

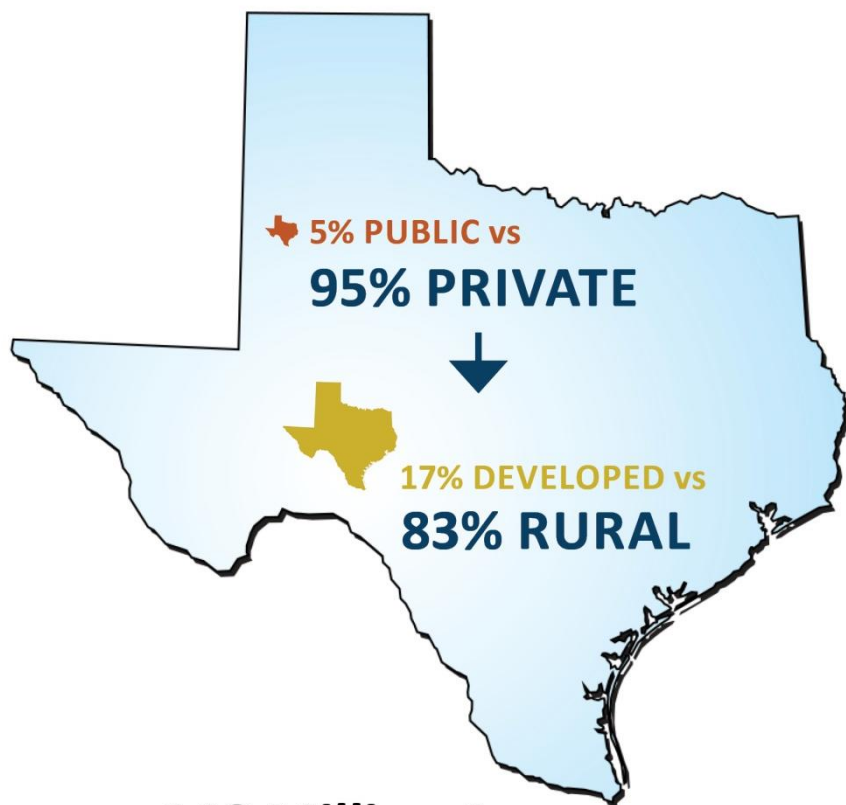
Texas Water Policy and Conservation: Saving Land to Protect Water

