

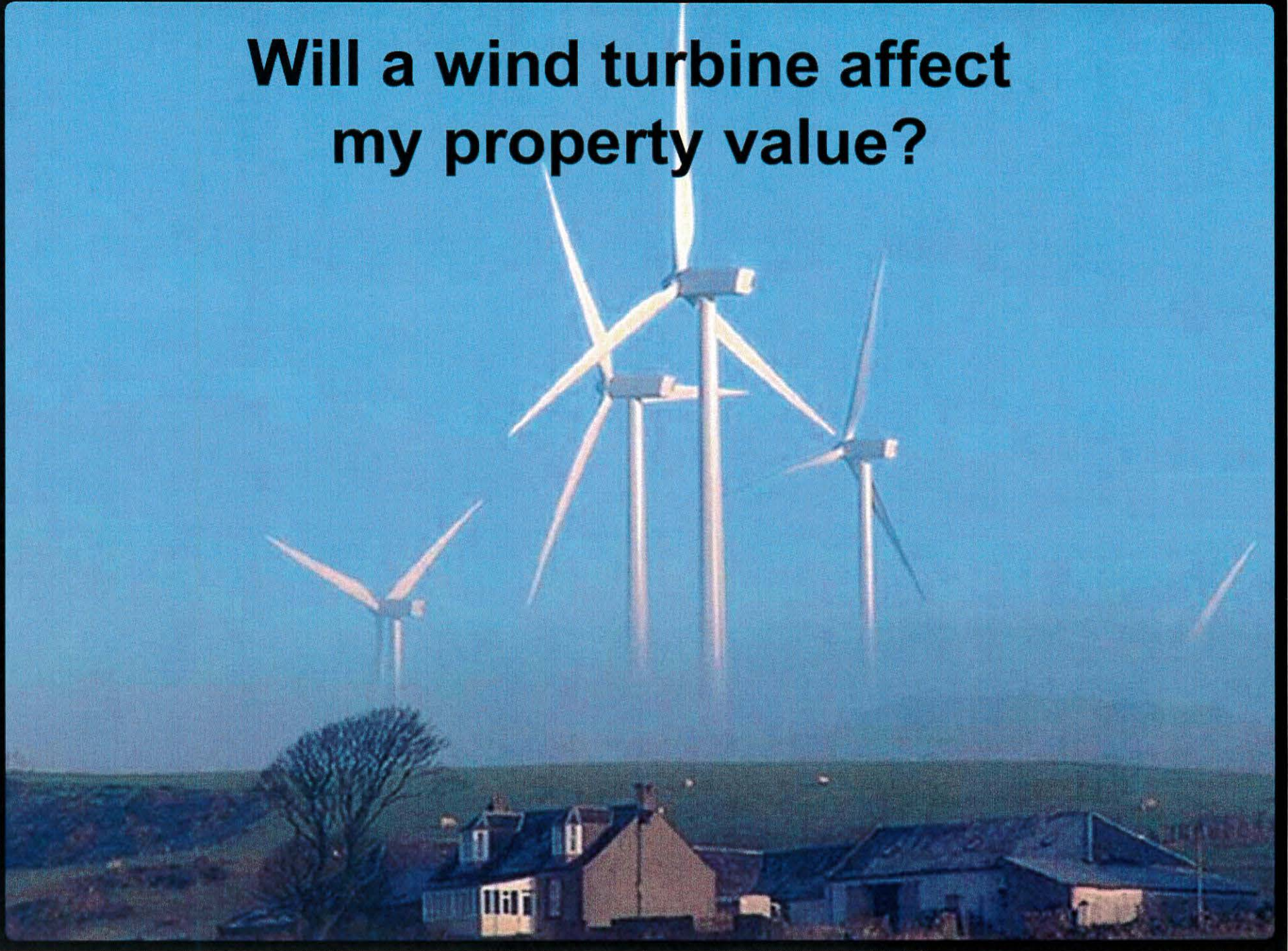
Impact of Wind Turbines on Market Value of Texas Rural Land

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**Will a wind turbine affect
my property value?**



