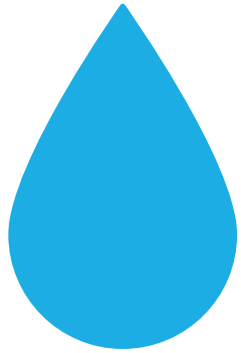




2021 Annual Report

SEPTEMBER 13, 2022
BOARD OF DIRECTORS
MEETING



Goal 1:
Providing the
Most Efficient
Use of Water

Exempt Wells Registered with the District

<i>Use</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	<i>Total</i>
<i>Agriculture</i>	0	3	3	13	8	1	1	1	2	3	0	35
<i>Commercial</i>	6	2	1	7	5	6	3	2	2	6	2	42
<i>Domestic</i>	60	73	156	194	126	133	150	198	140	174	194	1598
<i>Golf Course</i>	1	0	0	0	0	0	0	0	0	0	0	1
<i>Industrial</i>	2	0	0	0	0	0	1	0	0	0	1	4
<i>Irrigation</i>	2	8	38	24	28	18	19	15	3	5	9	169
<i>Livestock</i>	26	16	26	13	15	4	11	8	6	17	8	150
<i>Monitoring</i>	1	0	0	0	0	0	1	0	0	0	1	3
<i>Oil / Gas</i>	1	0	3	1	1	0	0	0	0	0	0	6
<i>Other</i>	0	0	1	1	0	3	0	0	1	4	2	12
<i>Public Water</i>	9	2	1	0	0	0	0	0	0	0	2	14
<i>Surface Impoundments</i>	3	6	14	10	2	5	12	14	6	10	11	93
Total	111	110	243	263	185	170	198	238	160	219	230	2127

Non-Exempt Wells Registered with the District

<i>Use</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	<i>Total</i>
<i>Agriculture</i>	3	10	2	0	1	0	0	7	0	0	3	26
<i>Commercial</i>	2	0	1	1	0	2	2	1	1	0	0	10
<i>Domestic</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Golf Course</i>	22	12	3	0	0	0	0	0	0	0	0	37
<i>Industrial</i>	17	1	0	1	1	0	3	1	0	0	2	26
<i>Irrigation</i>	4	14	9	10	12	11	21	23	9	10	4	127
<i>Livestock</i>	0	0	0	1	0	1	0	0	0	0	0	2
<i>Monitoring</i>	1	0	0	0	0	0	0	0	0	0	0	1
<i>Oil / Gas</i>	47	6	9	0	1	0	0	2	0	0	1	66
<i>Other</i>	0	0	4	0	0	0	0	1	0	3	1	9
<i>Public Water</i>	241	20	8	3	4	5	5	8	11	6	7	318
<i>Surface Impoundments</i>	26	7	6	3	9	9	10	16	3	6	5	100
Total	363	70	42	19	28	28	41	59	24	25	23	722

Wells Registered with the District

<i>Use</i>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	<i>Total</i>
<i>Agriculture</i>	3	13	5	13	9	1	1	8	2	3	3	61
<i>Commercial</i>	8	2	2	8	5	8	5	3	3	6	2	52
<i>Domestic</i>	60	73	156	194	126	133	150	198	140	174	194	1598
<i>Golf Course</i>	23	12	3	0	0	0	0	0	0	0	0	38
<i>Industrial</i>	19	1	0	1	1	0	4	1	0	0	3	30
<i>Irrigation</i>	6	22	47	34	40	29	40	38	12	15	13	296
<i>Livestock</i>	26	16	26	14	15	5	11	8	6	17	8	152
<i>Monitoring</i>	2	0	0	0	0	0	1	0	0	0	1	4
<i>Oil / Gas</i>	48	6	12	1	2	0	0	2	0	0	1	72
<i>Other</i>	0	0	5	1	0	3	0	1	1	7	3	21
<i>Public Water</i>	250	22	9	3	4	5	5	8	11	6	9	332
<i>Surface Impoundments</i>	29	13	20	13	11	14	22	30	9	16	16	193
Total	474	180	285	282	213	198	239	297	184	244	253	2849

Well Inspections During 2021

<i>Month</i>	<i>Collin County</i>	<i>Cooke County</i>	<i>Denton County</i>	<i>Total</i>
<i>January</i>	1	3	8	12
<i>February</i>	0	3	1	4
<i>March</i>	8	29	16	53
<i>April</i>	2	2	17	21
<i>May</i>	2	4	9	15
<i>June</i>	7	2	13	22
<i>July</i>	2	15	23	40
<i>August</i>	1	7	17	25
<i>September</i>	0	13	18	31
<i>October</i>	5	4	17	26
<i>November</i>	2	13	19	34
<i>December</i>	1	8	10	19
<i>Total</i>	<i>31</i>	<i>103</i>	<i>168</i>	<i>302</i>

Wells Measured for the District's Monitoring Program

<i>Year</i>	<i>Cooke</i>	<i>Collin</i>	<i>Denton</i>	<i>Total</i>
2010	15	10	20	45
2011	24	12	14	50
2012	19	10	21	50
2013	6	0	0	6
2014	21	9	16	46
2015	34	16	29	79
2016	11	8	14	33
2017	22	6	11	39
2018	10	0	3	13
2019	2	0	3	5
2020	39	7	22	68
2021	32	10	25	67

Percentage of Registered Non-Exempt Wells Meeting Reporting Requirements

<i>Year</i>	<i>Percentage Meeting Reporting Requirements</i>
2012	85%
2013	89%
2014	95%
2015	96%
2016	92%
2017	82%
2018	93%
2019	93%
2020	92%
2021	89%

Late Fees and Payments

	<i>Late Fee</i>	<i>Late Payment</i>
<i>Number of Occurrences</i>	235	124
<i>Percentage of Accounts with at Least 1 Occurrence</i>	48%	34%
<i>Percentage of Readings/Payments were Late</i>	22%	12%
<i>Amount Paid</i>	\$11,750.00	\$8,977.84

Percentage of Registered Non-Exempt Wells Inspected Annually

<i>Year</i>	<i>Percentage of Well Inspected</i>
2012	74%
2013	6%
2014	21%
2015	24%
2016	13%
2017	37%
2018	51%
2019	16%
2020	16%
2021	13%

Non-Exempt Production by County (All Production is in Acre-Feet)

<i>Year</i>	<i>Collin</i>	<i>Cooke</i>	<i>Denton</i>	<i>District</i>
2012	5,326	6,319	14,881	26,526
2013	4,650	5,130	13,120	22,900
2014	4,311	4,829	13,712	22,852
2015	5,263	4,323	13,308	22,893
2016	4,935	4,279	11,272	20,487
2017	4,925	4,365	12,960	22,250
2018	5,469	4,499	14,505	24,473
2019	5,950	4,298	13,602	23,849
2020	5,934	4,884	14,367	25,184
2021	6,011	4,783	14,928	25,722
Average	5,277	4,771	13,666	23,714

Non-Exempt Production by Aquifer (All Production is in Acre-Feet)

<i>Year</i>	<i>River Alluvial</i>	<i>Trinity</i>			<i>Washita Group</i>	<i>Woodbine</i>
		<i>(Antlers)</i>	<i>(Paluxy)</i>	<i>(Twin Mountains)</i>		
2012	0	16,534	1,845	4,027	0	4,120
2013	0	14,447	1,738	3,324	24	3,367
2014	0	14,264	1,652	3,125	17	3,795
2015	0	13,440	1,840	3,702	13	3,898
2016	0	12,338	1,433	2,989	16	3,711
2017	30	12,820	1,652	3,262	8	4,477
2018	49	14,336	1,680	4,024	4	4,380
2019	54	13,205	1,995	3,619	0	4,976
2020	64	14,314	2,007	3,438	1	5,361
2021	50	15,603	1,777	3,467	0	4,825
Average	25	14,130	1,762	3,498	8	4,291

Non-Exempt Production by Use (All Production is in Acre-Feet)