Texas Land Conservation Conference
March 2, 2017
Austin, Texas

Jeremiah H. Leibowitz
Director, Gulf Coast Cooperative Ecosystems Studies Unit

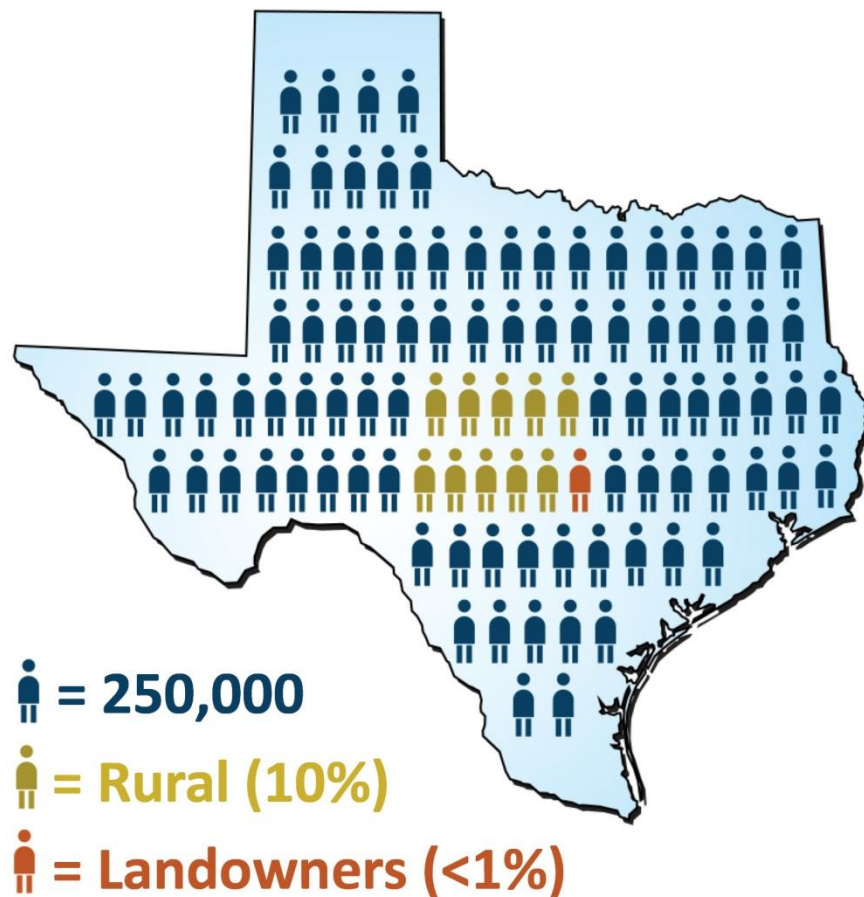
Changing Texas

171 Million Acres...



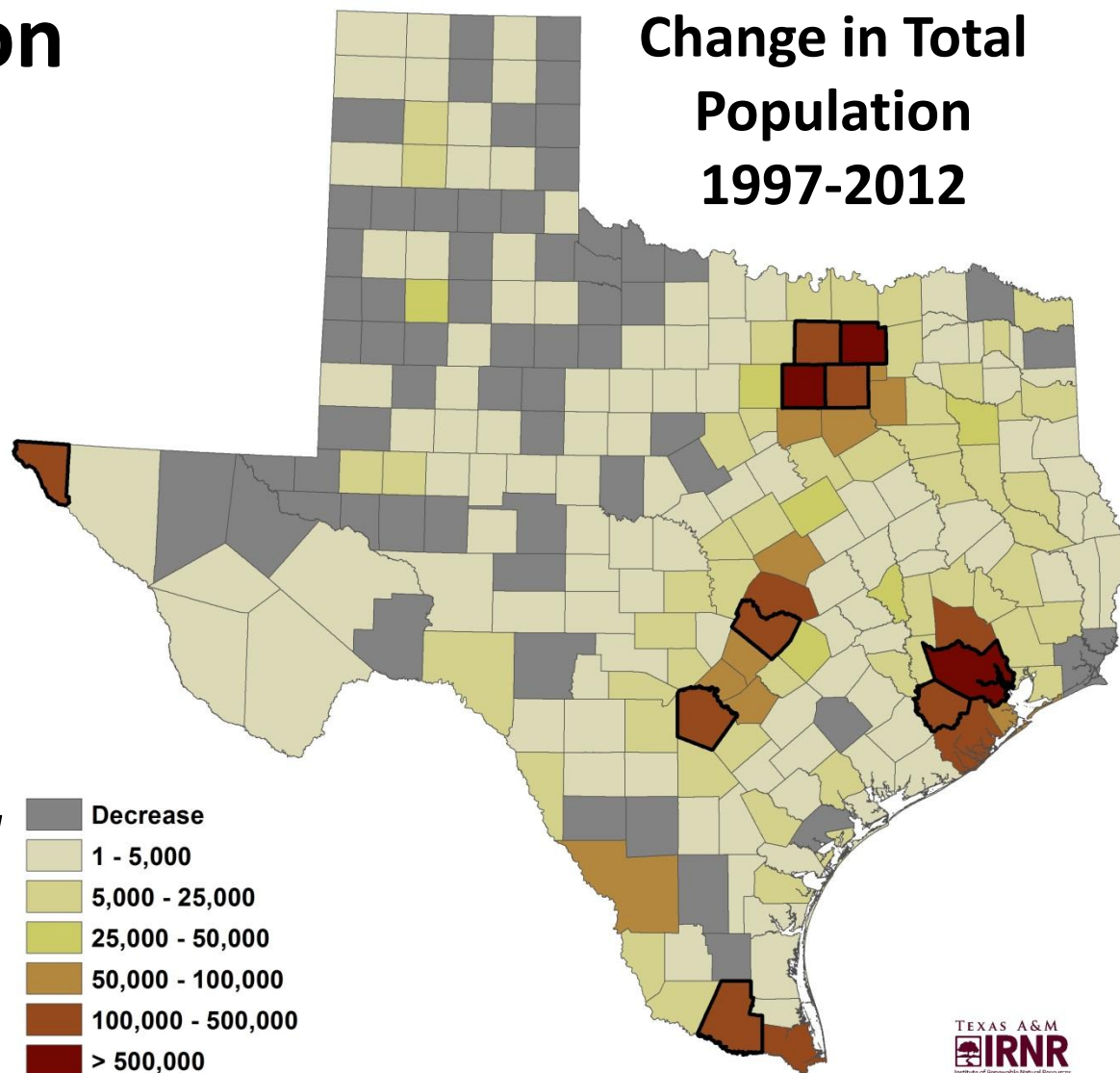
