

Water Resource Committee's Task:

- Study and identify a supplemental water source sufficient to address the City's immediate needs during the current shortage.
- Study and identify supplemental water sources sufficient to ensure water security to meet the City's long-term needs.
- ✓ • Review the City's current drought plan and make recommendations for changes.

BARTLESVILLE SERVICE AREA

Bville Population – 37,000

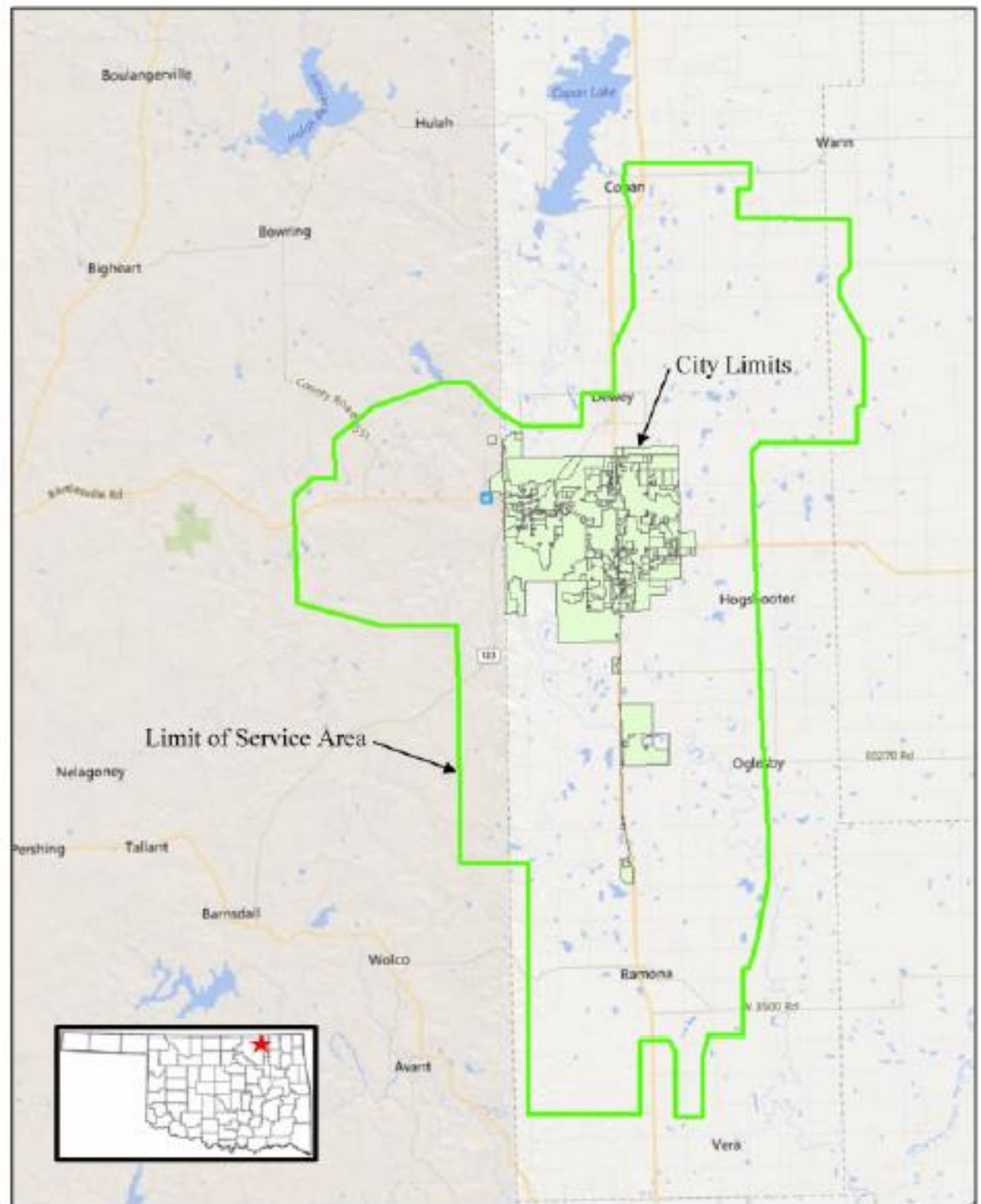
**Serve 3 surrounding
municipalities and 5 rural
water districts**