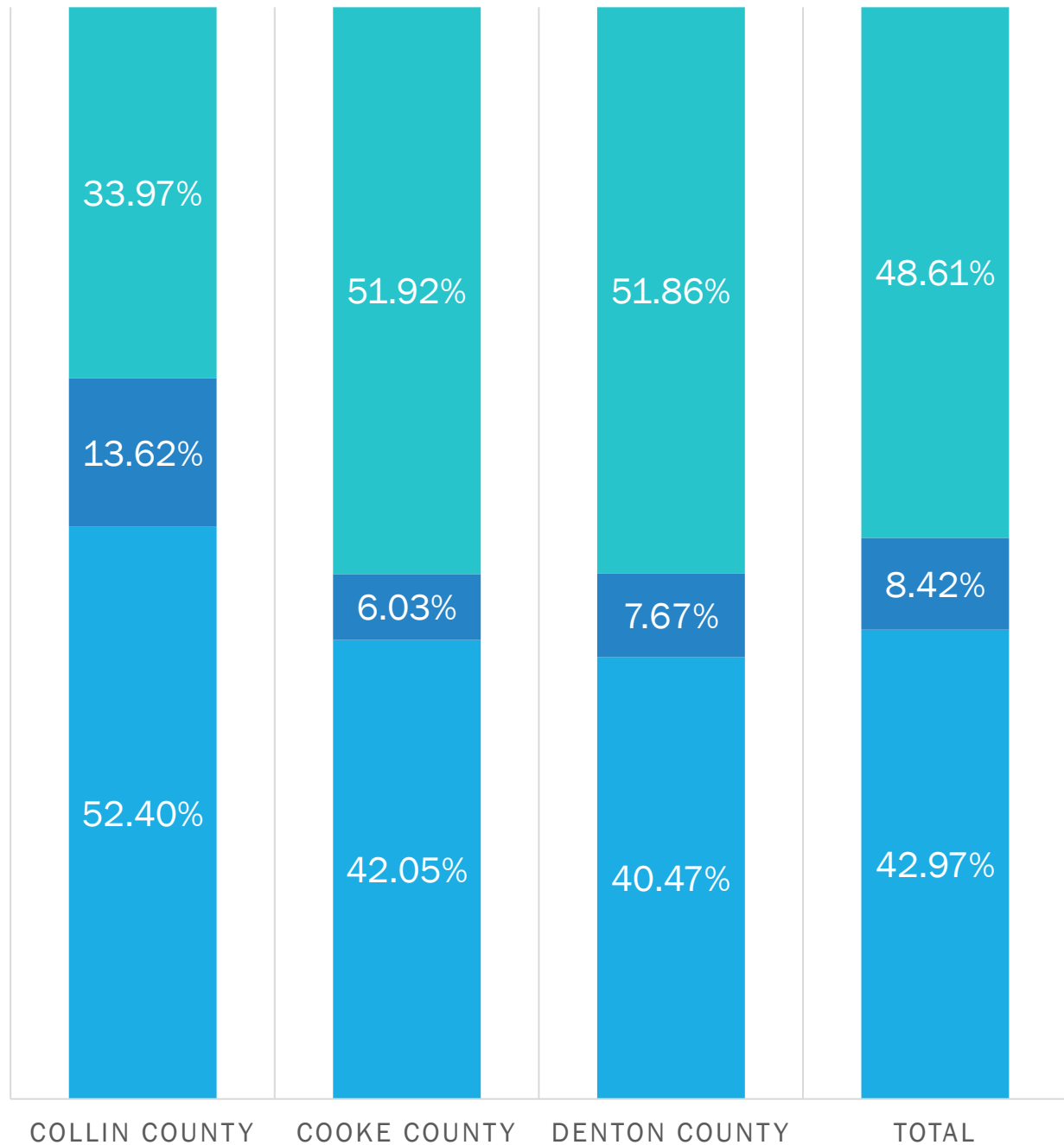
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average
<i>Public Water</i>	16,889	15,105	15,206	15,908	15,845	16,240	17,388	16,538	18,202	18,814	16,614
<i>Golf Course</i>	3,043	2,672	2,468	2,318	1,661	1,794	2,195	2,252	1,608	1,673	2,168
<i>Agriculture</i>	1,471	1,241	1,614	1,302	945	1,328	1,033	1,390	1,749	1,053	1,313
<i>Irrigation</i>	637	607	684	1,188	995	1,150	1,457	1,841	1,995	1,855	1,241
<i>Surface Impoundments</i>	1,128	1,165	781	618	607	947	942	1,165	1,007	1,104	946
<i>Oil / Gas</i>	2,200	1,289	1,619	1,084	204	399	1,057	283	248	797	918
<i>Industrial</i>	288	212	198	226	191	294	263	246	221	273	241
<i>Livestock</i>	749	608	189	50	0	7	12	2	6	5	163
<i>Commercial</i>	122	2	92	198	37	88	124	132	147	129	107
<i>Other</i>	0	0	1	1	2	3	3	1	1	20	3

Estimated Exempt Production (All Production is in Acre-Feet)

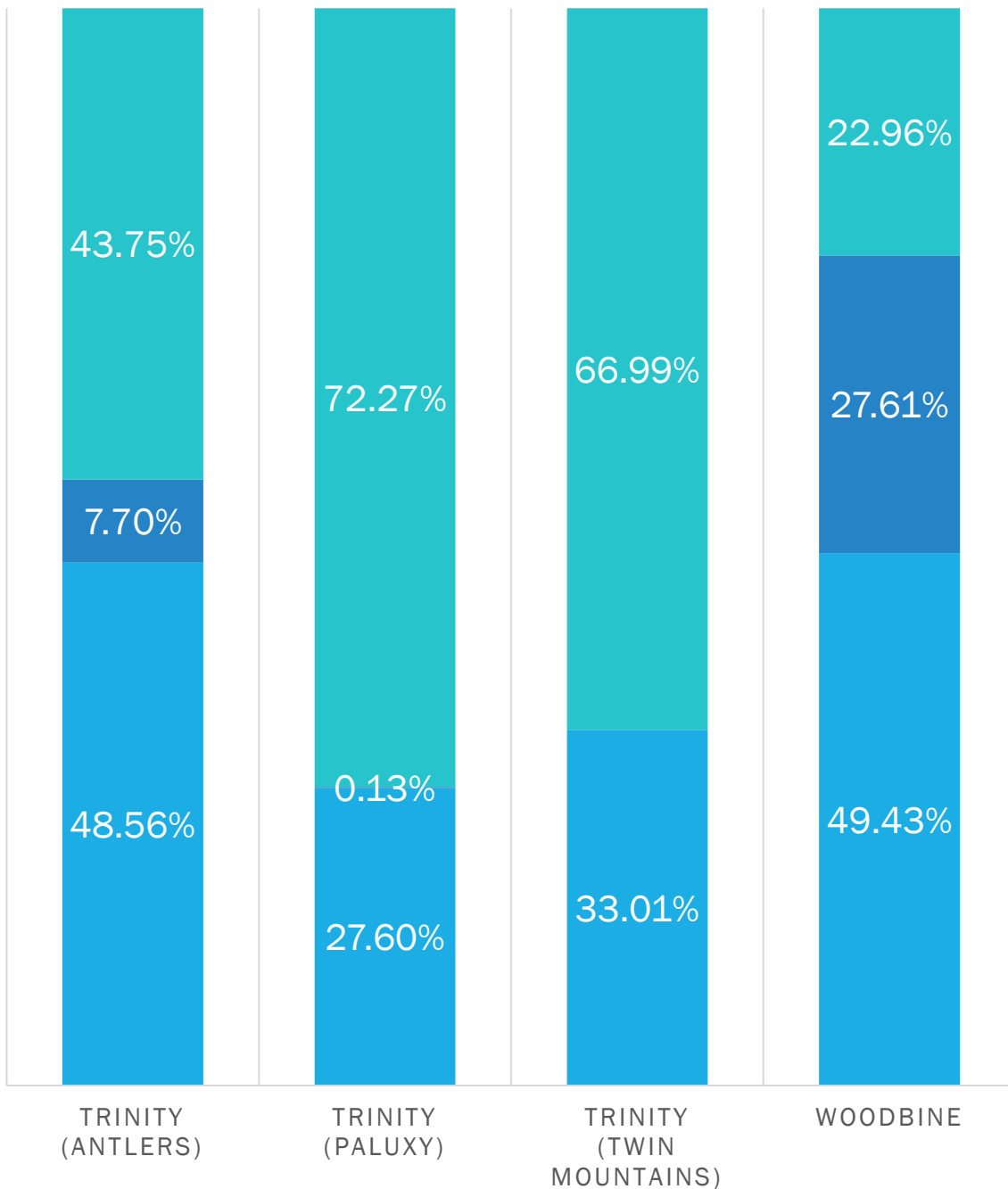
<i>Use</i>	<i>Active Wells</i>	<i>Estimated Production (Ac-ft)</i>	<i>3x Estimated Production (Ac-ft)</i>	<i>Methodology</i>
<i>Agriculture</i>	30	68	203	Average time pumping per day of 2 hours
<i>Commercial</i>	37	6	19	Assumed average consumption is 150 gallons per day
<i>Domestic Use</i>	1420	239	716	Assumed average consumption is 150 gallons per day
<i>Industrial/Manufacturing</i>	2	5	15	Average time pumping per day of 2 hours
<i>Irrigation</i>	148	368	1,104	Average time pumping per day of 2 hours
<i>Livestock</i>	130	541	1,623	Average time pumping per day of 2 hours
<i>Oil/Gas</i>	6	52	157	Average time pumping per day of 2 hours
<i>Other</i>	11	15	46	Average time pumping per day of 2 hours
<i>Pond/Surface Impoundments</i>	78	202	605	Average time pumping per day of 2 hours
<i>Public Water System</i>	8	52	157	Average time pumping per day of 6 hours
Total	1,870	1,548	4,646	