...142 Million Acres
Private Working Lands

Population: 26 Million...



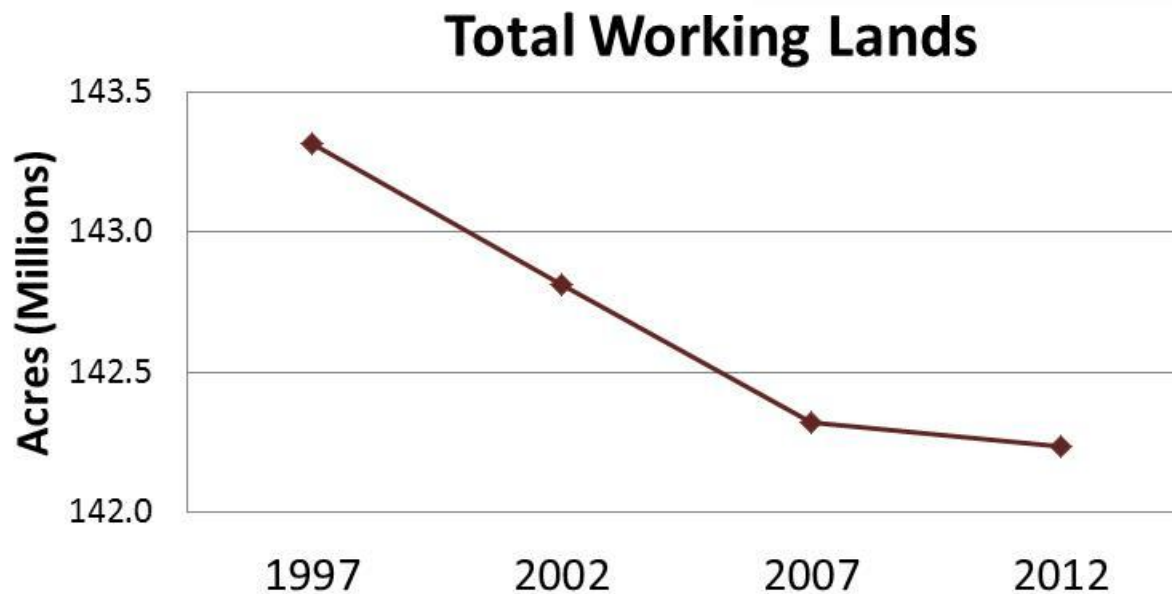
Texas Population

- 1997 – 19 Million
- 2012 – 26 Million
- 36% increase
- 500,000/year
- 65% of increase occurred within *Top Ten Populated Counties*