**WILL A WIND TURBINE ON MY PROPERTY
EFFECT THE MARKET VALUE
OF MY NEIGHBOR'S PROPERTY?**



**WOULD YOU PAY THE SAME PRICE FOR THIS
LAND
AFTER WIND FARM AS BEFORE WIND FARM?**

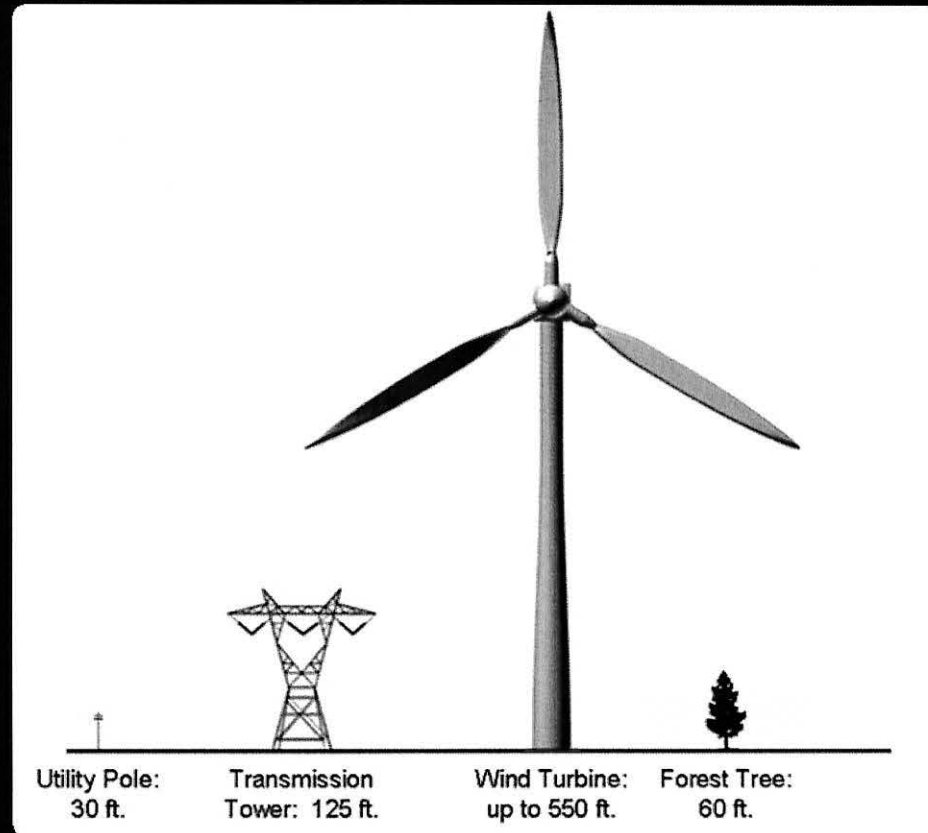


BEFORE

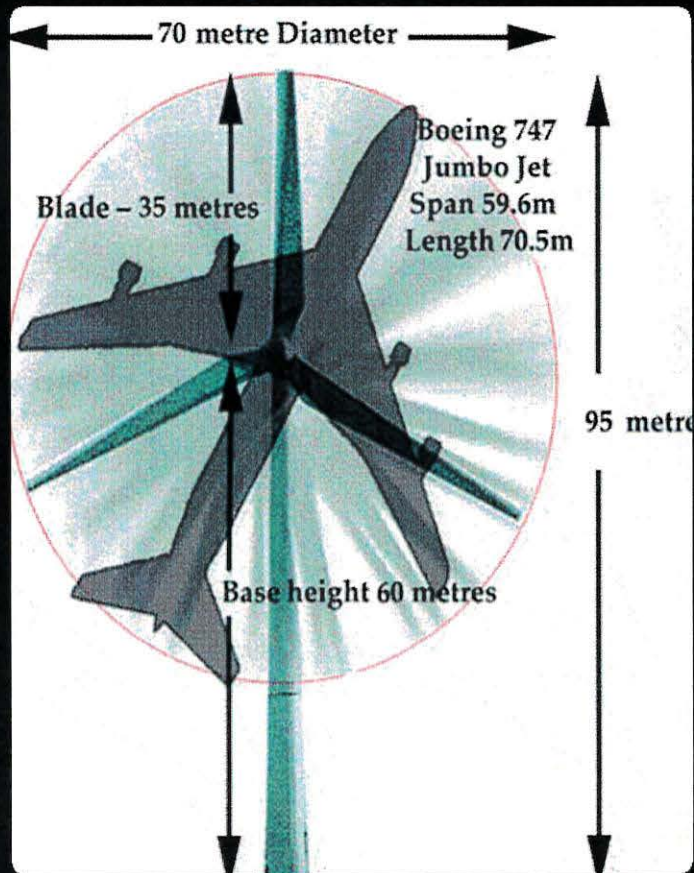
AFTER



Do you know how big they really are?



THIS IS HOW BIG THEY ARE!