Average Production Compared to 2020 MAG by County

■ Non-Exempt Estimates ■ Exempt Estimates ■ Remaining 2020 MAG



■ Non-Exempt Estimates ■ Exempt Estimates ■ Remaining 2020 MAG



Average Production Compared to 2020 MAG by Aquifer

Permits Approved by the Board

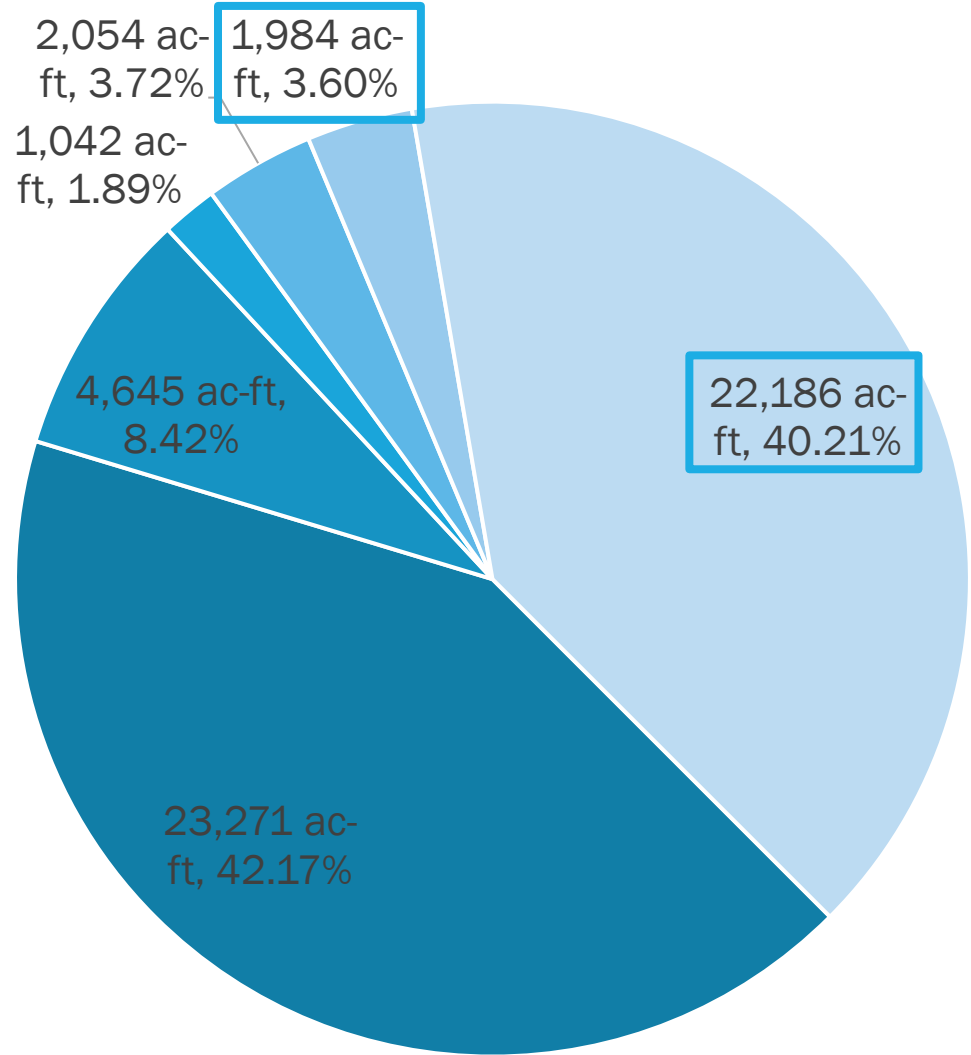
	2019	2020	2021	Total
<i>New Permits</i>	13	20	22	55
<i>Permit Amendments</i>	0	2	5	7
<i>Total Permits</i>	13	22	27	62
<i># of Wells</i>	21	41	79	141
<i>Requested Amount (gal)</i>	339,621,618	696,214,100	2,061,546,231	3,097,381,949

<i>Aquifer</i>	2019	2020	2021	Total
<i>Trinity (Antlers)</i>	4	10	8	22
<i>Trinity (Paluxy)</i>	4	2	6	12
<i>Trinity (Twin Mountains)</i>	2	0	1	3
<i>Woodbine</i>	3	8	7	18
<i>Total</i>	13	20	22	55

Permits Approved by the Board

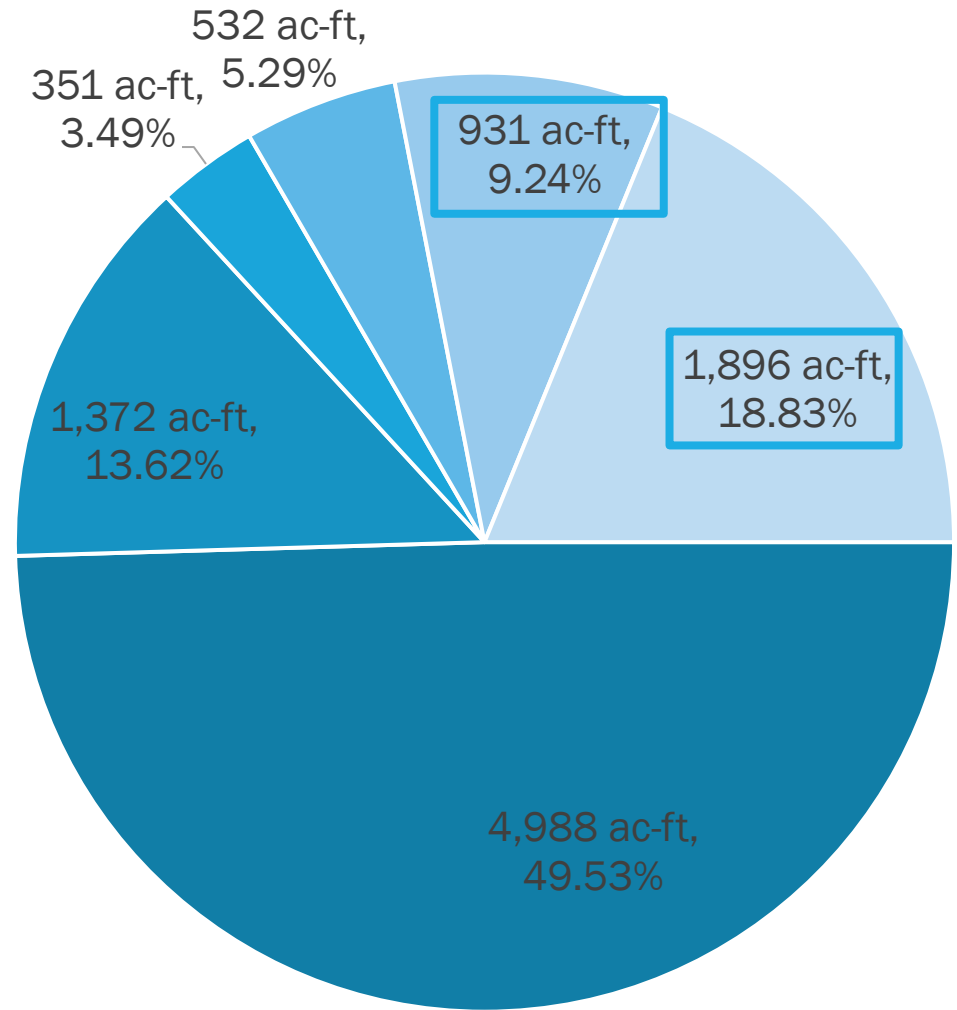
	<i>Use</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	<i>Total</i>
	<i>Agriculture Irrigation</i>	0	0	2	2
<i>Agriculture Irrigation and Surface Impoundment(s)</i>		0	1	1	2
	<i>Concrete Production</i>	1	0	1	2
	<i>Construction</i>	0	2	1	3
	<i>Fire Suppression System</i>	0	1	1	2
	<i>Landscape Irrigation</i>	4	5	1	10
<i>Landscape Irrigation and Surface Impoundment(s)</i>		3	6	7	16
<i>Oil/Gas Production, Surface Impoundment(s), and Livestock</i>		0	0	1	1
	<i>Public Water System</i>	5	4	6	15
	<i>Surface Impoundment(s)</i>	0	1	1	2
	<i>Total</i>	<i>13</i>	<i>20</i>	<i>22</i>	<i>55</i>

District Wide Approved Permits



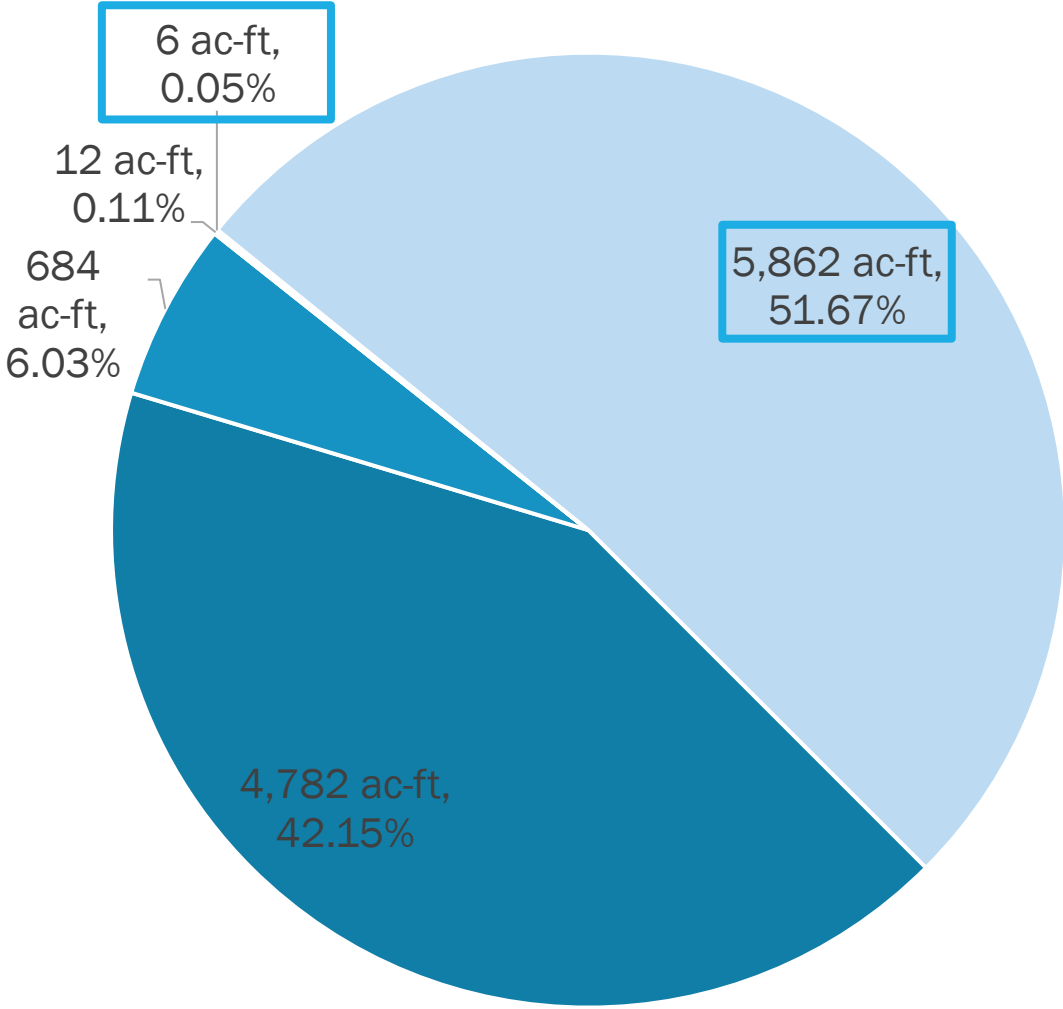
- Non-Exempt Estimates
- Exempt Estimates
- 2019 Approved Permits
- 2020 Approved Permits
- 2021 Approved Permits
- Remaining 2020 MAG