Working Land Loss

- 1997 – 143 Million acres
- 2012 – 142 Million acres
- Loss ~1 Million acres



Texas Farm and Ranch Land Conservation Program

- Stewardship and conservation of working lands through:
 - Interest and awareness in easement programs
 - Leveraging funds for high-quality projects
 - Highlight ecological/economic value of working lands
- Established in January 2005
- Transferred from TxGLO to TPWD January 2016



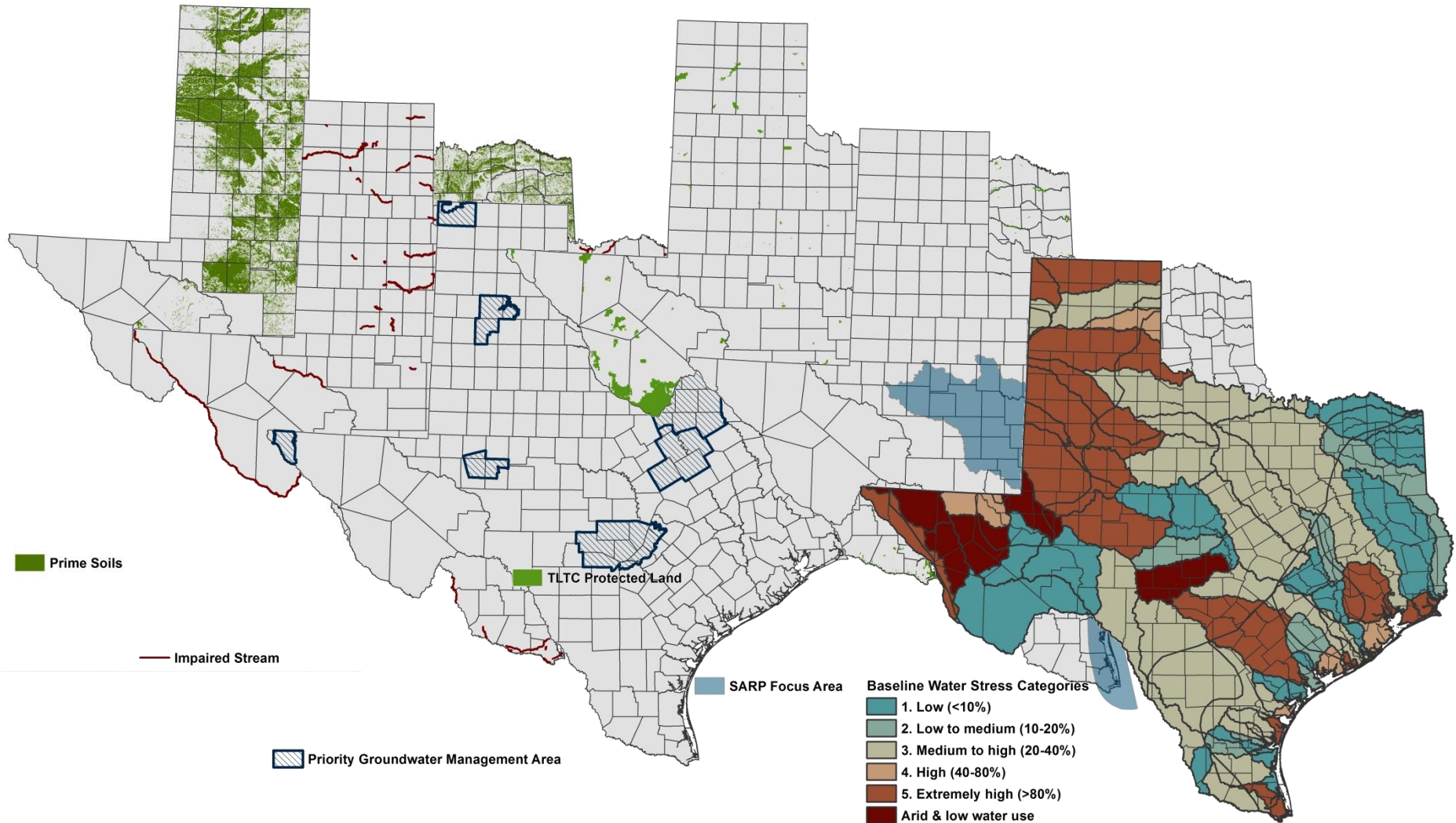
TFRLCP – *First Report (April 2015)*

Speaker Straus' interim charge:*

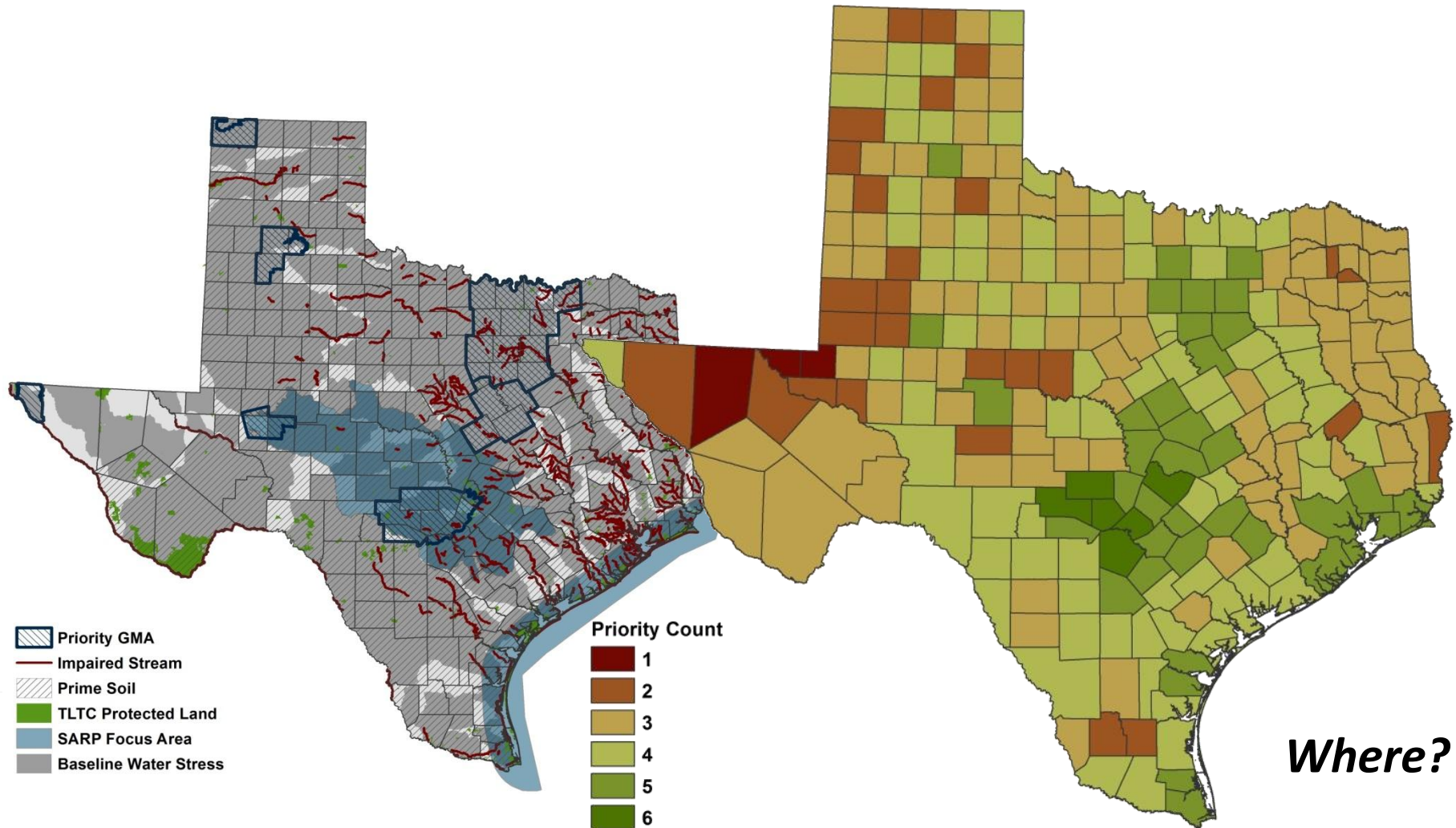
“Explore opportunities to encourage voluntary protection and stewardship of privately owned lands in support of the state’s water supply and to protect environmental flow needs in Texas rivers. ”

“An interim study on the feasibility of creating a comprehensive statewide program to implement voluntary private lands stewardship of agricultural and other open space land that will provide a public benefit by conserving water, improving water quality, maintaining the production of food and fiber, and improving the conjunctive management and use of surface and groundwater.”

