



Agenda

- Seismic Activity
- Pipeline Routing and Land Use
- Incentives for Consideration

Seismic Activity
(Seismographic Surveying)

The slide features a large central photograph of a seismic surveying rig with a tall tower. Below this are two smaller photographs: one on the left showing a work convoy of white vehicles, and one on the right showing surveying equipment and personnel on a grassy field.

Definitions

- **Seismic Survey:** a technology employing reflective sound waves created by ground vibration used to detect and identify the structural characteristics of rock formations.
- **Minimize:** truck used in the vibing process, especially on rights-of-way-typical vehicle weight does not exceed 17,000 lbs.
- **Geophone:** (receivers) seismic recorders (plastic spikes) connected with cables-detect sound waves
- **Peak Particle Velocity (PPV):** The rate at which particle displacement changes, and is normally measured in inches/sec
 - Standard measure of particle velocity caused by vibration waves

Seismic Survey Permit Requirements

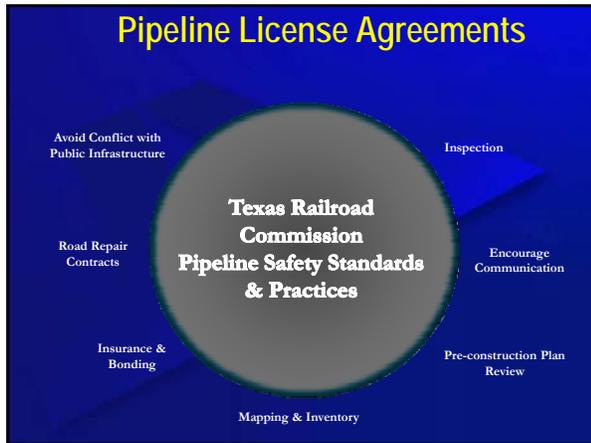
Seismic Survey License Agreement	<ul style="list-style-type: none"> • Execution of a revocable license agreement approved by City Council
Plan Submittal	<ul style="list-style-type: none"> • Operators to identify water and sewer line locations that coincide with proposed source locations
Equipment	<ul style="list-style-type: none"> • Mini- vibe truck only on public roads • No cables across roadways-geophones located back of curb
Maximum Peak Particle Velocities	<ul style="list-style-type: none"> • 0.35 inches per second
Inspection	<ul style="list-style-type: none"> • Require field verification of water and sanitary sewer lines at source point before seismic testing
Term of Agreement	<ul style="list-style-type: none"> • Three (3) years
License Fee Structure	<ul style="list-style-type: none"> • \$25,000 for license • \$100,000 security instrument due upon execution of Seismic Survey License Agreement • \$7.50 for each vibrate source location at time of permit
Post Survey Inspection	<ul style="list-style-type: none"> • Video Tape • PPV recording summary

Seismic Survey Right-of-Way Permit Procedure



The City uses Pipeline License Agreements to require operators to:

- ✓ Communicate planned pipeline route and locations
- ✓ Complete ROW Permit process and construction plan review
- ✓ Provide insurance and bonding
- ✓ Preserve future municipal expansion opportunities
- ✓ Avoid conflict with existing and planned public infrastructure
- ✓ Provide "As-Built" construction plans



Minimum License Requirements

Construction	<ul style="list-style-type: none"> • Permit issued upon final review and approval of detailed construction plans by CD&P-One Start • Minimum pipeline depth of 6 feet (public property and ROW) • Pipeline constructed below all public utilities
Insurance	<ul style="list-style-type: none"> • In accordance with limits outlined in the City's Gas Drilling and Production Ordinance
Bonds	<ul style="list-style-type: none"> • Performance Bond – based on estimated construction cost • Maintenance Bond – based on constructed cost within ROW or public property
Road Repair Contract	<ul style="list-style-type: none"> • Cash Escrow or Letter of Credit in the amount of \$30K per operator
Term	<ul style="list-style-type: none"> • Primary term of twenty (20) years with two (2) additional options for ten (10) years each
As-Built Plans	<ul style="list-style-type: none"> • Provide "As-built" construction plans to City within 90 days of completion
License Fee	<ul style="list-style-type: none"> • \$2.75 per linear foot per year for primary term and each ten (10) year extension plus adjustment based on CPI factor

Reasonable Annual Charge

The City has limited authority to assess a reasonable annual charge for natural gas pipelines that cross public property or rights-of-way

Fee is limited by Texas Utilities Code to the cost of :

1. Taking Inventory
2. Maintaining records and maps
3. Inspection

Fees are subject to review by the Texas RRC

*** So long as none of the above activities are in conflict with State or Federal laws**

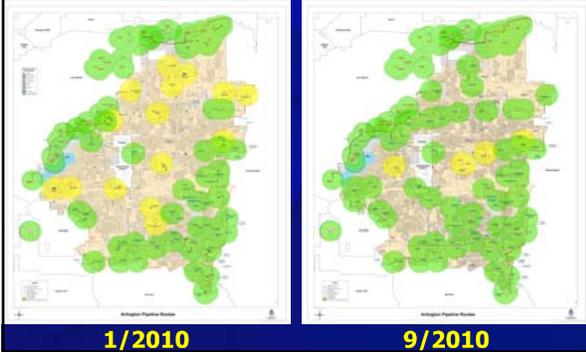
Pipeline Process Matrix

	Real Estate Services	City Council	City Attorney	Parks	CD&P (One Start)	Public Works	Water Utilities
Route Review & Comment	✓	✓	✓	✓	✓	✓	
License Agreements	✓	✓	✓				
Road Repair Contracts	✓		✓				
Construction Plan Review and Approval				✓	✓	✓	
Inspection						✓	
Mapping					✓		✓

Municipal Comparison

Municipality	License Agreement	ROW Permit	Road Repair Contract	Insurance	Bond	Fee	Inspection	As-Built Drawings
Arlington	✓	✓	✓	✓	✓	✓	✓	✓
Fort Worth	✓	✓		✓	✓	✓	✓	✓
Kennedale	✓	✓		✓	✓	✓		✓
Mansfield	✓			✓		✓		✓
North Richland Hills	✓	✓		✓	✓		✓	✓
Grand Prairie	✓			✓	✓	✓		✓
Denton	✓			✓	✓	✓		✓
Flower Mound		✓		✓	✓	✓	✓	✓
Haltom City	✓	✓	✓	✓	✓	✓		✓

Approved Drill Site Locations with Identified Pipeline Routes



Pipeline Considerations

- Producers provide more information on available gas gathering lines at time of SUP request:
 - Demonstrate the ability to have reasonable access to the pipeline; and
 - That adequate line capacity exists in order to avoid or reduce the need for the installation of additional pipelines

Incentives for Consideration

Public Property Mineral Leases

- Relaxed pooling requirements in exchange for operator commitment to reduce pipeline footprint and drill sites

SUP

- Encourage the use of sites that illustrate the ability to capture the maximum amount of mineral acres - possibly reducing the number of drill sites