Land area – 573 sq mi

Total Population – 55,000

Avg Daily Use – 5.5 MGD

Max Day – 14 MGD



CURRENT WATER SOURCES

Hulah – 1951
12.4 MGD – Rights
7.8 MGD – Yield
(lost 54% of storage)

Copan – 1983
1.0 MGD – Rights
(lost 11% of storage)

OVERALL – 21.3 MGD

Raw water pumped from Hulah Lake to Hudson Lake

Hudson – 1949
2.5 MGD – Rights
No reliable yield
(lost 30% of storage)

**Raw Water Supply
(based on water rights)**
Hulah (12.3 mgd) – 60%
Caney River (5.4 mgd) – 21%
Hudson (2.5 mgd) – 10%
Copan (1 mgd) – 9%

Raw water gravity flows from Hudson Lake to WTP

Water Treatment Plant

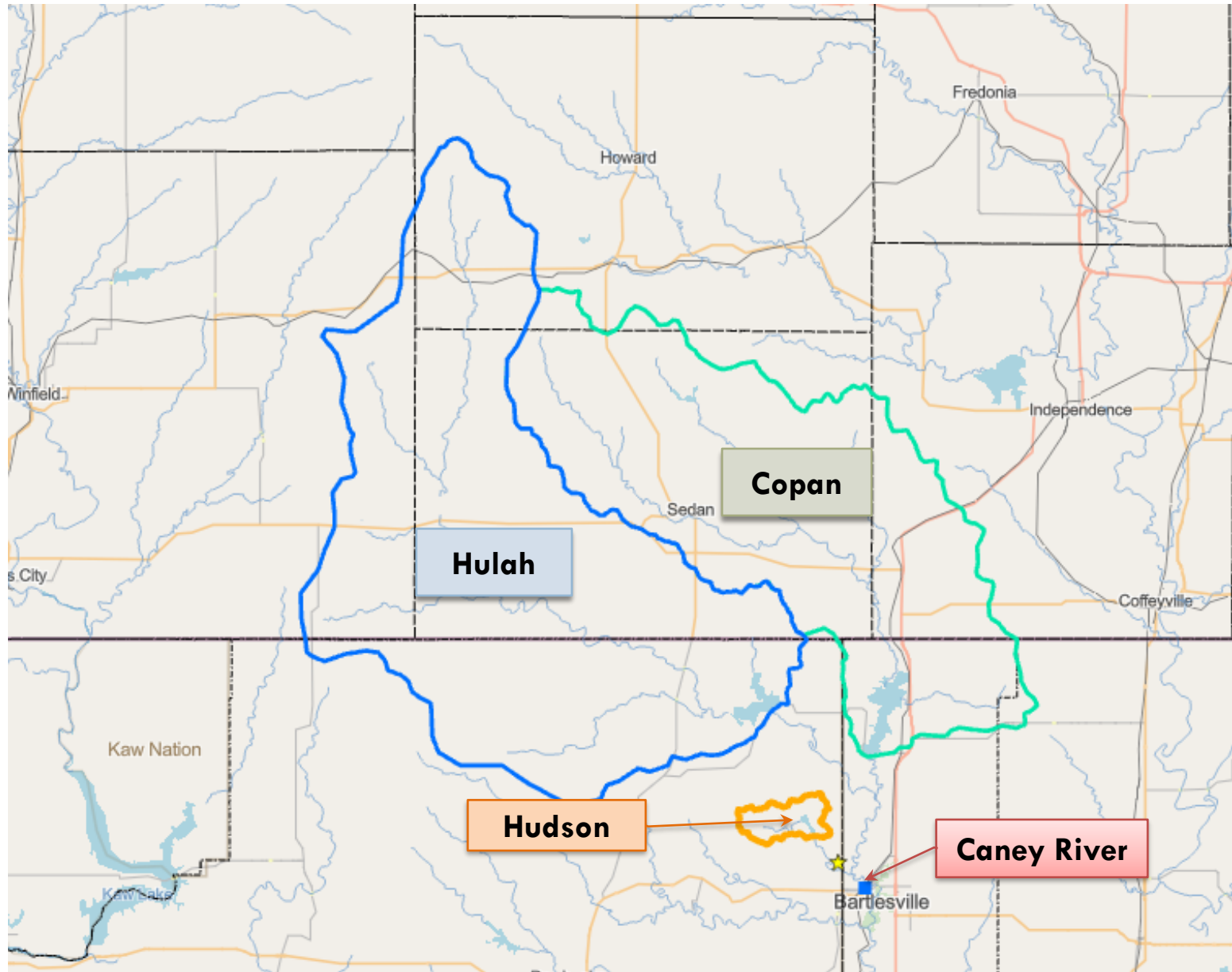
Raw water pumped from the Caney River to WTP

