b>Flow-back</b>	Daytime hours only, nighttime if approved by inspector	Exempt from work hour restrictions	Daylight hours	Daytime and nighttime Hours	Daylight hours	Daylight hours

# Recommendations

## 1) Re-examine Road Damage Calculations

- Update figures
- Update fee totals and study long-term impact

## 2) Continue utilizing direct traffic routes

- Time restrictions during peak hours
- Administrative rerouting on second permit for identified problem routes

## 4) Blanket Bond

- Per operator for the entire City
- Tiered level based on number of wells

## 5) Allow Flowback 24/7

- Reword Ordinance
- Require notice of action before starting this stage
- Identify concerns upon receipt of notice

Industry's April 7, 2010 Response to Presentation Issues

## City of Arlington Natural Gas Program-Issues Discussion Topics

for the  
**Planning and Zoning Commission Work Session**  
April 7, 2010

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Below are comments from **MMA, Chesapeake, Vantage Energy, Titan Operating, Range Resources, and Quicksilver Resources** *in italics and red*, regarding the proposed changes to the City of Arlington Gas Well Ordinance.

1. **ROAD DAMAGE FEES:**

Current Procedure:

- A. Permit not issued until road damage fee paid
- B. Road Damage Assessment Study prepared by C&P Engineering, Ltd (3/07).
- C. Based on road type, roadway assessment, and lane miles
- D. Average amount paid per well: \$198.59
- E. Total collected since 2008: \$23,433.66

Staff Recommendation:

- A. Re-evaluate fee calculation

**Comments:**

1. *A before and after drilling inspection for road repair is a better approach to applying a specific fault for damage to existing roadways.*
2. *Re-Evaluation of road damage fee could be based on road type, roadway assessment (before and after drilling), and eliminating lane miles traveled.*
3. *A major arterial is designed for a high traffic capacity which is able to withstand heavy vehicles. A smaller collector or existing country lane road would experience greater decay in a smaller amount of time.*
4. *There was general operator consensus that a process of video recording the condition of access road(s) before and after a project would be a good method to establish the base line condition of roads. Operator should not be required to maintain any road, but should be required to fix "operator" caused damages. If the city desires to upgrade a particular road, then the city would bear its proportionate share to do so, or would work with the operator on a project specific basis to arrive at a shared cost agreement to upgrade roads. In this manner, if there is a particular road the city desires to upgrade, then it makes sense to work with the operator up front on a project basis, such that the operator's repair and maintenance costs can be applied to a more useful purpose of a road upgrade rather than road maintenance and repair of an old road. However, under no circumstance should an operator be held responsible to assess the city's road construction/repair project. Working with the city on an upgrade project should be voluntary and needs to make economic sense to the operator. The minimum standard should be restoration of the road to its like condition at the beginning of the project.*
5. *Road damage fees are for road repairs of damage made by the gas well industry, not for road replacement cost. Videoing transportation routes before and after operations is how this issue is handled in most area cities. If a road is sub-grade before drilling operations, we would all want the fees to go toward an upgrade but only in the amount that we are obligated by our operations. It would be a good idea to have the City inform an operator of road repairs/upgrades on a particular transportation route so that the operator could respond with disclosure of their immediate operational plans to avoid repairing/replacing a road right before an operator has an "event."*

6. *Before a decision is made review the road ordinances from City of Fort Worth, Mansfield, Haslet, Flower Mound, Burleson and others to seek a best practice. Also to reduce road impacts, Arlington should allow broader latitude to lay SWD lines to a central tank battery to centralize trucks to a specific high use location. **Fewer pipelines, more trucks. More pipelines fewer trucks and fewer tanks.***
7. *The City cannot control activity (improvements, construction, driveway permits) within TxDOT right of way. The City should not be able to charge a fee for TxDOT road improvements. It would be the same as if TxDOT just decided to put up a toll road on a City street they did not construct or do not oversee. Although similar, TxDOT and Cities govern their roads different.*

**Questions:**

1. *How does the city approach a before and after road damage fee requirement?*
2. *What do other cities do in assessing road damage fees?*