Initial Process...*how much and where?*

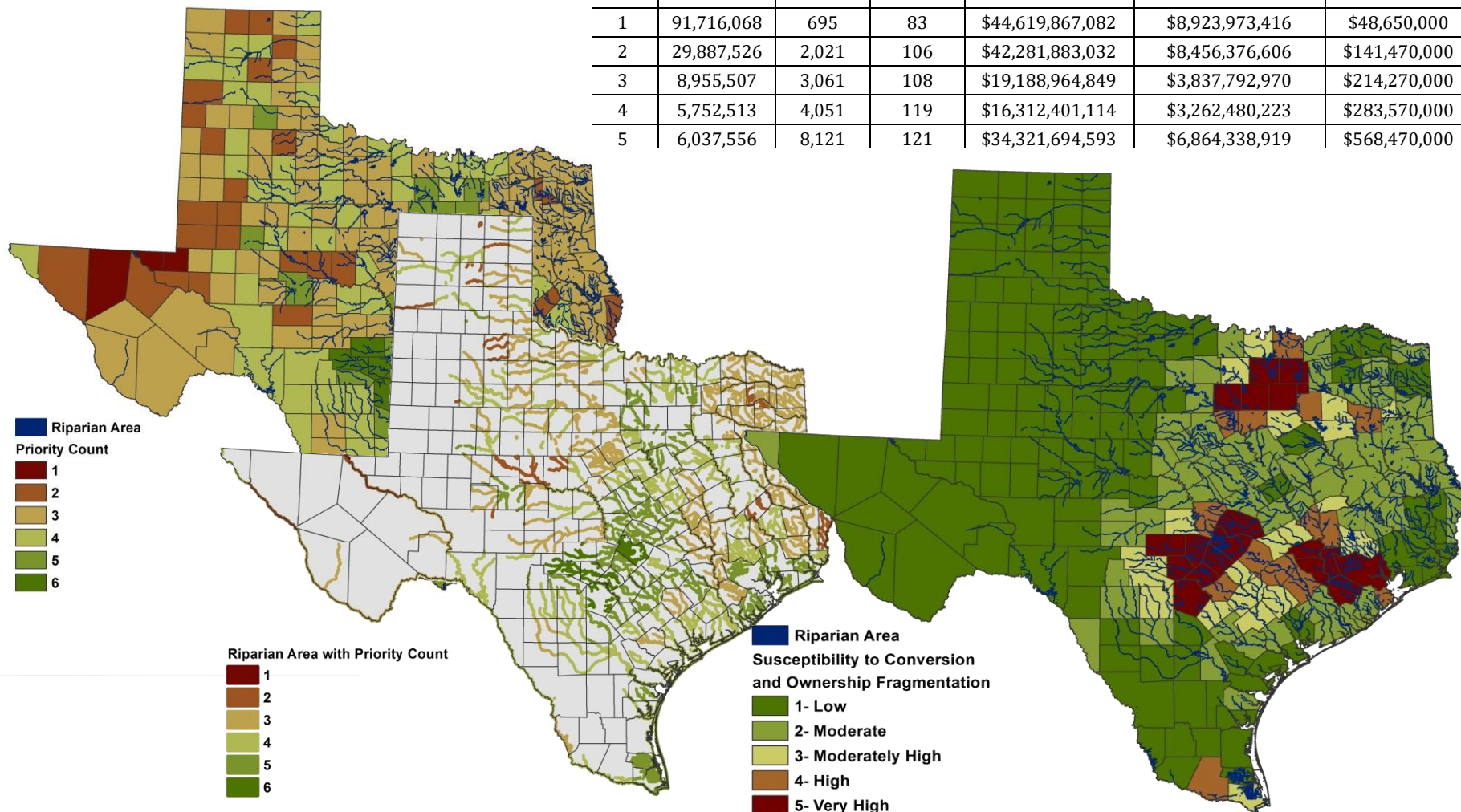


...Combined Map



...How much?

Cat.	Working Land Acres	Market Value (\$/ac)	Prod. Value (\$/ac)	Easement Cost (All Acres) *	Easement Cost (20% Participation) **	Easement Cost (100,000 acres/year)
1	91,716,068	695	83	\$44,619,867,082	\$8,923,973,416	\$48,650,000
2	29,887,526	2,021	106	\$42,281,883,032	\$8,456,376,606	\$141,470,000
3	8,955,507	3,061	108	\$19,188,964,849	\$3,837,792,970	\$214,270,000
4	5,752,513	4,051	119	\$16,312,401,114	\$3,262,480,223	\$283,570,000
5	6,037,556	8,121	121	\$34,321,694,593	\$6,864,338,919	\$568,470,000