Collin County Approved Permits



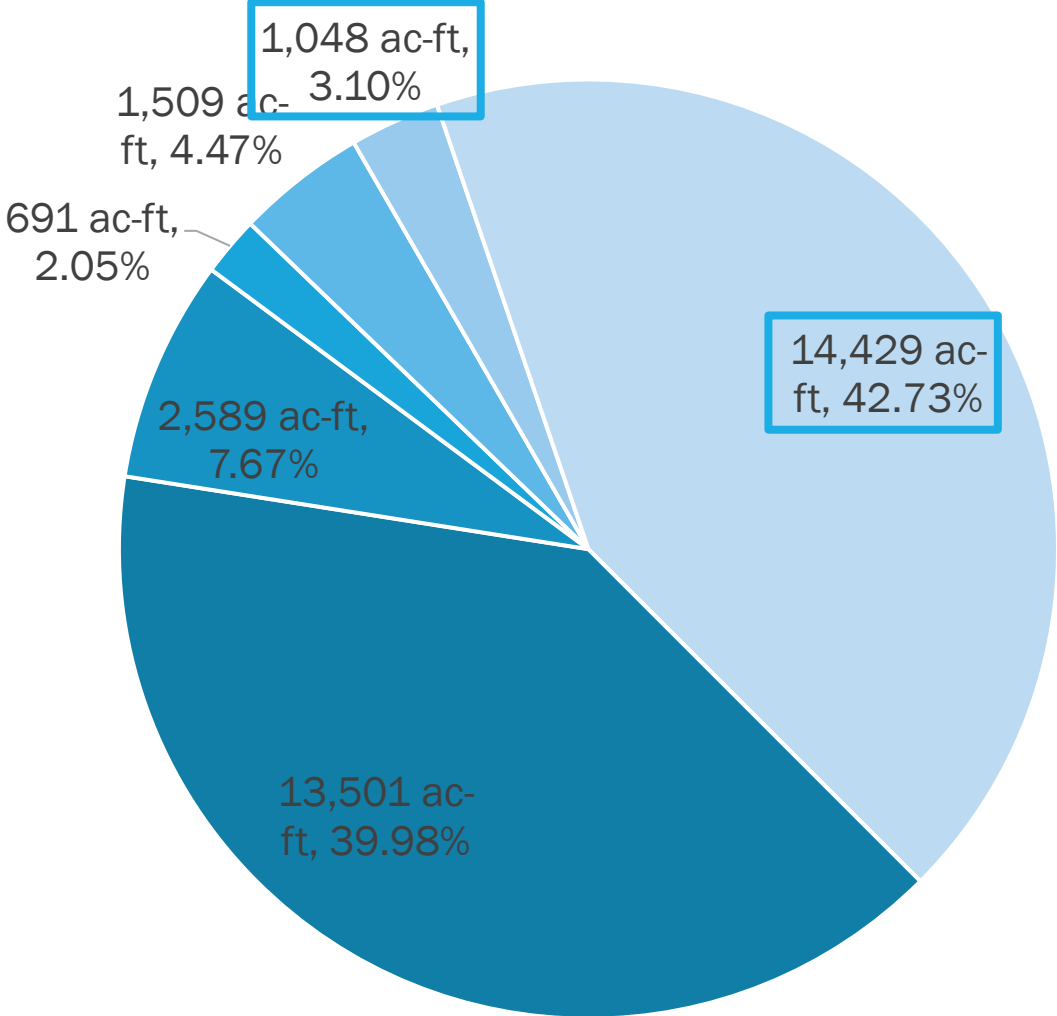
- Non-Exempt Estimates
- Exempt Estimates
- 2019 Approved Permits
- 2020 Approved Permits
- 2021 Approved Permits
- Remaining 2020 MAG

Cooke County Approved Permits



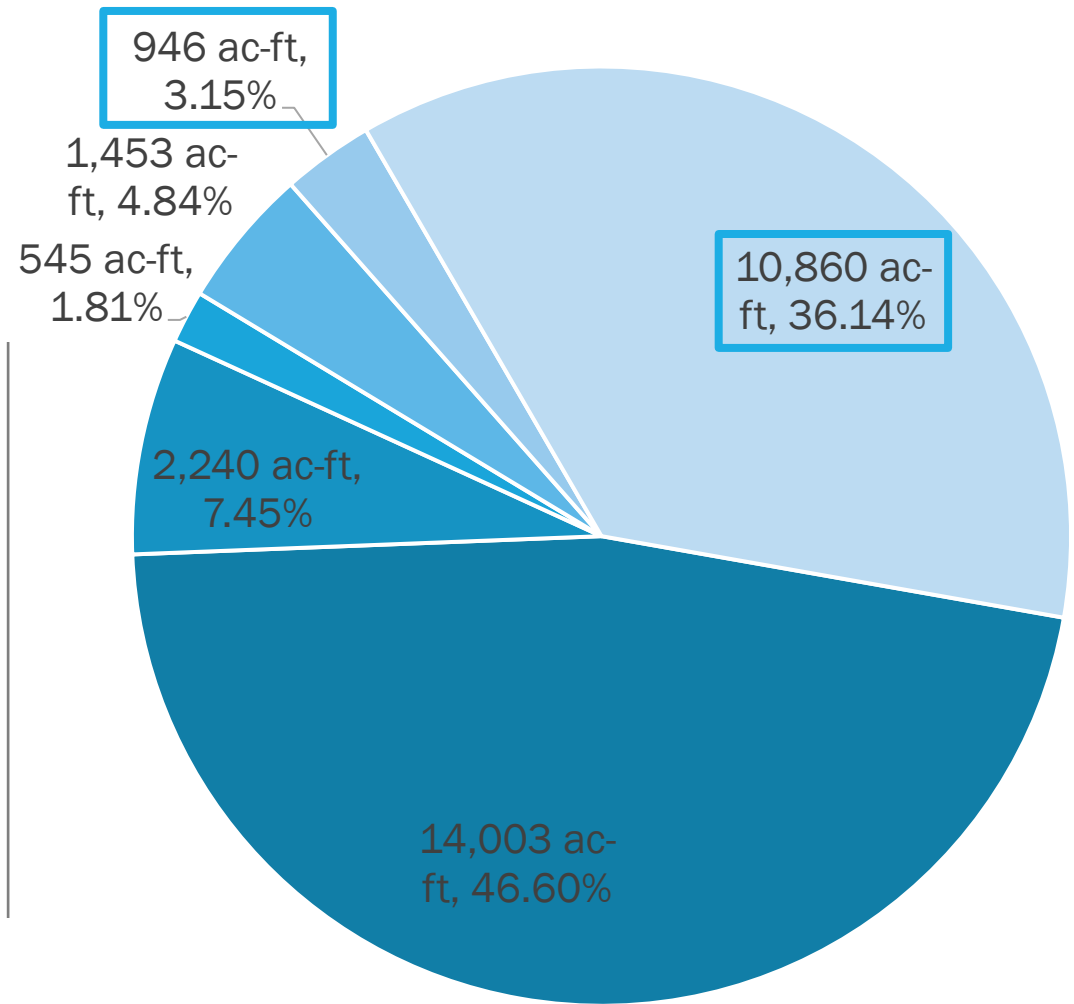
- Non-Exempt Estimates
- Exempt Estimates
- 2020 Approved Permits
- 2021 Approved Permits
- Remaining 2020 MAG