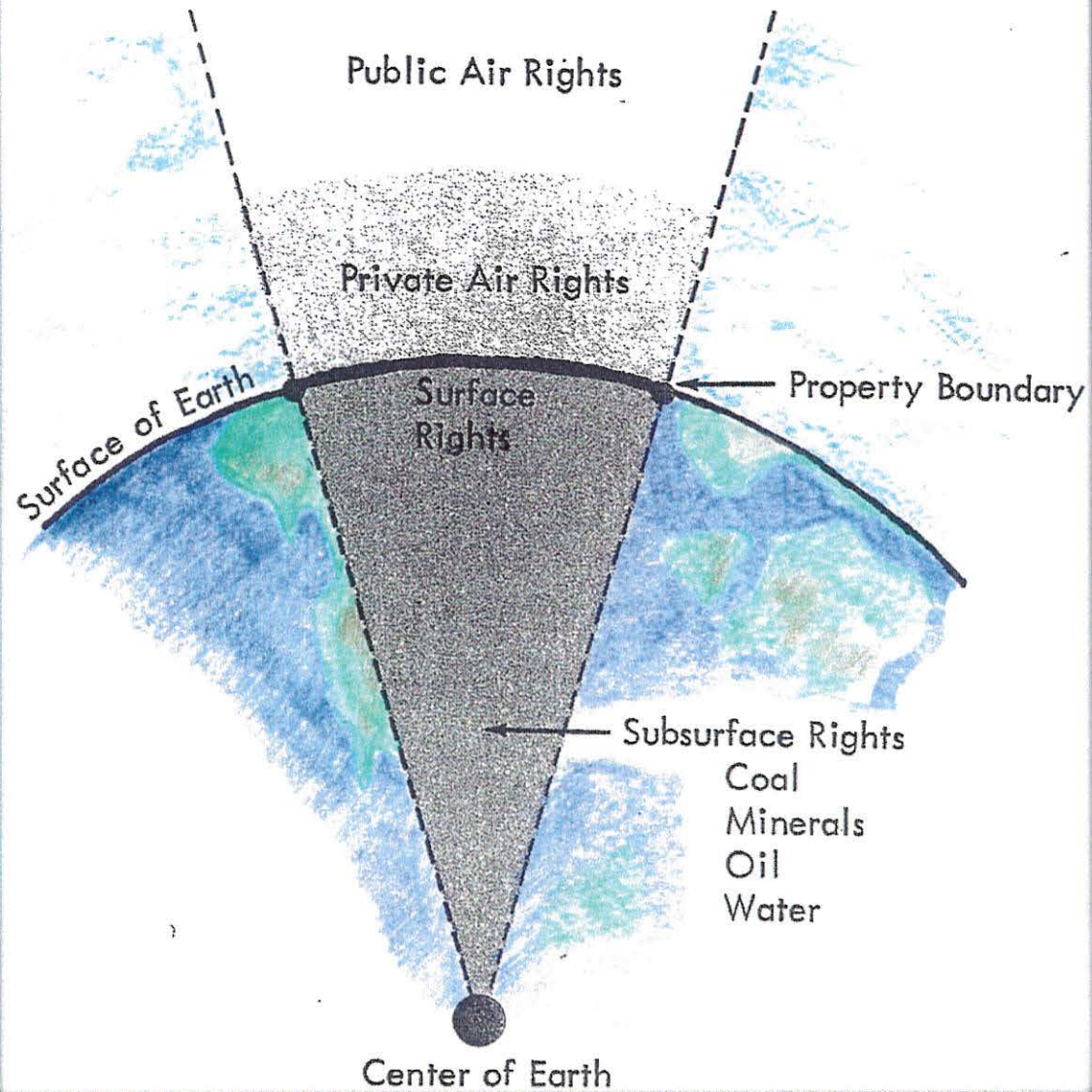


When valuing real property, first determine the property rights to be appraised; the most complete form of ownership is “title in fee” or **FEE SIMPLE INTEREST**