Caney River – 1937
5.4 MGD - Rights

Bartlesville Bartlesville

© 2014 Google

WATER SUPPLY WATERSHEDS



WATER SUPPLY AS OF DEC 12

Hulah

109% water remaining

Copan

106% water remaining

**Raw Water Supply
(based on water rights)**

Hulah (12.3 mgd) – 60%

Caney River (5.4 mgd) – 21%

Hudson (2.5 mgd) – 10%

Copan (1 mgd) – 9%

Hudson

98% water remaining

Overall Water Remaining – 106%

Weighted Based on WR – 108%

Water Treatment Plant

Caney River

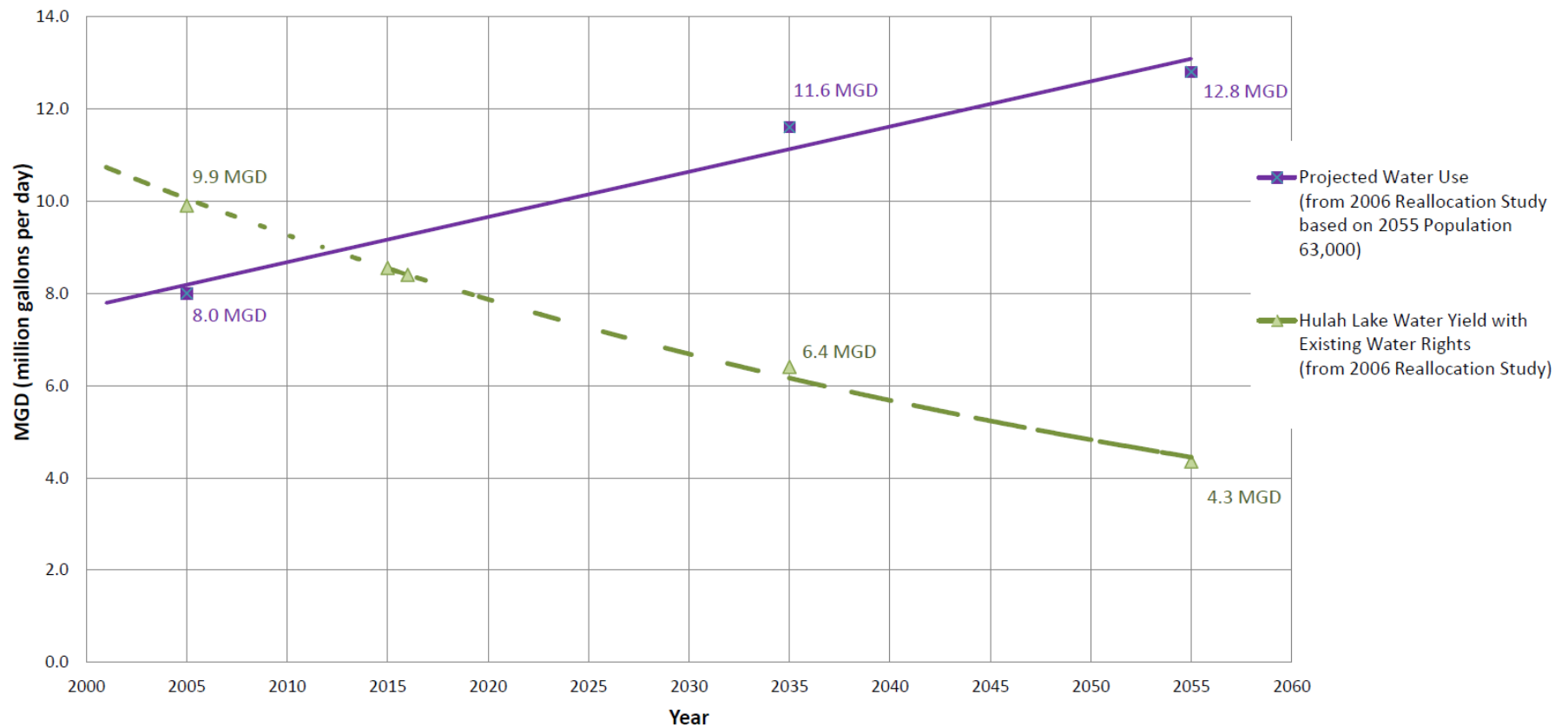
100% water remaining

Bartlesville Bartlesville

© 2014 Google

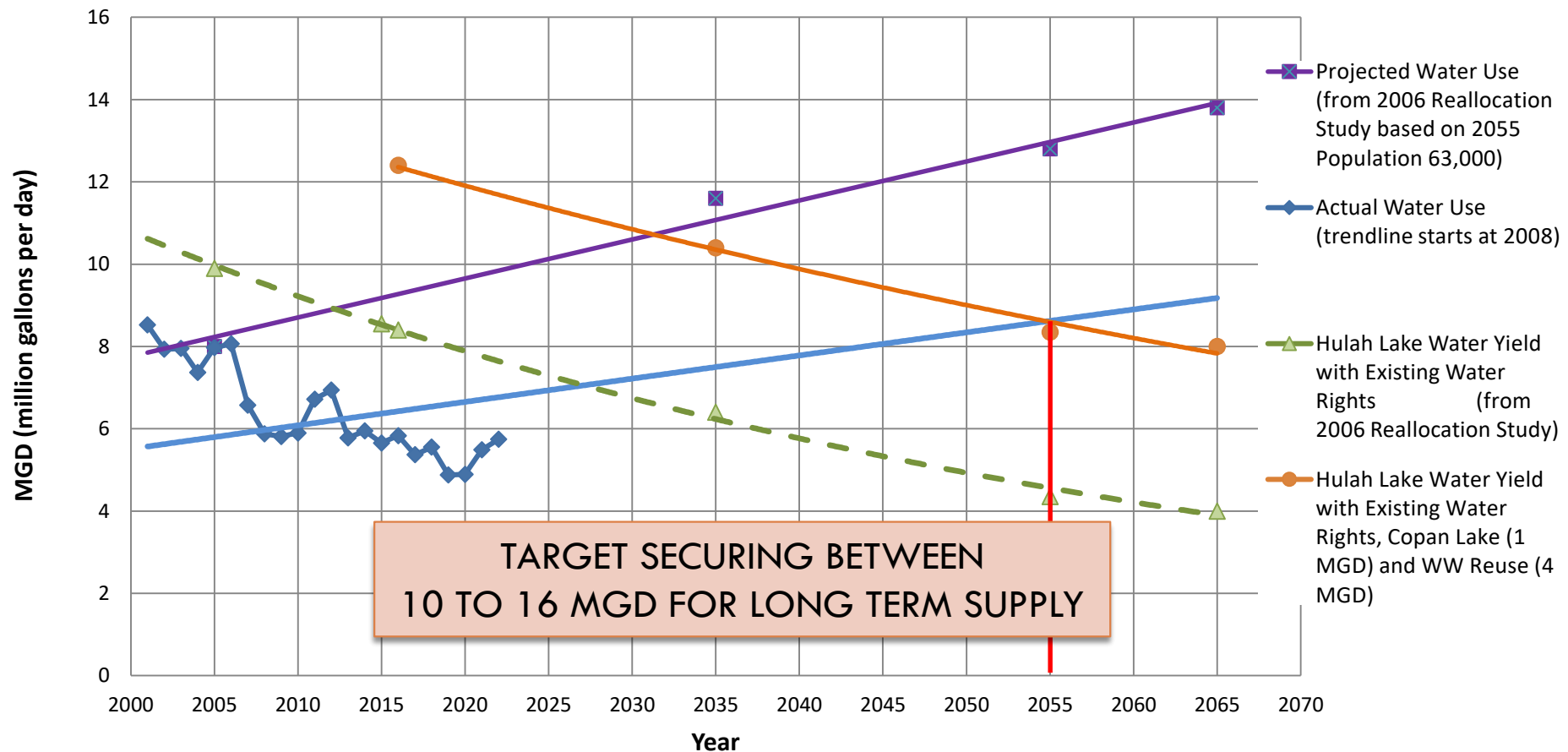
2007 USACE STUDY