Denton County Approved Permits



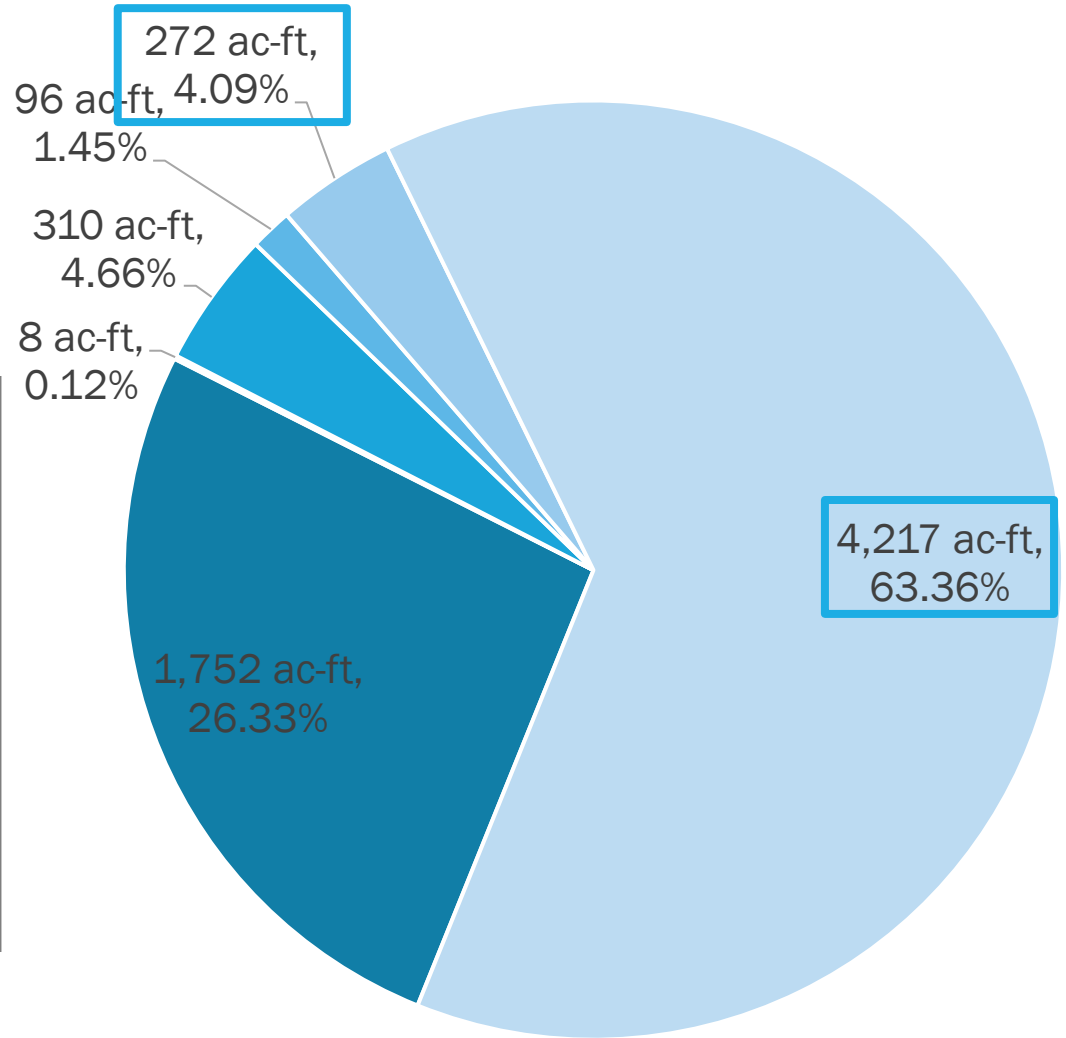
- Non-Exempt Estimates
- Exempt Estimates
- 2019 Approved Permits
- 2020 Approved Permits
- 2021 Approved Permits
- Remaining 2020 MAG

Trinity (Antlers) Approved Permits



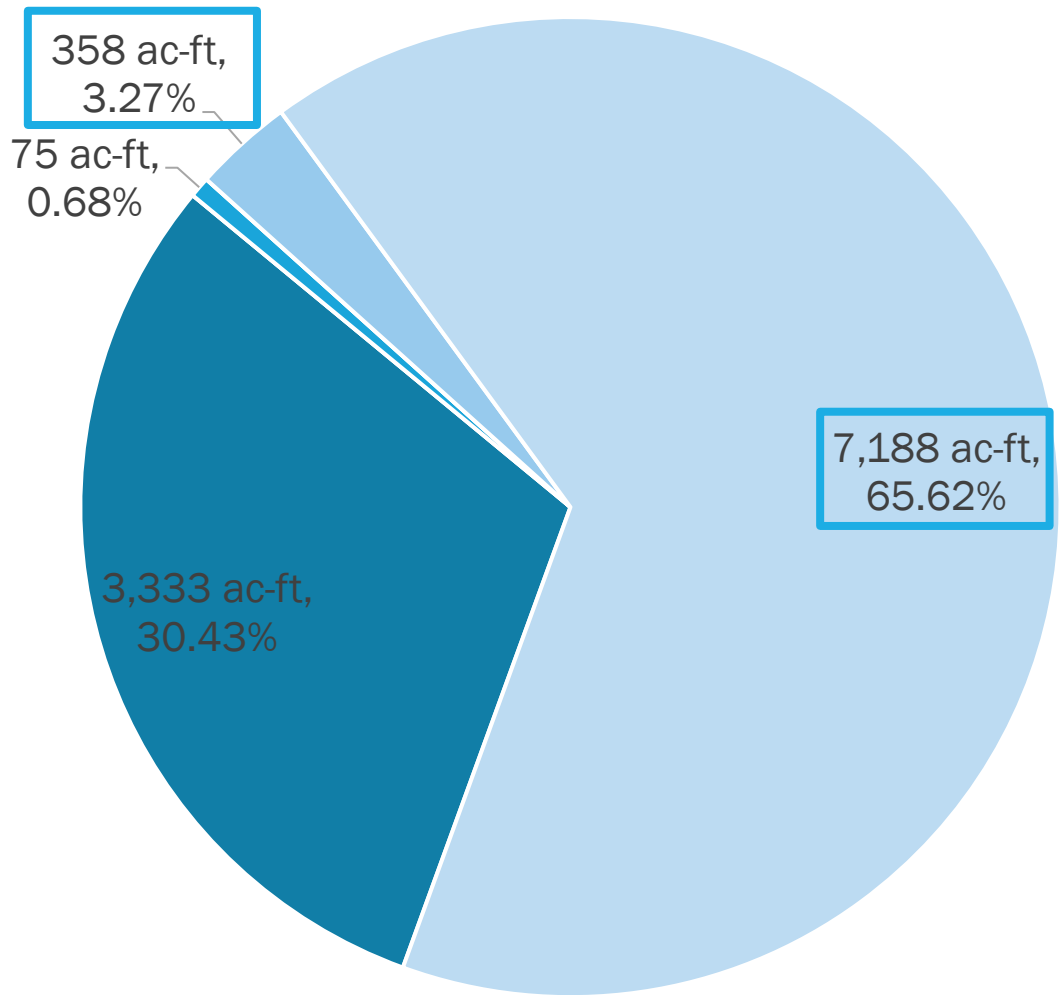
- Non-Exempt Estimates
- Exempt Estimates
- 2019 Approved Permits
- 2020 Approved Permits
- 2021 Approved Permits
- Remaining 2020 MAG

Trinity (Paluxy) Approved Permits



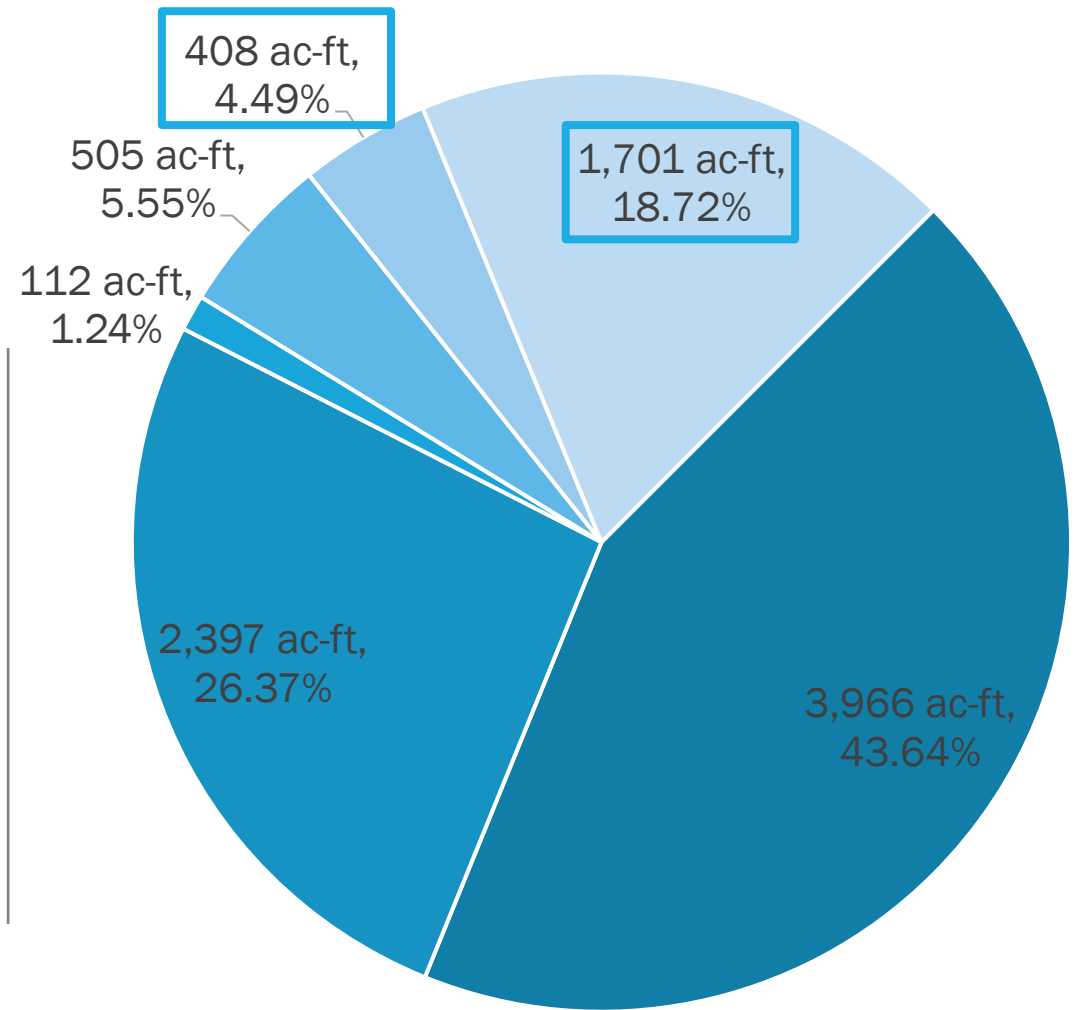
- Non-Exempt Estimates
- Exempt Estimates
- 2019 Approved Permits
- 2020 Approved Permits
- 2021 Approved Permits
- Remaining 2020 MAG