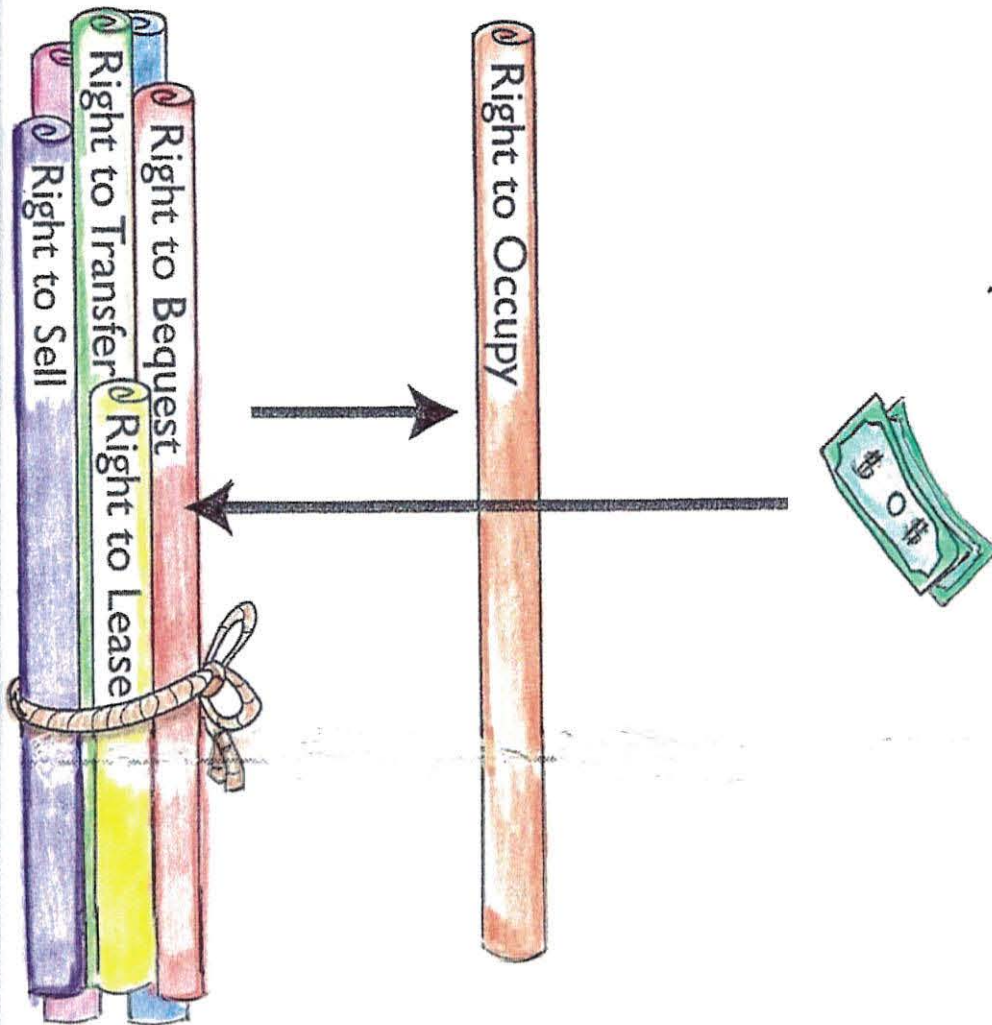
- Most complete form of ownership
- Unencumbered by any other interest or estate
- Only subject to limitations imposed by the government

(taxation, eminent domain, police power, escheat)

Property Rights Associated with Fee Ownership



The Bundle of Rights



- Ownership of a fee simple interest = ownership of the complete bundle of rights;
- Each right represents a partial interest in the whole

BUNDLE OF RIGHTS

- Real property ownership includes a bundle of rights – each with a value:
- right to sell/lease/mortgage an interest
- right to occupy the property
- right to convey
- right to do nothing at all
- unlike mineral rights, Texas is UNDECIDED as to “**wind rights**” – can they be conveyed? can they be retained?

Market forces create value; same market forces have a bearing on the

HIGHEST AND BEST USE OF LAND

HIGHEST AND BEST USE MEANS THE USE OF THE PROPERTY THAT RESULTS IN THE HIGHEST VALUE THAT IS ALSO:

LEGAL; REASONABLY PROBABLE; PHYSICALLY POSSIBLE;