WATER DEMAND VERSUS HULAH LAKE YIELD
Based on 2006 Reallocation Study

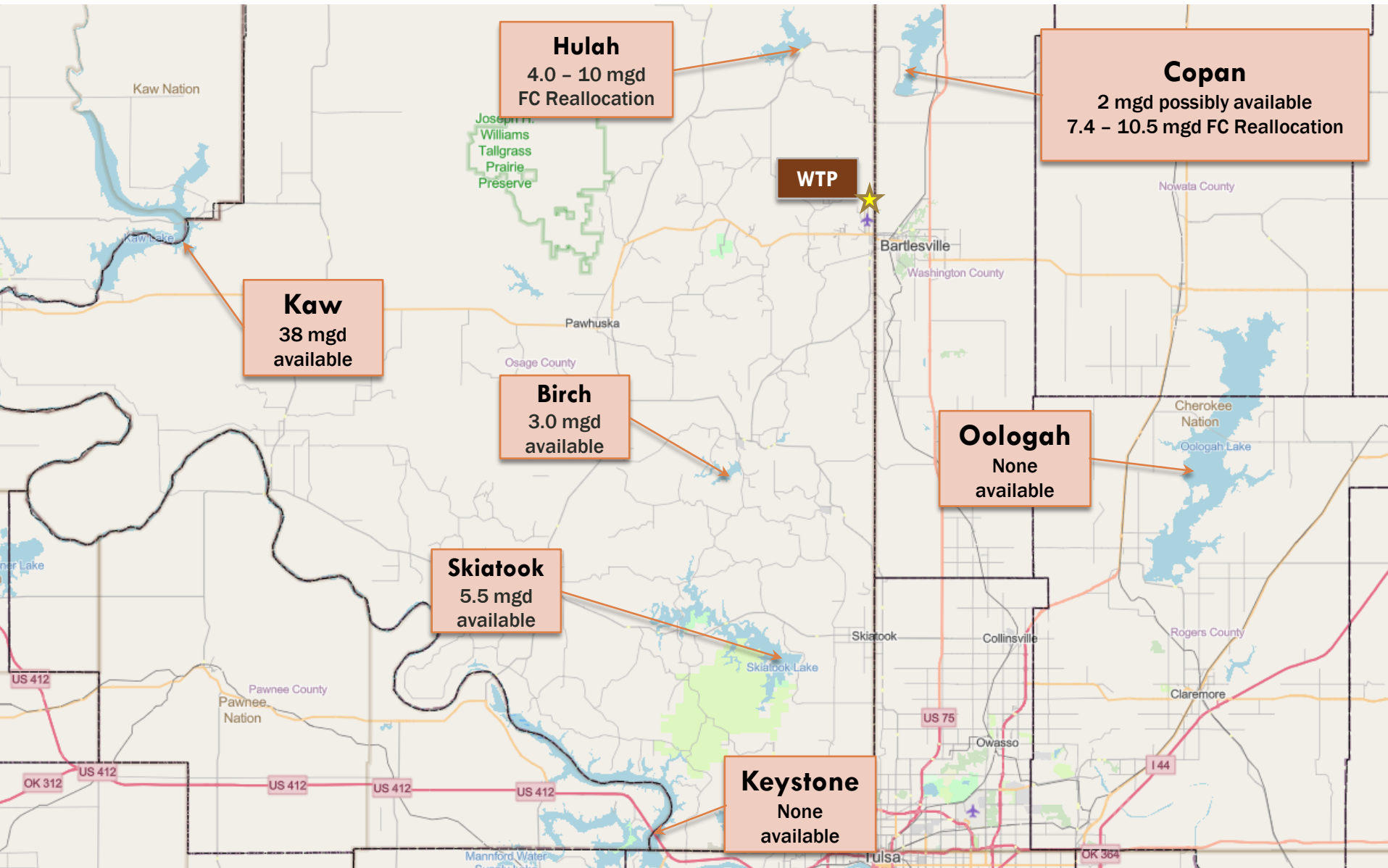


WATER

WATER SUPPLY - HULAH, COPAN AND REUSE



RESERVIOR OPTIONS



GROUND WATER AND POTABLE WATER

Ada-Vamoosa Aquifer

14MM ac-ft rights avail.
25 wells have a theoretical
yield of 1.4 mgd for 25 wells.
≈ \$12MM