Trinity (Twin Mountains) Approved Permits



- Non-Exempt Estimates
- 2019 Approved Permits
- 2021 Approved Permits
- Remaining 2020 MAG

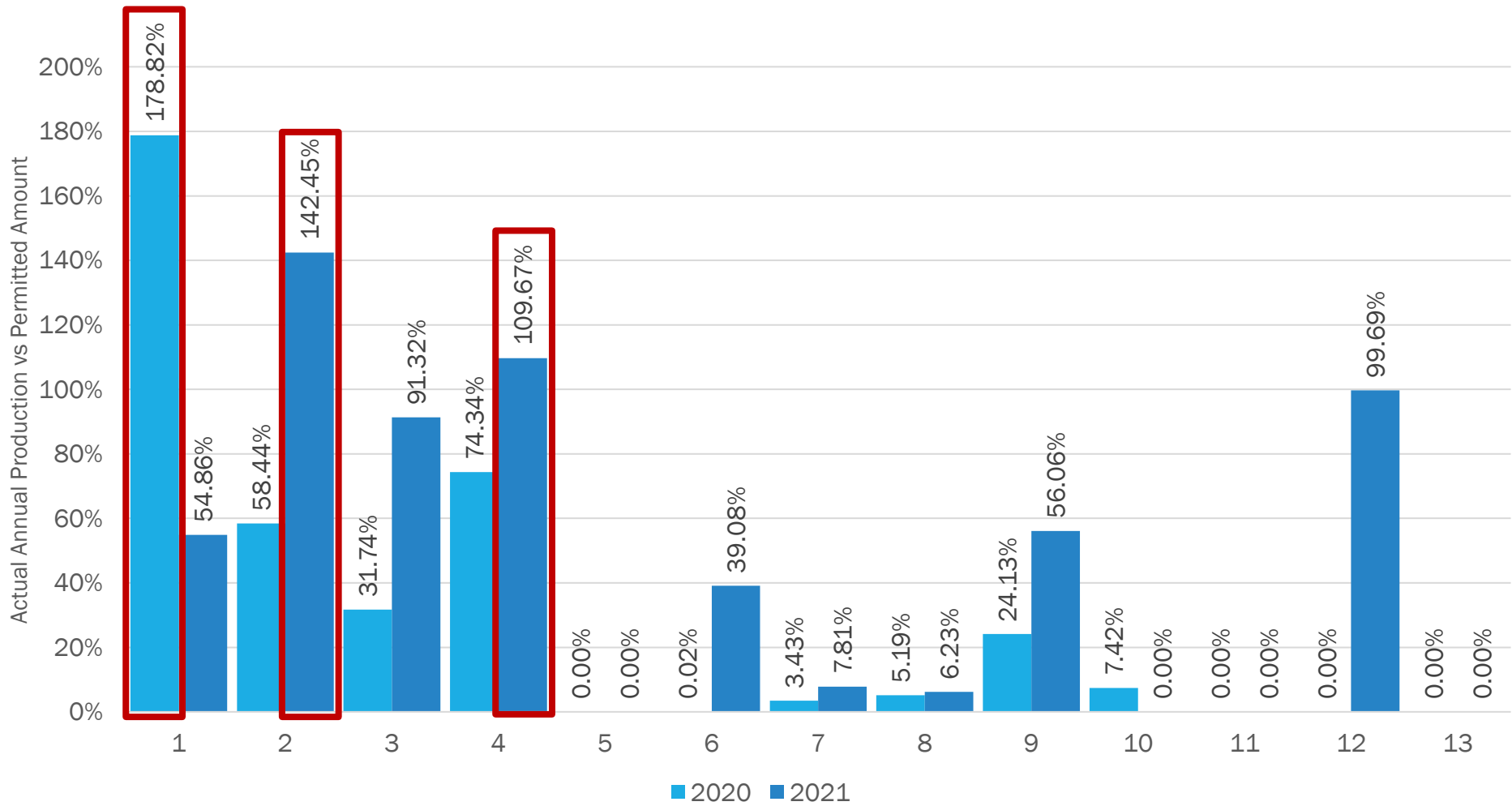
Woodbine Approved Permits



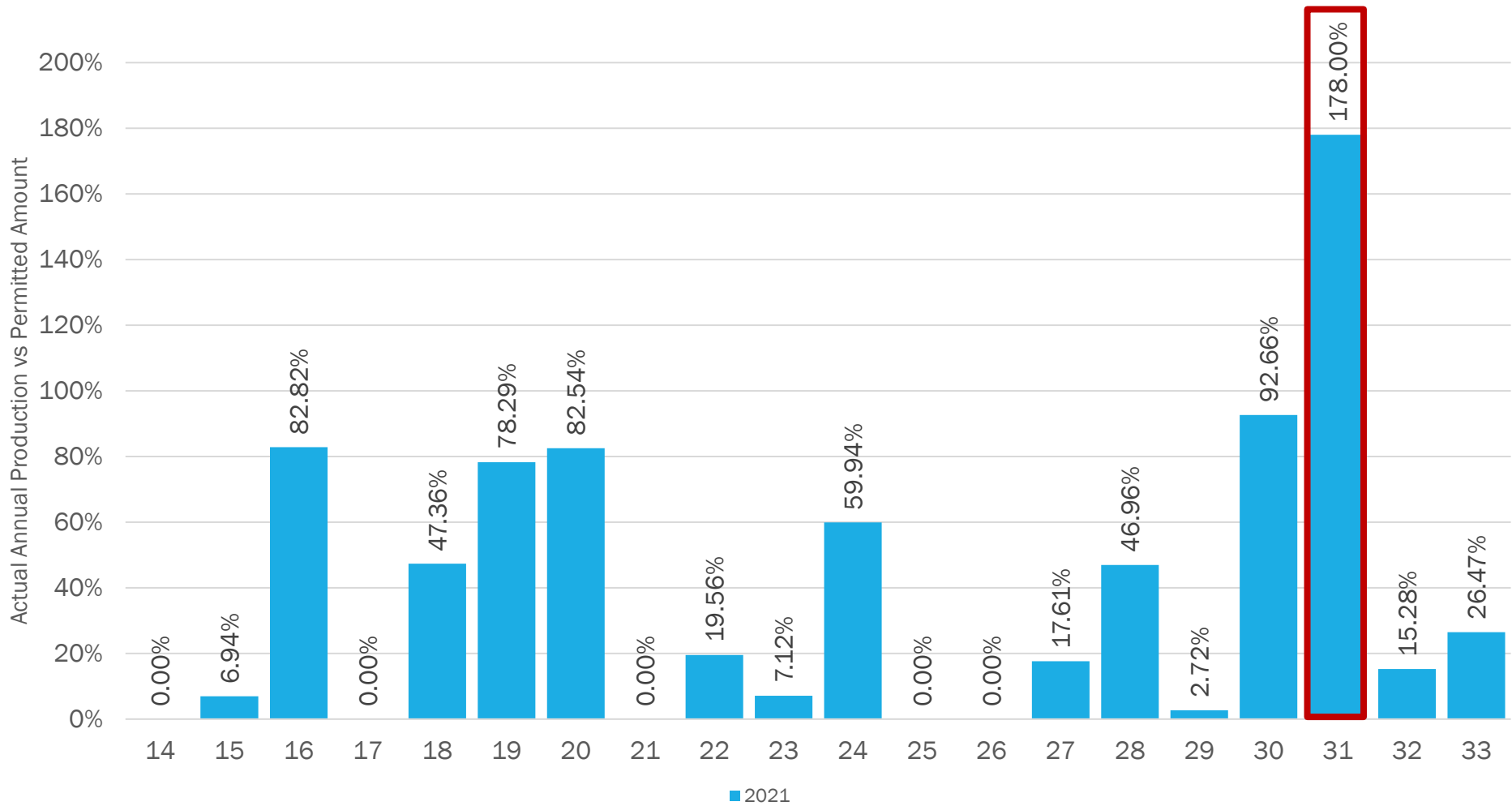
- Non-Exempt Estimates
- Exempt Estimates
- 2019 Approved Permits
- 2020 Approved Permits
- 2021 Approved Permits
- Remaining 2020 MAG