**Recommendations:**

1. *Consider a concept of determining road use/repair fees based on a before and after road inspection.*
2. *Review the road ordinances from City of Fort Worth, Mansfield, Haslet, Flower Mound, Burleson and others to seek a best practice.*

2. **TRANSPORTATION ROUTES:**

Current Procedure:

- A. *Require submittal of truck routes with construction plans.*
- B. *Require road repair contract*

**Comments:**

1. *Current process is adequate in determining the best transportation route.*
2. *Average amount paid per well is about \$198.59. Wouldn't this be because State or County roads are used to the most part for transportation routes to wells in Arlington? This probably shows the transportation route planning in Arlington is working. Making transportation routes flexible is sensible as Industry traffic is not any different than normal traffic, sometimes routes need to be changed temporarily or permanently. Timing would be the most sensitive issue for our operations – during a rig move or frac operations and the occasional work over rig move.*

**Recommendations:**

1. *Include language in ordinance to allow for administrative approval of changes to approved transportation routes. Route changes are sometimes needed because of construction/improvements to existing roadways.*

### 3. OPERATOR LIABILITY: INSURANCE, BONDING

#### Current Procedure:

- A. Prior to issuance of a gas well permit the operator shall provide the inspector with a security instrument in the form of a bond or letter of credit.
- B. Operator shall carry a policy or policies of insurance by an insurance company or companies authorized to do business in Texas.

#### Comments:

1. *Current City of Arlington bond requirements are negatively affecting the credit rating of some gas well operators.*
2. *Justification for the bond level should meet the anticipated exposure. Bonds were put in Barnett Shale municipal ordinances to mainly cover road repair cost and ensure there was no cost left by an insolvent operator. Hopefully, our effort today is providing a solution for road repair cost; and, the State has a fund for orphan wells. The amount of insurance required by municipalities will cover any accidents or environmental damage caused by an "incident."*
3. *Having a \$10,000 single-well bond with an option for a blanket bond for an unlimited number of wells in the post-completion stage works in most area cities. The post-production bond amount is \$150,000 in Fort Worth to cover up to 75 wells. In summary, bonds should be for clean-up that a municipality has no other way to fund and insurance is for accidents that all prudent operators have coverage for any way. The levels that I suggest would cover a site reclamation or road repair if an operator was unwilling or unable to cover the cost.*
4. *The bond funds would also be used by the city to reclaim a location if an insolvent operator walked away from the property. Assume the cost to plug and abandon is \$10,000, and the cost to reclaim is \$40,000. The bond requirement of \$50,000 is adequate to cover the city on a one well, one site project. If the operator now drills 5 wells on that site, the city's exposure is now \$90,000, while their current bonding requirement is \$250,000. Take that to a 10-well pad, and the exposure is \$140,000, while their requirement would be \$500,000, and so on.*

#### Questions:

1. *How do other cities handle insurance and bonding requirements?*
2. *Could there be a blanket bond for all sites for each operator?*

#### Recommendations:

1. *Allow for the use of a self-insured policy.*
2. *Allow for a blanket bond for all wells sites for each operator.*
3. *Cap the bond amount at \$1.0 million for all wells for each operator.*
4. *A blanket bond approach implemented on a tiered well count format. Operators to solicit feedback from bond providers, and determine if they have any specific recommendations on the number of wells and bond amount per tier, and cap amount that would make sense from a small operator's perspective.*
5. *A \$50,000 single-well bonds with the option to have a blanket bond in the amount of \$200,000 for an unlimited number of pre-production wells is a good standard. (It can be assumed that an operator would not have incidents occurring on multiple pad sites at the same time, nor have the exposure from a large number of wells in pre-production stage at the same time.)*
6. *A tiered proposal recommendation could look something like this:*
  - A. *One site / one well: \$50,000 (minimum bond requirement for an operator drilling their first well on a new site)*
  - B. *One site / 1-10 wells: blanket bond of \$150,000*
  - C. *Combination of sites > 1 / or well count > 10: Maximum blanket bond per operator of \$250,000 (once an operator exceeds 10 wells, or adds their second site, the maximum blanket bond requirement is triggered).*