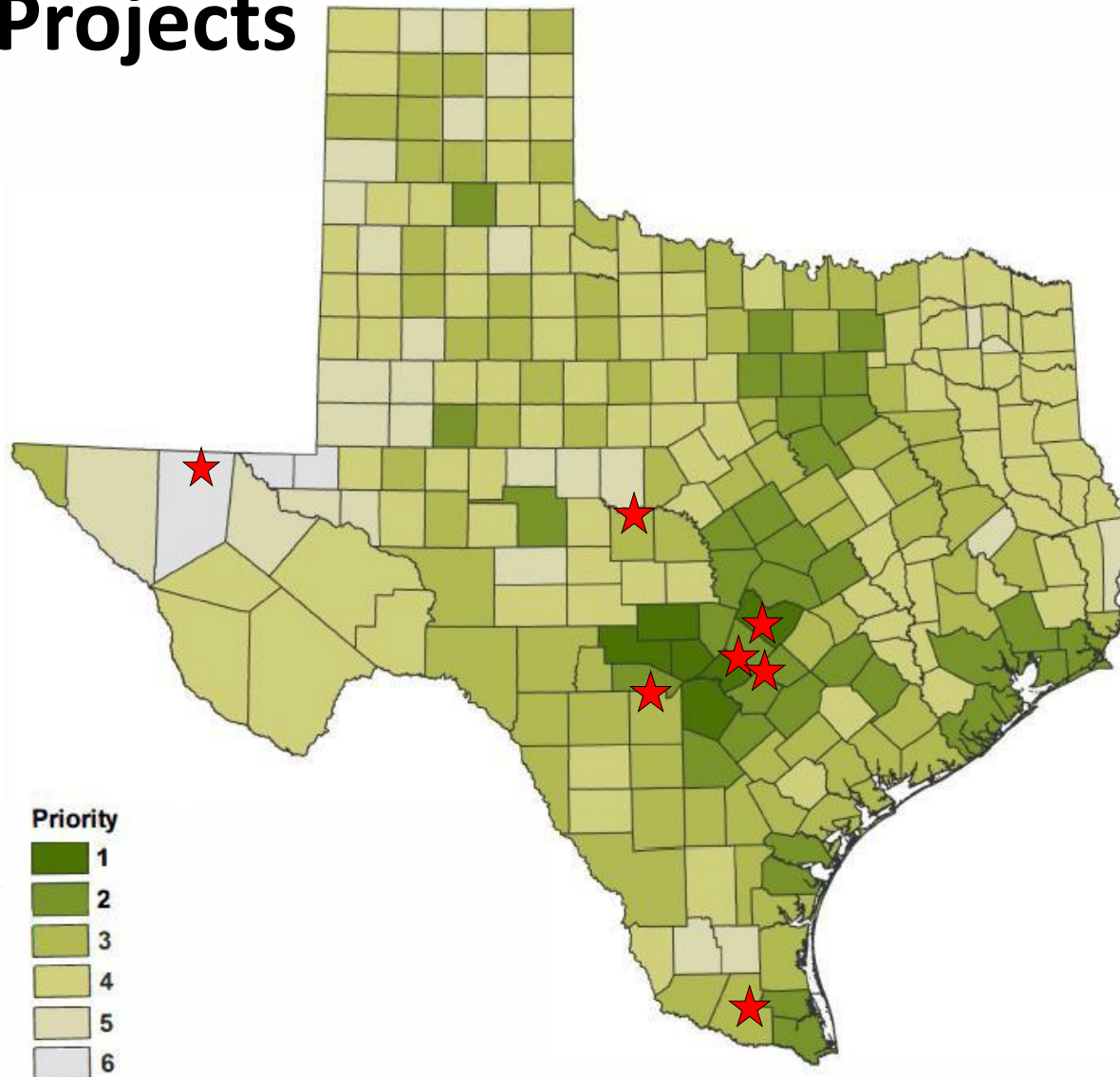


TFRLCP – *Second Report (December 2016)*

- Evaluate TFRLCP program.
- Report has 2 sections:
- Project assessment
 - **Water contribution**
 - Working Land contribution
 - Financial Leveraging
- Future Program demands
 - TPWD PLAC landowner questionnaire
 - TLTC questionnaire.



TFRLCP Projects



TFRLCP Projects

Priority	Project	Applicant	County	Acreage	Total Project CE Value	TFRLCP Grant Award
1	Puryear	Hill Country Conservancy	Travis	425	\$5,656,850	\$131,850
2	Albritton	The Nature Conservancy	Bandera	675	\$975,000	\$325,000
2	Dreamcatcher	Guadalupe Blanco River Trust	Hays	211	\$3,375,589	\$378,089
2	Lazy Bend	Hill Country Conservancy	Hays	144	\$1,026,925	\$75,925
3	Javelina	Valley Land Fund	Hidalgo	280	\$669,300	\$400,000
5	Santa Anna	Texas Agricultural Land Trust	Coleman	1,738	\$834,060	\$208,515
6	Pietila	The Nature Conservancy	Culberson	7,093	\$1,500,000	\$375,000
TOTALS				10,566	\$14,037,724	\$1,894,379

Water Analysis

Project	County	TWDB Planning Region	Acreage	Average Annual Rainfall (inches) ^a	50% Infiltration Rate (Acre-Feet) ^b	\$/Acre-Foot by Region ^c	Replacement Cost of Captured Water ^d
Puryear	Travis	K	425	31.80	563	\$1,070	\$602,410
Albritton	Bandera	J	675	26.70	751	\$1,116	\$838,116
Dreamcatcher	Hays	K/L	211	32.39	285	\$2,271	\$646,100
Lazy Bend	Hays	K/L	144	32.39	195	\$2,271	\$441,710
Javelina	Hidalgo	M	280	24.04	281	\$663	\$185,972
Santa Anna (Lower)	Coleman	F	1,738	24.63	1,784	\$1,110	\$1,979,685
Pietila	Culberson	E	7,093	14.85	4,389	\$1,596	\$7,004,844
TOTALS			10,566		8,248		\$11,698,837

^a= average of TWDB's 75-year quadrant precipitation data

^b= 50% infiltration rate = (((acreage*average annual rainfall)*27,154 [gallons/1inch of rain over acre]) / (325,851 [gallons/acre-foot of water]))/2

^c= TWDB State water plan: total costs for water management strategies for given region / total projected yield for those strategies [acre-foot]

^d= b x c

Water Analysis – *Key Points*

- Total land conservation costs are approximately \$14M.
- TFR LCP projects could potentially contribute 8,246 acre-feet annually
- Water replacement cost of over \$11.6M.
- From a water management perspective, land conservation is a low-cost, effective, water protection strategy.

Working Lands Analysis

Project	County	Cropland	Grazing Land	Wildlife	Total Working Lands	Pop. % Change	Working Land % Change
Puryear	Travis	40,768	128,126	36,110	205,004	48%	-23%
Albritton	Bandera	15,859	393,841	126,294	535,994	51%	3%
Dream-catcher	Hays	29,333	222,485	55,785	307,603	112%	-11%
Lazy Bend	Hays	29,333	222,485	55,785	307,603	112%	-11%
Javelina	Hidalgo	320,222	393,713	0	713,935	65%	-3%
Santa Anna (Lower)	Coleman	176,749	632,774	2,265	811,788	-11%	<1%
Pietila	Culberson	2,841	2,712,516	0	2,715,357	-19%	1%
STATEWIDE		25,203,278	105,036,897	3,306,557	141,421,295	36%	-1%