	2020	2021
<i>Approved Permits as of January 1</i>	13	33
<i>Permitted Amount (gal/yr)</i>	342,247,618	1,321,894,918
<i>Annual Production (gal/yr)</i>	90,804,741	489,524,953
<i>Percentage</i>	26.53%	37.03%
<i>Over Production (gal)</i>	7,882,000	9,268,000

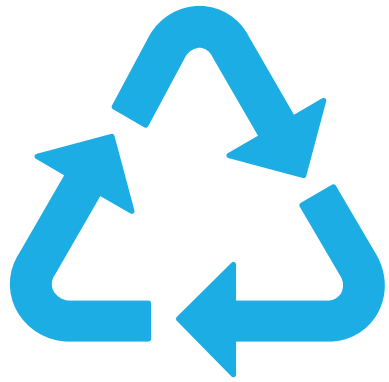
Actual Production vs Permitted Amount



Permits Approved in 2019



Permits Approved in 2020



Goal 2: Controlling and Preventing Waste of Groundwater

Total Fees Paid and Groundwater Usage Based on the Fees Paid

<i>Year</i>	<i>Total Fees Paid</i>	<i>Total Groundwater Used (gallons)</i>	<i>Total Groundwater Used (ac-ft)</i>
2015	\$739,685	7,396,850,000	22,700
2016	\$625,978	6,259,780,000	19,211
2017	\$625,969	6,259,690,000	19,210
2018	\$792,081	7,290,180,000	22,373
2019	\$713,307	7,133,070,000	21,891
2020	\$714,995	7,149,950,000	21,942
2021	\$826,874	8,268,740,000	25,376
<i>Average</i>	<i>\$719,841</i>	<i>7,108,322,857</i>	<i>21,815</i>

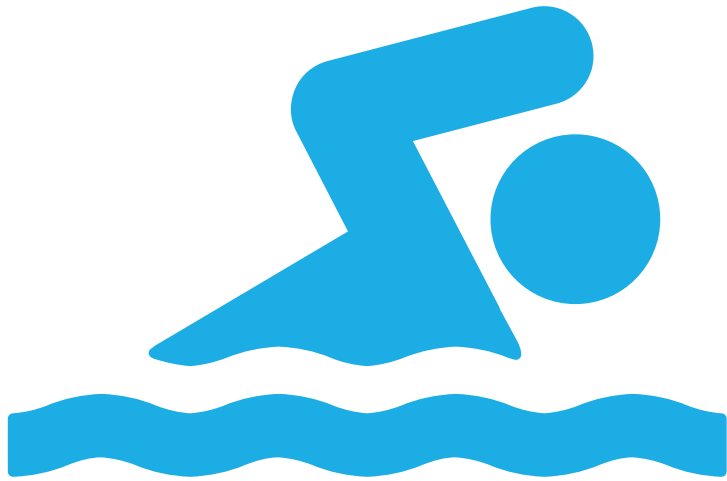
Violations and Investigations of Potential Waste of Groundwater

- 5 Owners/Drillers accounting for 6 violations
- No reports of potential waste

Goal 3: Controlling and Preventing Subsidence



Due to the geology of the Northern Trinity/Woodbine Aquifers in the District, problems resulting from water level declines causing subsidence are not technically feasible and as such, a goal addressing subsidence is not applicable. The District's Hydrogeologist presented subsidence information to the Board of Directors in 2019.



Goal 4: Addressing Conjunctive Surface Water Management Issues

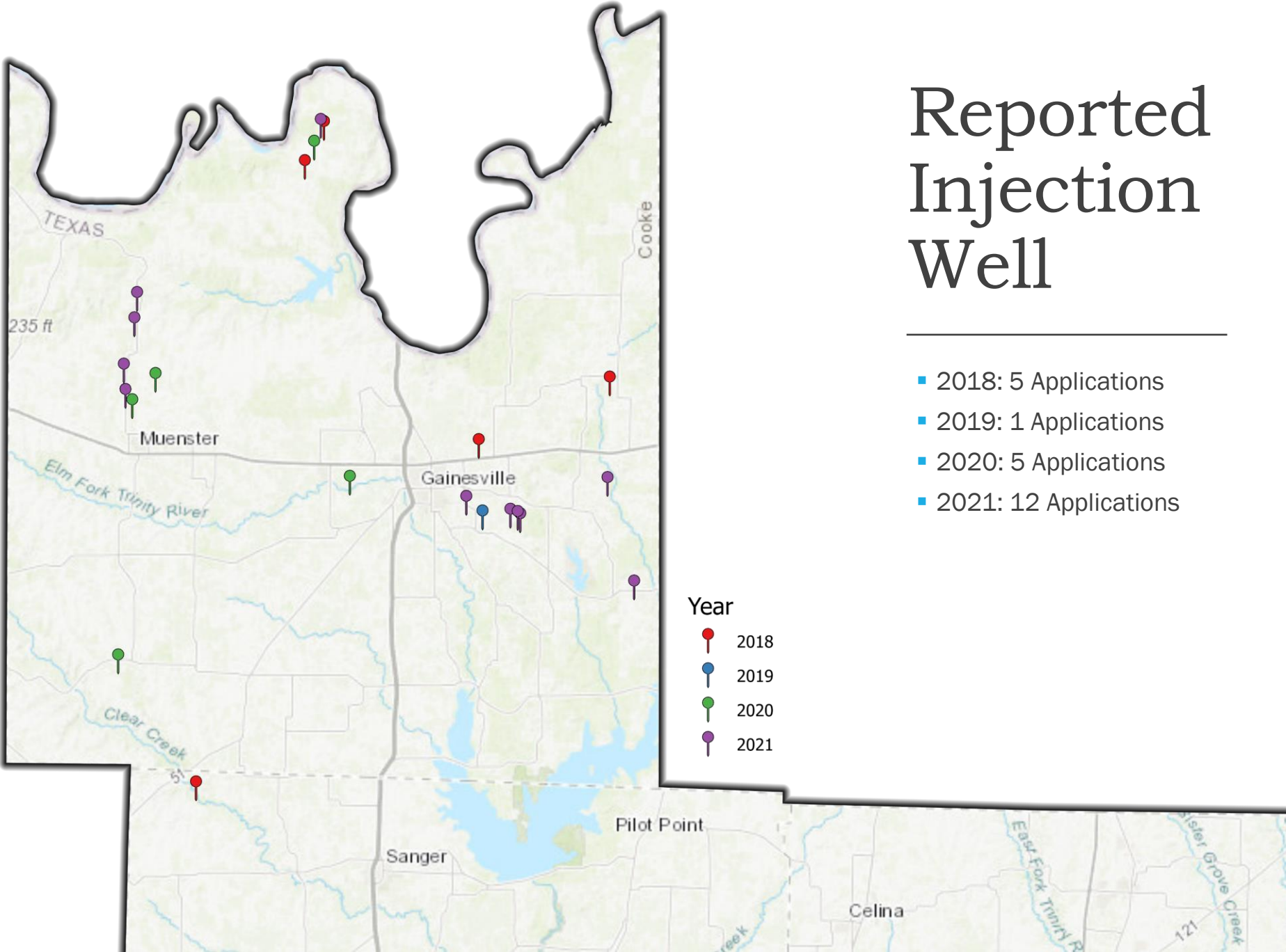
Region C and GMA 8

- Region C Water Planning Group held 2 meetings in 2021, on August 2nd and November 1st. General Manager Drew Satterwhite attended both meetings.
- Groundwater Management Area 8 (GMA 8) held one meeting in 2021, on November 4th. General Manager Drew Satterwhite, Board Member Joe Helmberger and District Staff attended the meeting.