## **EXHIBIT 14**

The P&Z Commission's April 14, 2010 Work Session Presentation

Pages 115-118

**Natural Gas Topic Summary**  
Planning and Zoning Commission Work Session

April 14, 2010

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Topic Review for 4-14 P&Z Work Session

**Drill Site :**

- 1) **Process**
  - a) Notifications, petitions, SUP boundary, SUP Time Limits, platting
- 2) **Conditions**
  - a) Fracing, landscaping, fencing, remediation
- 3) **Operations**
  - a) Road damage, bonding, flowback, transportation



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**Identified for Change**

Tiered Classification of Pad Sites

- > Tiers based on zoning, distance to protected uses
- > Tier requirements to be constructed up front and maintained by operator

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## Tiered Classes

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- 1) Tier I
  - a) Masonry wall or similar treatment, 40-foot transitional buffer around property and 10-foot enhanced streetscape, pond design as a feature
- 2) Tier II
  - a) Wrought Iron Fence with Masonry Columns, 20-foot transitional buffer around property, 10-foot enhanced streetscape , and pond design as a feature
- 3) Tier III
  - a) Chain link fence with vinyl coating, 0-10 foot transitional buffer around property, 10-foot streetscape , and frac pond standards.

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## Ordinance Revisions

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- 1) SUP expiration date
  - Is a 5 year timeframe appropriate?
- 2) Definition of site boundary
  - Should the site be a platted lot or entire property in lieu of metes and bounds?
- 3) Flowback activity
  - Should flowback activity be allowed 24/7?

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## Policy Changes

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- 1) Notifications
  - Is the 600' notification distance sufficient?
  - Should notice distances be identical?
  - Should there be a required neighborhood meeting prior to submission of the SUP?

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## Policy Changes

- 2) Easements in Lieu of Platting?
- 3) Facilitate the use of temporary water lines
  - Allow at-grade roadway crossings
  - Modify some technical standards
- 4) Should we require access drive paving?
- 5) Should we require the removal of major equipment when site is dormant?

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## Additional Review

- 1) Road damage
- 2) Bonding requirements

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**Gas Drilling Ordinance Comparison Table**