AND

FINANACIALLY FEASIBLE

HIGHEST AND BEST USE IS THE FOUNDATION

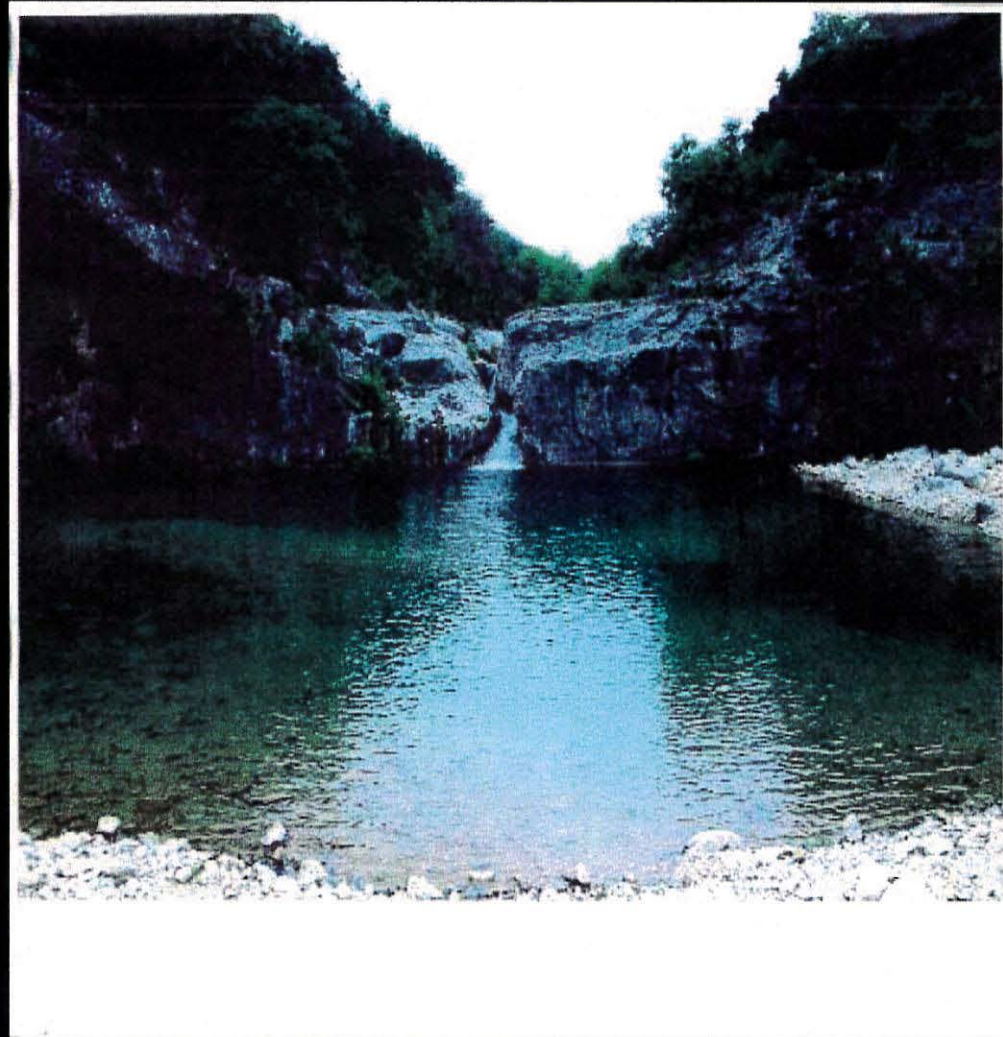
UPON

**IN THE PAST 25 YEARS THE HIGHEST & BEST USE OF TEXAS
RANGELAND HAS CHANGED
FROM AGRICULTURAL USE TO RECREATIONAL USE**

**TAYLOR COUNTY HUNTING
(RECREATIONAL) LEASES
BRING \$12.00 TO \$18.00
PER ACRE... COMPARED TO
GRAZING LEASES BRING
\$2.50 TO \$3.50 PER ACRE...**

**RECREATIONAL USE
INCLUDES:**

**HUNTING, FISHING,
CAMPING, HIKING, , ETC...
WILDLIFE RESOURCES &
CONSERVATION, LIVE
WATER, WEEKEND PLACE,
PEACE & QUIET**



**DIRECT SALES COMPARISON APPROACH;
MOST WIDELY USED AND ACCEPTED
APPROACH TO VALUING RURAL PROPERTY**

- Defined as an estimate of value of recent sales of similar property in the surrounding or competing areas - as compared to the subject property

PROPERTY CHARACTERISTICS NECESSARY FOR THE COMPARISON

- Property rights conveyed
- Financing of the purchase
- Conditions of sale
- Market conditions over time
- Mineral interests
- Improvements
- Size/Shape
- Physical Characteristics
- Live Water
- Fencing
- Location/Access
- Views

NOT COMPARABLE

RESIDENCE



RURAL



PAIRED SALES ANALYSIS

Within the direct sales comparison approach
- several techniques are used to quantify adjustments - most commonly used technique is that of *paired sales*:


When two properties are in all other respects equal, a single difference can be measured to determine the difference in price between the two.

TWO TRUCKS – BOTH FORDS; BOTH F-150; BOTH FOUR WHEEL DRIVE; BOTH 2009 MODELS – ONE DIFFERENCE
LARIAT PCKGE VS KING RANCH PCKGE


FX4



LARIAT
\$36,000.00



18" 20" 17"



KING RANCH
\$45,000.00



18" 20"