Working Lands Analysis

Project	Acres	Developed Open Space	Developed Low Intensity	Shrubland	Grassland	Pasture	Cultivated Crops	Evergreen Forests	Deciduous Forests	Woody Wetland
Albritton	675	0	0	71	2	0	0	585	17	0
Dreamcatcher	211	3	0	38	56	37	0	73	4	0
Javelina	280	7	8	218	0	0	4	0	37	7
Lazy Bend	144	0	0	46	8	0	0	76	12	1
Pietila	7,093	95	2	0	6,159	727	0	0	110	0
Puryear	425	30	1	196	109	0	0	36	54	0
Santa Anna (Lower)	1,738	63	0	337	471	0	814	14	38	0
TOTALS	10,566	198	11	906	6,805	764	818	784	270	8

>5.5 miles of river/creeks (Dreamcatcher, Lazy Bend, Pietila, Puryear, Santa Anna)

25 acres of wetlands (Javelina)

99 acres of aquifer recharge zone (Dreamcatcher)

Working Lands Analysis – *Key Points*

- Projects located from urban counties to rural counties.
- Approximately 8,468 acres or 83% of the total project acres (10,178 acres in 2016) in rural counties (i.e., low risk of working land loss, low or even decrease in human population).
- However...these projects:
 - Greater ROI (more acreage for \$)
 - Greater overall water contribution
 - Lower proportion of program funds (\$583,515 or 30%)

Financial Leveraging Analysis

Project	County	Estimated Market Value ^a	CE Value ^b	NRCS Contribution ^b	TFRLCP Grant Award ^b	In-Kind Contribution ^c	Grant as % of CE Value ^d
Puryear	Travis	\$1,975,825	\$5,656,850	\$2,500,000	\$131,850	\$3,025,000	2.3%
Albritton	Bandera	\$5,400,000	\$975,000	\$650,000	\$325,000	\$0	33.3%
Dreamcatcher	Hays	\$980,288	\$3,375,589	\$2,467,500	\$378,089	\$240,000	11.2%
Lazy Bend	Hays	\$669,456	\$1,026,925	\$0	\$75,925	\$951,000	7.4%
Javelina	Hidalgo	\$875,000	\$669,300	\$0	\$400,000	\$269,300	59.8%
Santa Anna	Coleman	\$4,438,418	\$834,060	\$417,030	\$208,515	\$208,515	25.0%
Pietila	Culberson	\$2,326,652	\$1,500,000	\$750,000	\$375,000	\$375,000	25.0%
TOTAL		\$16,665,638	\$14,037,724	\$6,784,530	\$1,894,379	\$5,068,815	23.4% ^e

^a = Texas A&M Real Estate Center rural land values, 2015.