<i>City</i>	<i>Arlington</i>	<i>Fort Worth</i>	<i>Grand Prairie</i>	<i>Mansfield</i>	<i>Flower Mound</i>	<i>Grapevine</i>	<i>Southlake</i>	<i>Denton</i>	<i>Corinth</i>
<b>Zoning</b>	Yes	No	No	Yes	Yes, for centralized facilities	Yes	Yes	Yes	Yes
<b>Notifications</b>	-200 ft for SUP -600 ft for GWP	-1000 ft, multiple -none for subsequent	-1000 ft of proposed well	-600 ft	-1000 ft of proposed well	-1000 ft	-1000 ft from proposed site	-SUP notices sent 200-500 feet from drill site	-1500 ft
<b>Green Completions</b>	-Not required	-Yes, Reduced Emission Completion	-Not required	-Not required	-Vapor recovery required for centralized facilities	-Not required	-Not required	-Not required	-Not required
<b>Road Repair</b>	-Fee based on milage, road type and assessment	-Bond or letter of credit required	-Road maintenance agreement	-Repair Agreement; & -Remediation Fee	-Bond or letter of credit required	-Bond or letter of credit required	-Road Repair Agreement	-Road Repair Agreement	-Road Repair Agreement
<b>Fracing Stipulations</b>	-Daytime hours -unless Operator obtains permission for nightttime operations.	-Daytime hours -unless Operator obtains permission for nightttime operations -watchman required	-Daytime hours -unless Operator notifies if fracing before/after daylight hours for safety	-Pits filled and returned to prior state after drilling is complete	-Daytime hours -unless Operator obtains permission for nightttime operations	-Flowback during daylight hours -watchperson required -no venting directly to the atmosphere	-Frac ponds or surface fresh water ponds not permitted	-Daytime hours -unless Operator notifies if fracing before/after daylight hours for safety	-Daytime hours -unless Operator obtains permission for nightttime operations
<b>Allowable Noise Levels</b>	-5 dB increase during daytime hours -3 dB during nighttime hours -7 dB for fracing -5 dB for nightttime backflow -production shall not exceed ambient level	-5 dB increase during daytime hours -3 dB during nighttime hours -10 dB for daytime fracing -3 dB for nightttime flowback -pure tones considered	- 5 dB increase during daytime -3 dB during nighttime -10 dB for fracing -5 dB for backflow operations -pure tones considered -at nearest protected use	- 5 dB increase during daytime hours -3 dB during nighttime hours -10 dB for fracing -5 dB for backflow operations - Measured at nearest protected use	-70 dB for drilling 300 feet from residents between 7 a.m. and 9 p.m.; 56 dB between 9 p.m. and 7 a.m.; and 70 dB for daytime fracing -5 dB over ambient during daytime and 3 dB over ambient	-65 dB at 300 ft -85 dB for fracing	-100 ft from structure, cannot exceed ambient: a. more than 10 dB during fracing b. 5 dB during nighttime backflow c. 5 dB daytime or 3 dB nighttime for all other activities	-Internal combustion engines may be used in drilling operations if they have mufflers that will reduce noise to not more than 90 dBA at any point 300 ft from the boundary of the drill site or operation site.	-A noise management study/plan is required, and noise level permitted is dependent on the results of that study.
<b>Landscaping</b>	-Commercial standards w/ mitigation for removal -8' solid masonry wall after completion	-25% min retention -< 25% of same species -25% min evergreen species -75% min located between site and protected uses or ROW	-Required at street frontages -shrubs around site and fences must sufficiently screen	-Fence options: 1) masonry, w/shrubs > 6 ft planted 3 ft on center; 2) concrete w/ shrubs; 3) earthen berm; 4) wrought iron w/ evergreen plantings; 5) combo from above; or 6) City Council stipulations	-Around structures associated w/ extraction, production, and transportation - w/in 45 days of production. Four options: 1) Vegetation 2) Natural and manmade screens 3) Fence screening 4) Escrow Funds	-Installed around the site and all fences to sufficiently screen -Shrubs > 3 feet and must have irrigation -Submitted to the DRC for approval	-8-foot masonry wall w/in 60 days of completion of the first well on the site -8-foot chain link fence around all equipment inside masonry wall -screening requirements as set forth in the zoning ordinance	-6 ft high solid screen fence is required for all well heads located within 500 ft of residential structures. -Buffer requirements dependent on adjacent zoning district.	-8 ft chain-link fence for well heads -masonry upon completion -Screening shrubs to complement architectural character of the surrounding neighborhoods. Shrubs required to be 3 ft in high. -Landscaping required along all
<b>Setback Distances</b>	-600 feet to protected uses, can be reduced by City Council to no less than 300 feet	-600 feet to protected uses, can be reduced by City Council to no less than 300 feet	-500 feet to protected uses, can be reduced by City Council to no less than 300 feet	-600 ft to subdivision; unless all owners consent -600 ft to unplatted residential, public building, institution, school, day care or commercial building; unless all owners consent -1000 ft to hospital, nursing home or Law Enforcement Center	-1000 ft to parks & residences w/o mineral interest -500 ft to residences w/ mineral interest -1000 ft to religious institution; public, hospital or school buildings -500 ft to other buildings and Env Sensative Areas	-1000 ft from a park -1000 ft from a protected use -300 from any building	-1,000 ft from any habitable structure or property line of occupied school or hospital	-500 ft from residential structures unless a waiver is signed by owners of residential structures; within 250 ft to 500 ft , cannot be less than 250 ft.	-600 ft from Protected Use (residence, religious institution, hospital building, school or public park) unless a waiver is signed by owners of residential structures within 300 ft and affirmative vote by the City Council -cannot be less than 300ft.