**COMPARING THESE TWO TRUCKS UNDER PAIRED
SALES TECHNIQUE:**

**KING RANCH PCKGE
CONTRIBUTES \$9,000 IN
VALUE**

OVER THE LARIAT PCKGE

PAIRED SALES TECHNIQUE

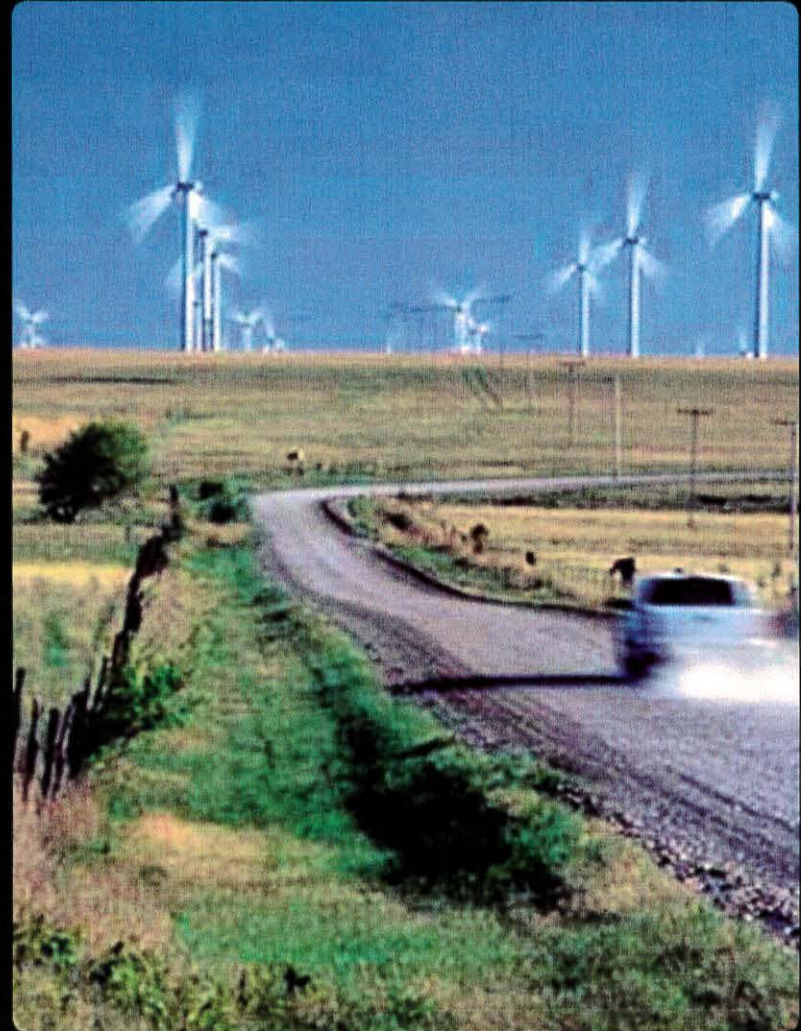
is used in determining the value of :

- Undivided interests (multiple owners of property)
- Conservation easements
- Burned Property (due to wildfires, grassfires)
- Presence of Power Lines & Transmission lines
- Presence/ view shed of wind turbines
- Other property conditions

WHAT WE KNOW ABOUT WIND TURBINES

common sense stuff

- Up to 600' feet tall
- constant noise
- shadow/flicker
- view shed effect -
turbines tower over horizon ,
changing the view
- construction ;
transmission lines ;
substations
- turbines forever change
the aesthetics; a more
industrial feeling
- loss of native wildlife
habitat



Renewable Energy Policy Project (REPP) May, 2003

Findings:

wind turbines will not diminish Property Values, but will enhance Property Values

Flaws:

1. funded by proponents of wind power built in bias in conclusions...
2. methodology used lacks necessary variables for analysis...

VARIABLES NOT USED IN REPP

- Rising or falling market
- # of days from listing to sale
- Residential property; not rural property
- Did not take into account effect of noise, flickering, shadow
- Does not factor in distances....
- Possible change in Highest and Best Use because of presence of wind turbine...

Appraisal Research Shows:

- A **VIEW adds value** to rural property
- Take **view away** – added **value goes away**
- Brokers in rural areas confirm that property values in areas of wind facilities are **10% - 30% less** than property not in areas of wind facilities.
- Wind energy development creates an income stream, increasing property's production value; **increased production value does not necessarily result in increased market value**

Case Study One - 2007

- **350 acres in Erath County** – top end ranch purchased for retirement homestead....
- **27 wind turbines** within 1 ½ mile radius
- For sale for \$2,100,000.00
- Prospective buyer agreed to sales price
- **Disclosure of wind turbine** project to buyer
- **Buyer backed out of offer**
- Seller agreed to 25% discount to Buyer
- **Buyer declined discounted offer**
- Currently little interest in property in spite of other characteristics of property

Case Study Two - 2007

- **Using paired sales analysis** - Sales of Seven large tracts of rural land with **varying proximity to wind turbines** in Taylor County, Texas....
- Sales 1, 2, and 3 compared to Sales 4-7
- Sales occurred between 3-06 & 8-07
- No time adjustment
- Contributory value of improvements deducted from each sale
- All other characteristics considered similar

Wind turbine on the property

Sale Number	Wind Turbine Presence (western Taylor County; 1700+ acres; 3 wind turbines on property; seller reserved "wind	Price/Acre	Diminution Value
One	Turbines on property	\$850.00	
Four	No wind turbines in visual	\$1,290.00	34%
Five	No wind turbines in visual	\$1,536.00	45%
Six	No wind turbines in visual	\$1,200.00	29%
Seven	No wind turbines in visual	\$1,416.00	40%

TURBINES ON PROPERTY

Diminution in value

29%-45%

37% average



Wind turbine within .2 - .4 miles

Sale Number	Wind Turbine Presence (1,110+ acres ; Taylor County; 2 wind turbines in within .2 & .4 miles	Price/Acre	Diminutio n Value
Two	Turbines within .2 - .4 miles	\$1,000.00	
Four	No wind turbines in visual	\$1,290.00	22%
Five	No wind turbines in visual	\$1,536.00	35%
Six	No wind turbines in visual	\$1,200.00	17%
Seven	No wind turbines in visual	\$1,416.00	29%