WTP

Bartlesville

Washington County

[No Title]

Nowata County

12" Water Line to
Wal-Mart DC will
only convey 3 mgd

Cherokee
Nation

Oologah Lake

Collinsville

Potable water
1 mgd available.
Tie in at Wal-Mart DC
21 mi
PS & pipeline ≈ \$50MM

Skiatook & Tulsa
Potentially have water
available

Skiatook

Collinsville

Rogers County

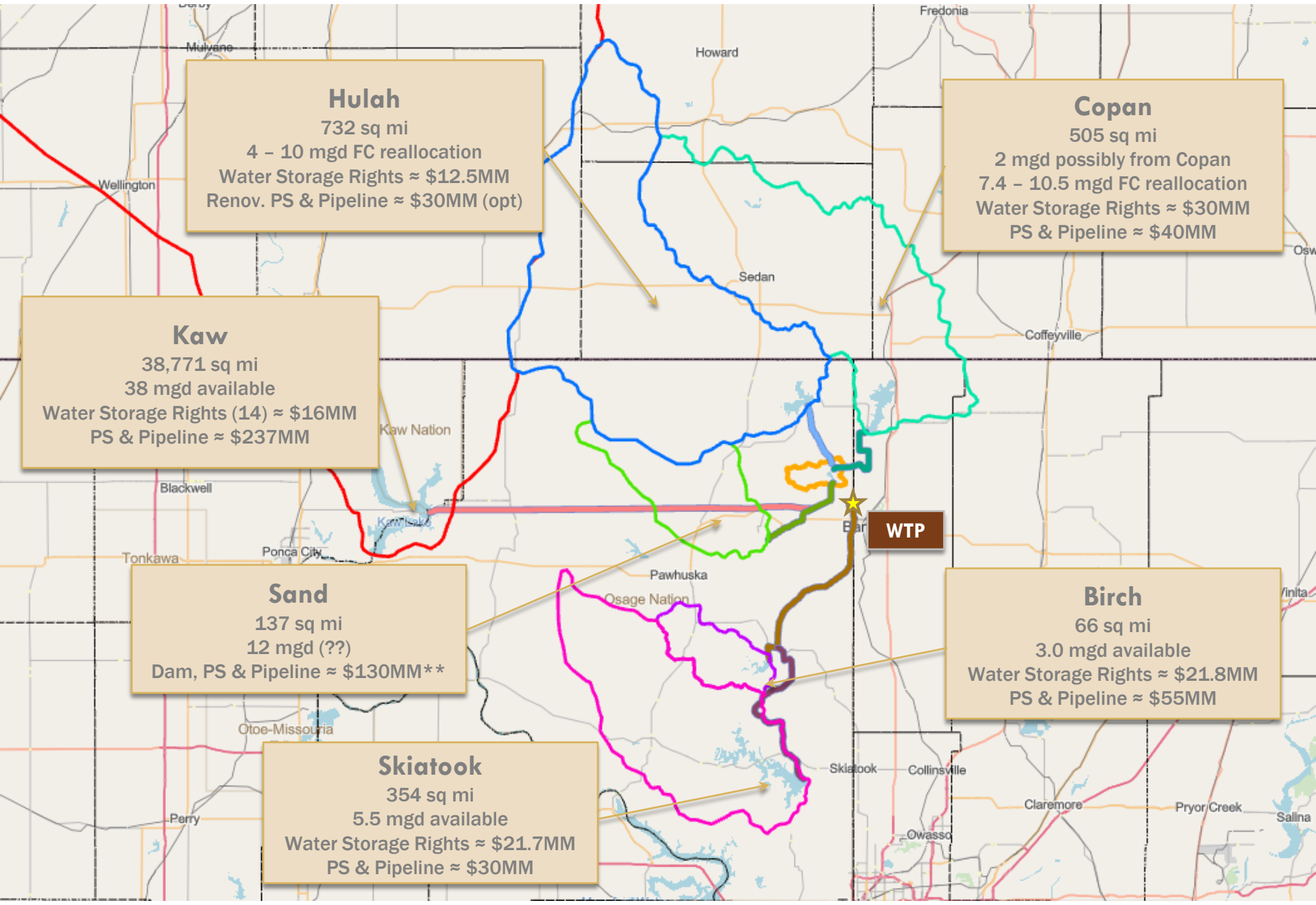
Claremore

US 75

Owasso

I-44

RESERVIOR OPTIONS

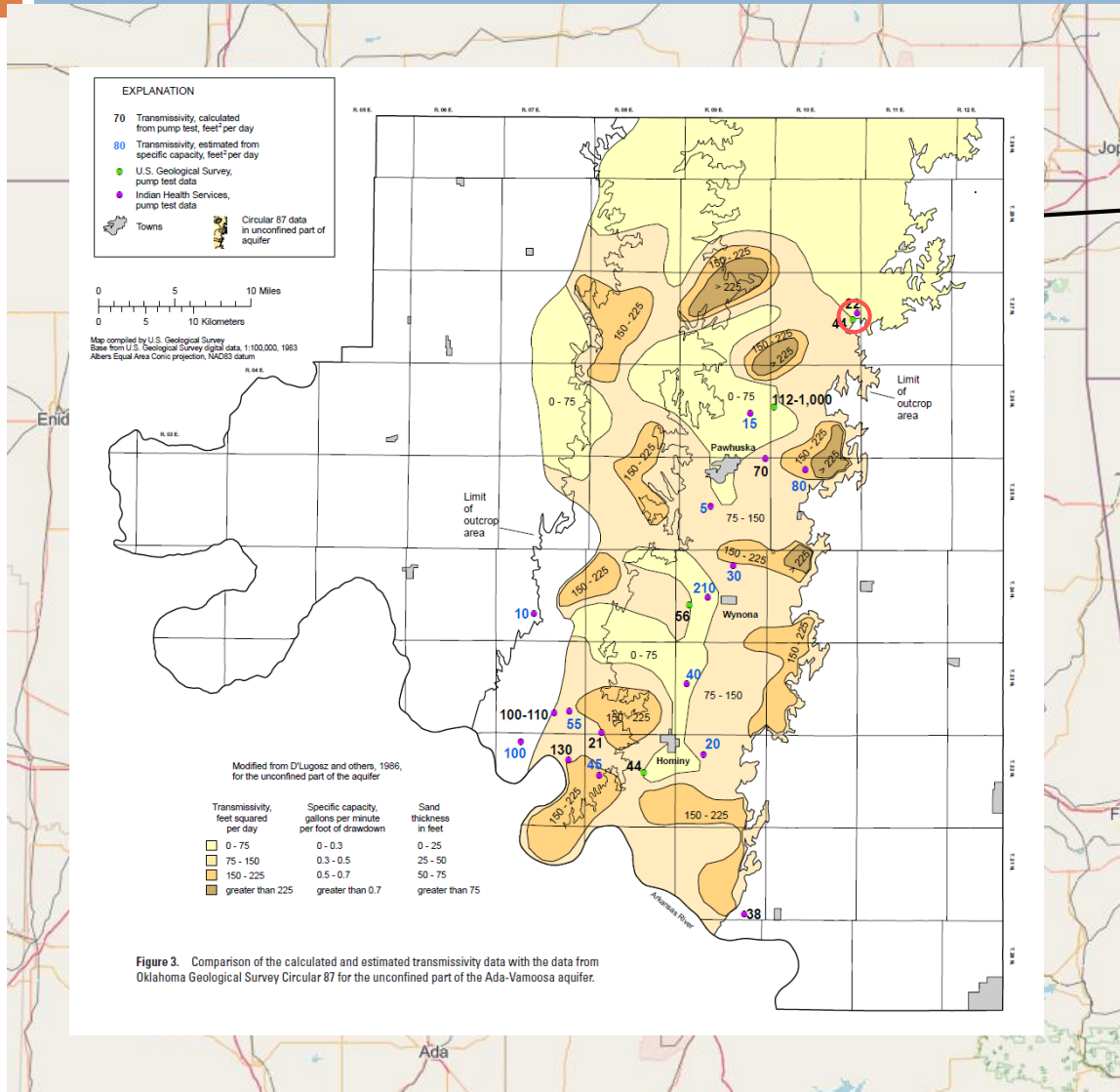


SUPPLEMENTAL WATER SUPPLY OPTIONS

TARGET SECURING BETWEEN
10 TO 16 MGD FOR LONG TERM SUPPLY

SOURCE	WATERSHED SIZE (SQ. MI)	WATER YIELD (mgd)	COST**	COST per MGD	NOTES
HULAH LAKE	732	10	\$ 42,500,000	\$ 4,250,000	REALLOCATE 10 MGD (10%) OF FLOOD CONTROL TO WATER SUPPLY. EXISTING INFRASTRUCTURE FROM HULAH TO HUDSON CAN CONVEY 10 MGD. PIPELINE AND PUMP STATION UPGRADE NOT NEEDED IMMEDIATELY, COST TO SECURE WATER STORAGE RIGHTS WOULD BE APPROX. \$1.25MM/MGD
COPAN LAKE	505	12.5	\$ 70,000,000	\$ 5,600,000	SECURE REMAINING 2 MGD THROUGH PARTNERSHIP WITH THE TOWN OF COPAN, REALLOCATE 10 MGD (10%) OF FLOOD CONTROL TO WATER SUPPLY