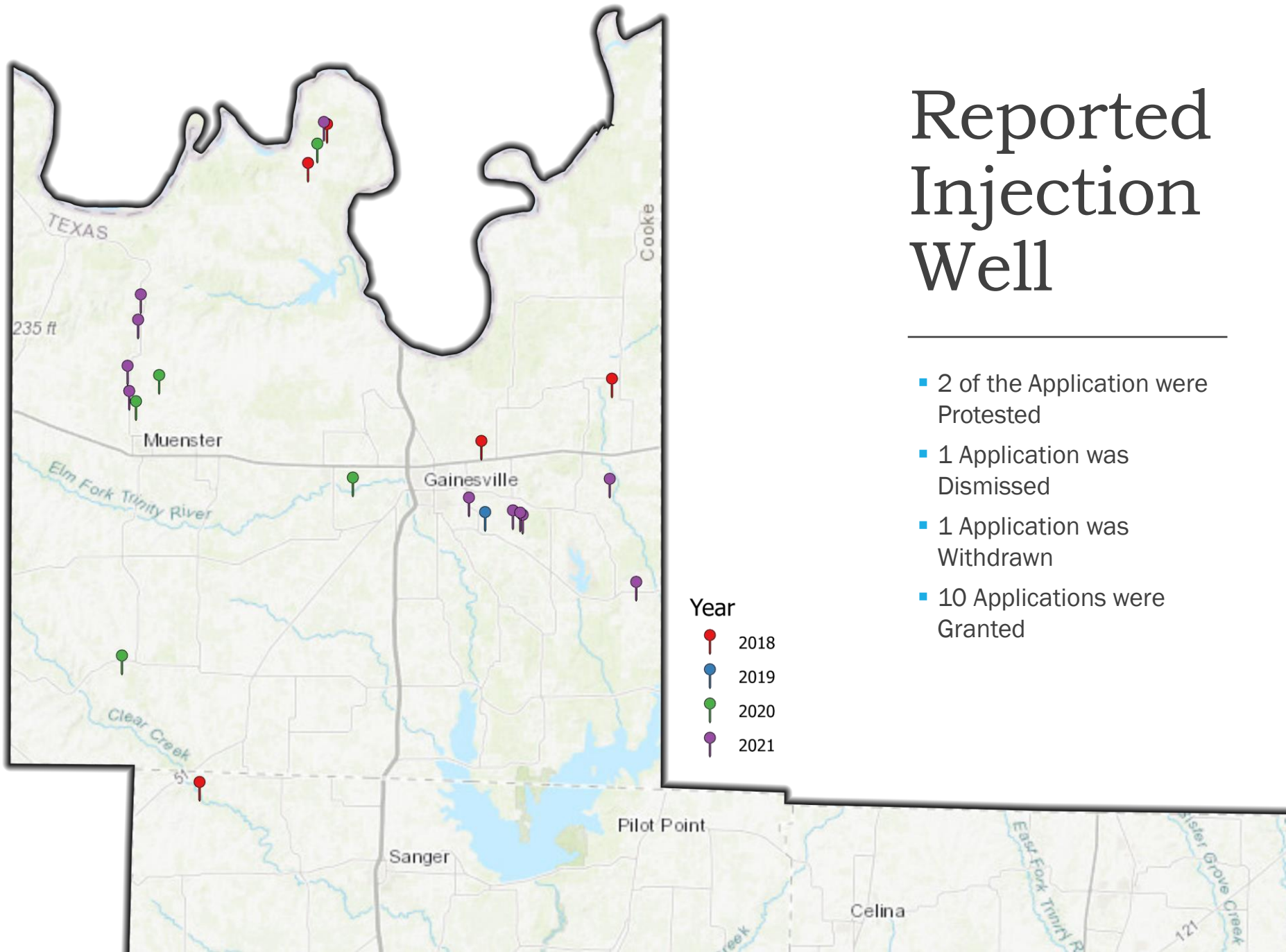
Goal 5: Addressing Natural Resource Issues



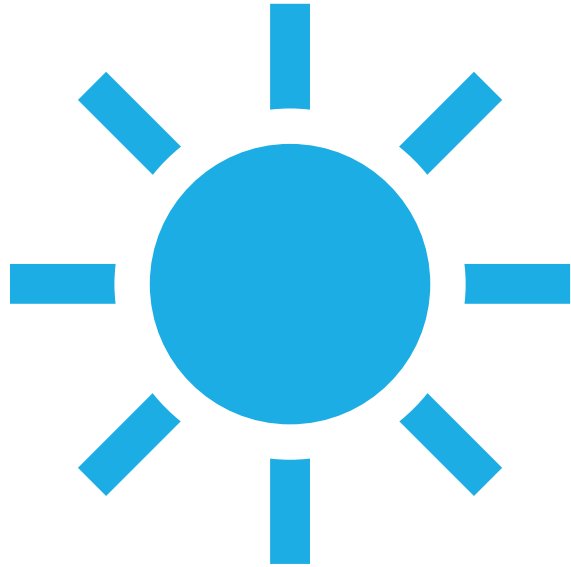
Reported Injection Well



Reported Injection Well

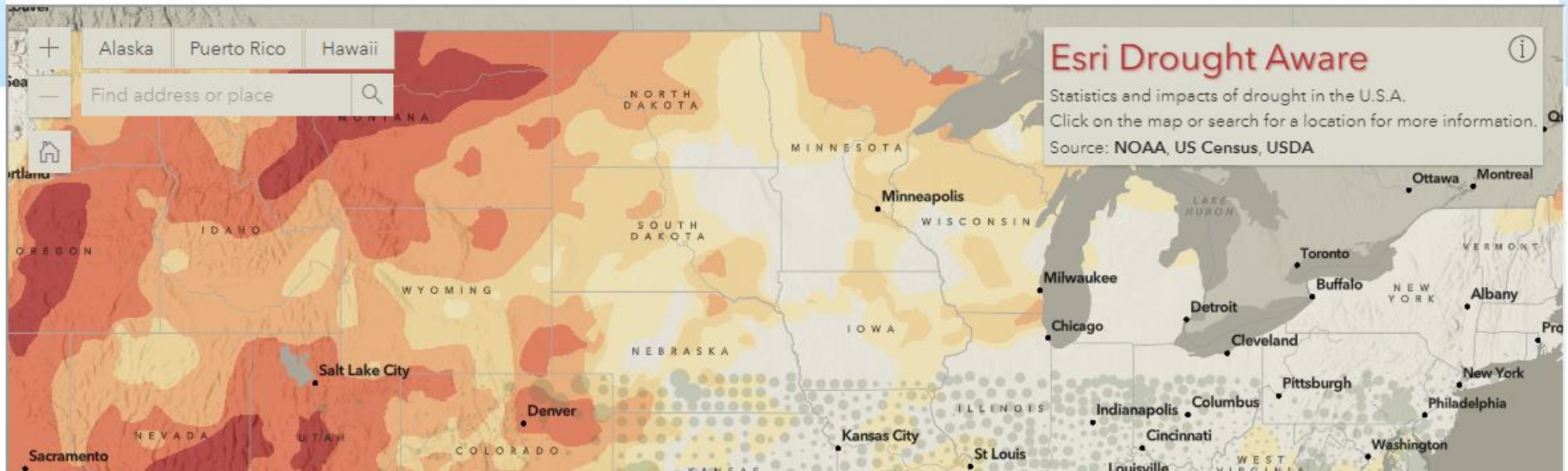


- 2 of the Application were Protested
- 1 Application was Dismissed
- 1 Application was Withdrawn
- 10 Applications were Granted



Goal 6: Addressing Drought Conditions

Drought Information



Drought Information

Goal 7: Addressing
Conservation, Recharge
Enhancement, Rainwater
Harvesting, Precipitation
Enhancement, and
Brush Control



Conservation

Conservation Tips:

The NTGCD would like to encourage residents to conserve water. During fall and winter months, lawns in our region require much less irrigation as the grasses go dormant.

How much water do you use at your home? Estimate your daily and annual water use and learn methods to conserve water at the [Home Water Works site](#).

Water Conservation Links

[Home Water Conservation Guide](#)

[Water IQ by the Texas Water Development Board](#)

[Drought Preparedness Council Situation Report](#)

Brush Control Links

[State Water Supply Enhancement Plan \(January 2017\)](#)

[Texas State Soil and Water Conservation Board](#)

[AgriLife Extension Texas A&M System Brush Control Program](#)

Rainwater Harvesting Links

[TWDB Rainwater Harvesting Information](#)

Conservation Links of the District Website



Goal 8: Achieving Desired Future Conditions of Groundwater Resources

- Summary
- Woodbine Well Analysis
- Woodbine Spatial Analysis
- Paluxy Well Analysis
- Paluxy Spatial Analysis
- Glen Rose Well Analysis
- Glen Rose Spatial Analysis
- Antlers Well Analysis
- Antlers Spatial Analysis
- Twin Mountains Well Analysis
- Twin Mountains Spatial Analysis

Select County or entire GCD

GCD

DFC Summary for Slope Analysis

Aquifer	County	Adopted DFC (ft of Avg. Drawdown)	DFC Period (Years)	Annual DFC (ft/yr of Avg. Drawdown)	Current Trend (ft/yr of Avg. Drawdown)	Current Status (+ indicates value above DFC/ - indicates value below DFC)
Woodbine	GCD	278	60	-4.63	-0.72	3.91
Paluxy	GCD	671	60	-11.18	-6.38	4.8
Glen Rose	GCD	341	60	-5.68		
Antlers	GCD	290	60	-4.83	-2.78	2.05
Twin Mountains	GCD	569	60	-9.48	-7.11	2.37

DFC Summary for Spatial Analysis

Aquifer	County	Adopted DFC (ft of Avg. Drawdown)	DFC Period (Years)	Annual DFC (ft/yr of Avg. Drawdown)	Current Trend (ft/yr of Avg. Drawdown)	Current Status (+ indicates value above DFC/ - indicates value below DFC)
Woodbine	GCD	278	60	-4.63	13.11	17.74
Paluxy	GCD	671	60	-11.18	9.98	21.16

DFC Evaluation Tool



Slope and Spatial Analysis Comparison

<i>Aquifer</i>	<i>County</i>	<i>Slope Analysis Current Status</i>	<i>Spatial Analysis Current Status</i>
<i>Trinity (Antlers)</i>	Collin	-	(8.57)
	Cooke	0.69	(6.77)
	Denton	13.97	(3.65)
	District	3.07	(6.89)
<i>Trinity (Paluxy)</i>	Collin	10.47	23.07
	Denton	4.96	14.51
	District	7.36	21.16
<i>Trinity (Twin Mountains)</i>	Collin	(4.75)	-
	Denton	7.14	-
	District	2.75	-
<i>Woodbine</i>	Collin	6.29	6.61
	Cooke	0.14	(10.73)
	Denton	(0.01)	(0.98)
	District	3.95	2.22

Any Questions?

PAUL M. SIGLE, ASSISTANT GENERAL MANAGER