TURBINES WITHIN .2 - .4 MILES

Diminution in value is 17%- 35%

26% Average

Wind turbine within 1.8 miles

Sale Number	Wind Turbine Presence (550+ acres in Taylor County, 1 turbine 1.8 miles away)	Price/Acre	Diminution Value
Three	Turbines within 1.8 miles	\$1,016.00	
Four	No wind turbines in visual range	\$1,290.00	21%
Five	No wind turbines in visual range	\$1,536.00	34%
Six	No wind turbines in visual range	\$1,200.00	15%
Seven	No wind turbines in visual range	\$1,416.00	28%



TURBINES WITHIN 1.8 MILES

Diminution in value is 15%- 34%

25% Average

Diminution in Value Summary

Turbines on property

Average 37%

Turbines within .2 -.4 miles

Average 26%

Turbines within 1.8 miles

Average 25%



**Possible Additional
Diminution in Value**

**Additional 15% - 25% diminution
In value of property due to the
following:**



WIND TURBINE INFRASTRUCTURE -



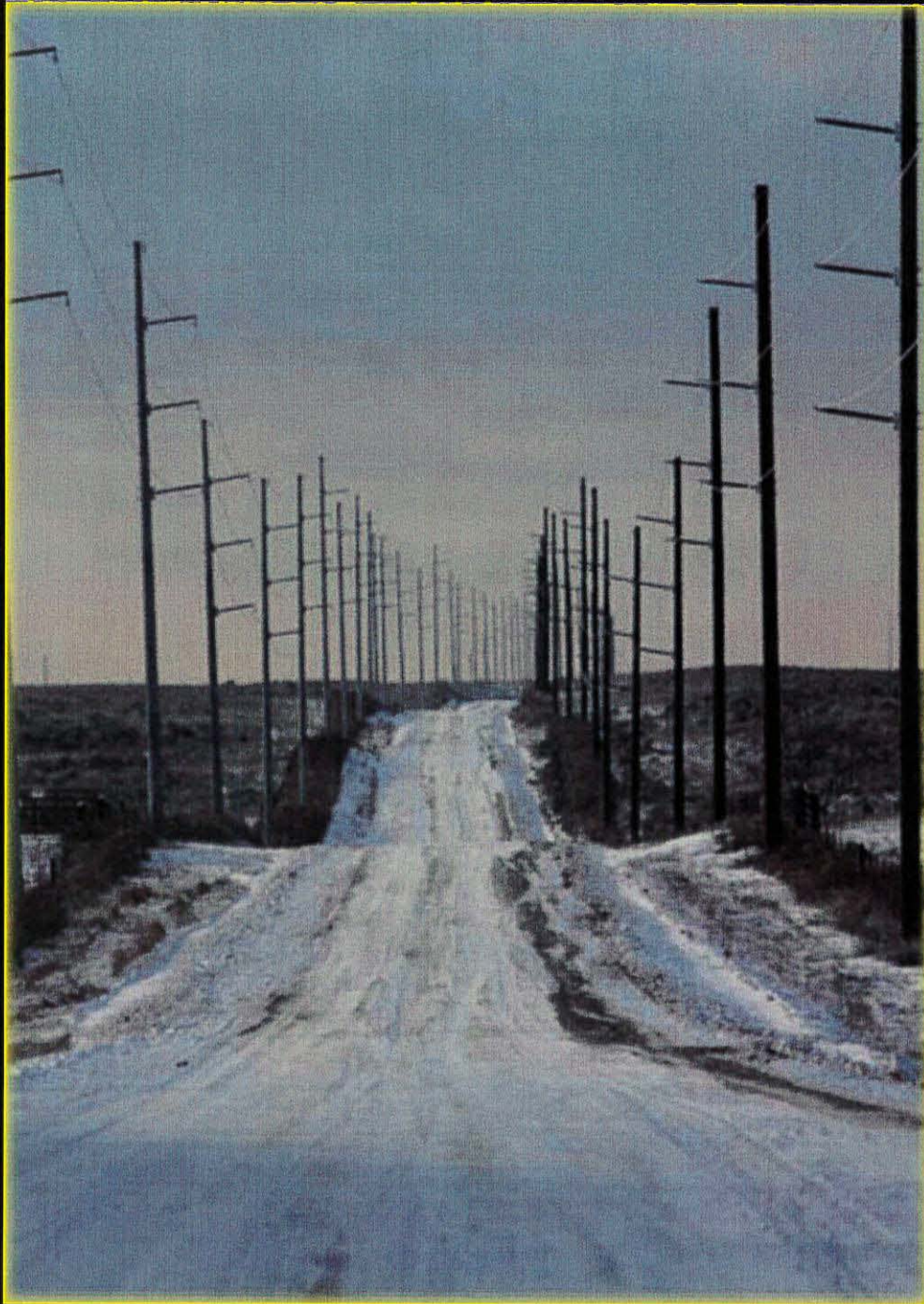
HIGH POWER TRANSMISSION LINE S

SUBSTATIONS



**ADDITIONAL TRAFFIC FOR SERVICE OF
WIND TURBINE AND POWER LINES**





ADDITIONAL ROADS

Market Data and common sense tell us property values are negatively impacted by the presence of wind turbines.