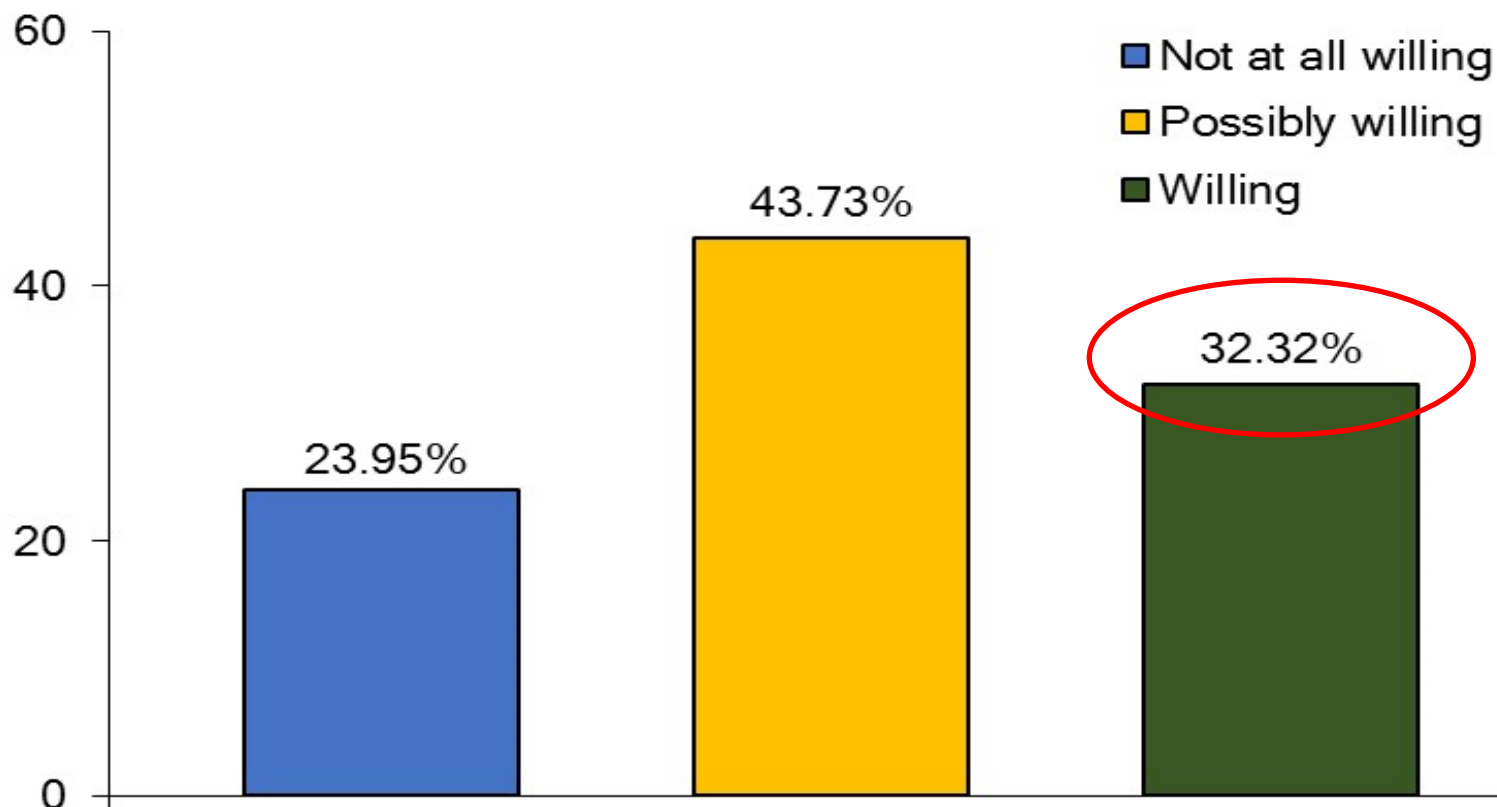
^b = Provided by TFRLCP applications

^c = CE Value – (NRCS Contribution + TFRLCP Grant Award)

^d = (Grant award divided by CE value) x 100

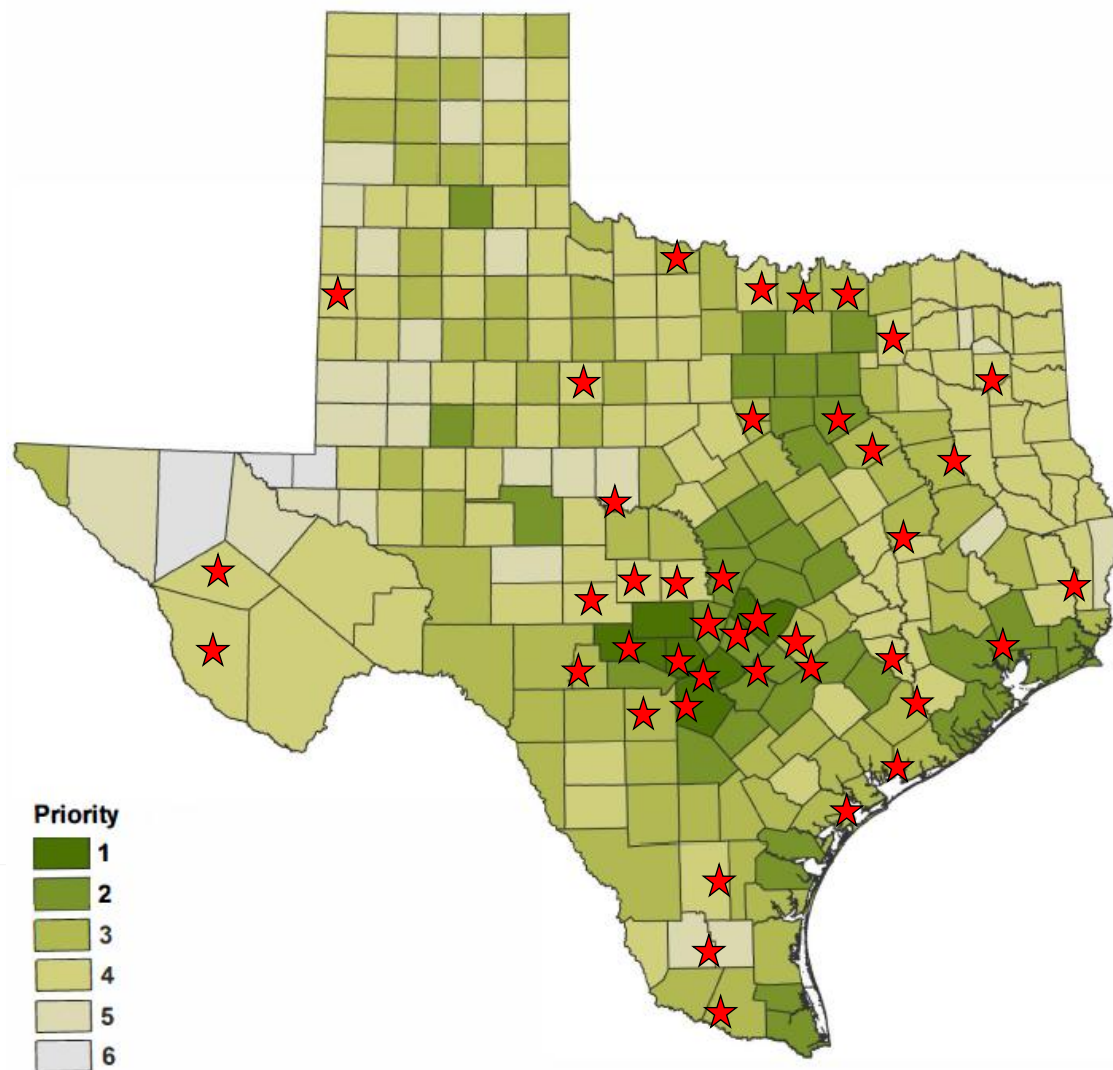
^e = Column average

Future Demands – *TPWD PLAC Survey*



Based on your opinions regarding land loss or land fragmentation, evaluate each strategy below and indicate your willingness to participate (Permanent land protection programs).

Future Demands – *TLTC Survey*



Future Demands – *Key Points*

- 34% of landowners willing to implement conservation easement in the future.
- 82 eligible projects representing 132,641 acres across 43 counties.
- Survey results suggest willing landowners in the future with a well-funded TFRLCP.