**Consider &
weigh impact
on your
property's
overall value
when leasing
for wind
turbines...**

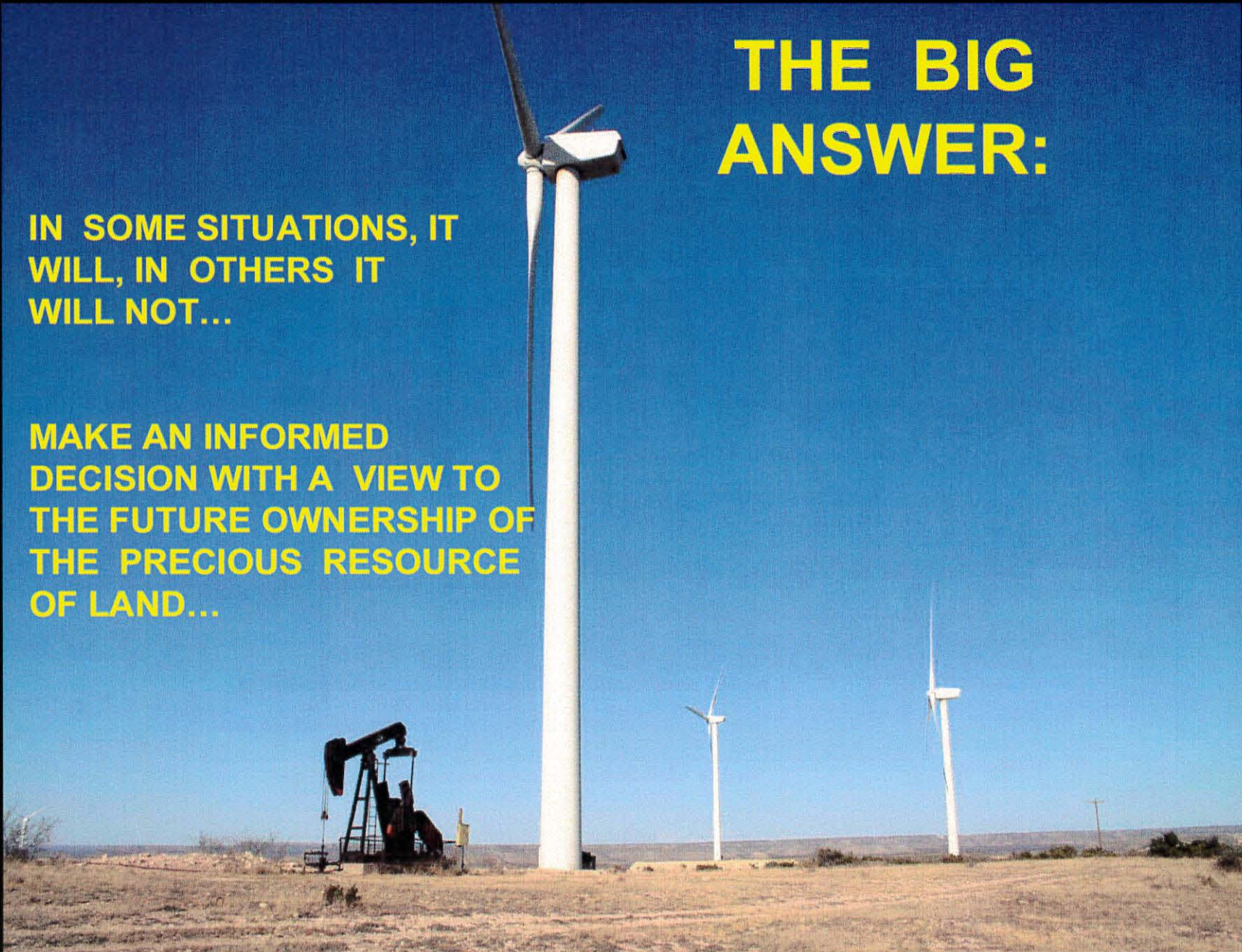
THE BIG QUESTION

- Does increased income from wind turbine off set the potential decrease in market value?

THE BIG ANSWER:

IN SOME SITUATIONS, IT WILL, IN OTHERS IT WILL NOT...

MAKE AN INFORMED DECISION WITH A VIEW TO THE FUTURE OWNERSHIP OF THE PRECIOUS RESOURCE OF LAND...



Studies Developed by:

- Gardner Appraisal Group, Inc.
- Austin Valuation Consultants
- Various real estate appraisers and brokers



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Summary: Exhibit E to testimony of Michael McCann electronically filed by Mr. Christopher A Walker on behalf of Union Neighbors United and McConnell, Robert Mr. and McConnell, Diane Mrs. and Johnson, Julia F. Ms.