ADA-VAMOOSA AQUIFER	N/A	1.4	\$ 12,810,000	\$ 9,150,000	NEED 25 WELLS, REQUIRES LAND ACQUISITION OR LEASE OF 700 AC OF LAND
KAW LAKE	38,771	14	\$ 252,533,789	\$ 18,038,128	38 MGD IS AVAILABLE AT KAW, INCREASING THE SYSTEM TO CONVEY 18 MGD WILL ADD \$7MM TO THE COST
SAND LAKE	137	12	\$ 130,000,000	\$ 10,833,333	COST DOES NOT REFLECT MITIGATION FOR MINERAL RIGHTS OR CULTURAL/ARCHAEOLOGICAL IMPACTS
SKIATOOK LAKE	354	8.5	\$ 128,577,092	\$15,126,707	STORAGE RIGHTS FROM COE - \$21,759,281. YIELD FROM SKIATOOK LAKE IS 5.5 MGD, IF GO TO SKIATOOK WOULD PICK UP YIELD FROM BIRCH AS WELL.
POTABLE WATER FROM COLLINSVILLE/SKIATOOK/TULSA	N/A	3	\$ 50,000,000	\$ 16,666,667	PURCHASE TREATED WATER (1 MGD FROM COLLINSVILLE AND 2 MGD FROM TULSA/SKIATOOK).
BIRCH LAKE	66	3	\$ 76,817,811	\$ 25,605,937	STORAGE RIGHTS - \$21,817,811

ADA VAMOOSA AQUIFER



14MM ac-ft rights available

2006 USGS study

200 ft depth

70 ft to water

**39 gpm max. theoretical prod.
(0.056 mgd)**

25 wells to produce 1.4 mgd max

700 acres for well field

\$12.8MM

**Assumes we can get water right
lease**

Next steps if warranted:

Property investigation

Installation of test wells

\$600k to \$1MM

COPAN LAKE

- 2 mgd – Reserved for Town of Copan
 - ▣ 2024 WRDA – Version approved by House & Senate
 - Reconciled version included our language
 - Approved by House
 - Senate vote possibly this week
 - Allow Town of Copan to release their reserved rights & Bartlesville to purchase these rights for \approx \$520k
- 8 mgd – 10% Flood control reallocation (\approx 4')
 - ▣ Current Dam Safety Action Classification rating is 3 & does not allow for reallocation.
 - ▣ Will require several rounds of federal legislation to re-evaluate DSAC, reallocation & environmental studies

HULAH LAKE

- 10 mgd – 10% Flood control reallocation ($\approx 6.75'$)
 - ▣ DSAC rating changed in late summer from 3 to 4
 - Allows for reallocation
 - ▣ Requires federal legislation through 2026 WRDA
 - Reallocation study (\$3MM – 50/50 cost share)
 - Mid-cycle DSAC evaluation
 - Environmental Study
 - ▣ Staff will work with Federal delegation and Tulsa District of Army Corp of Engineers to develop language for this legislation

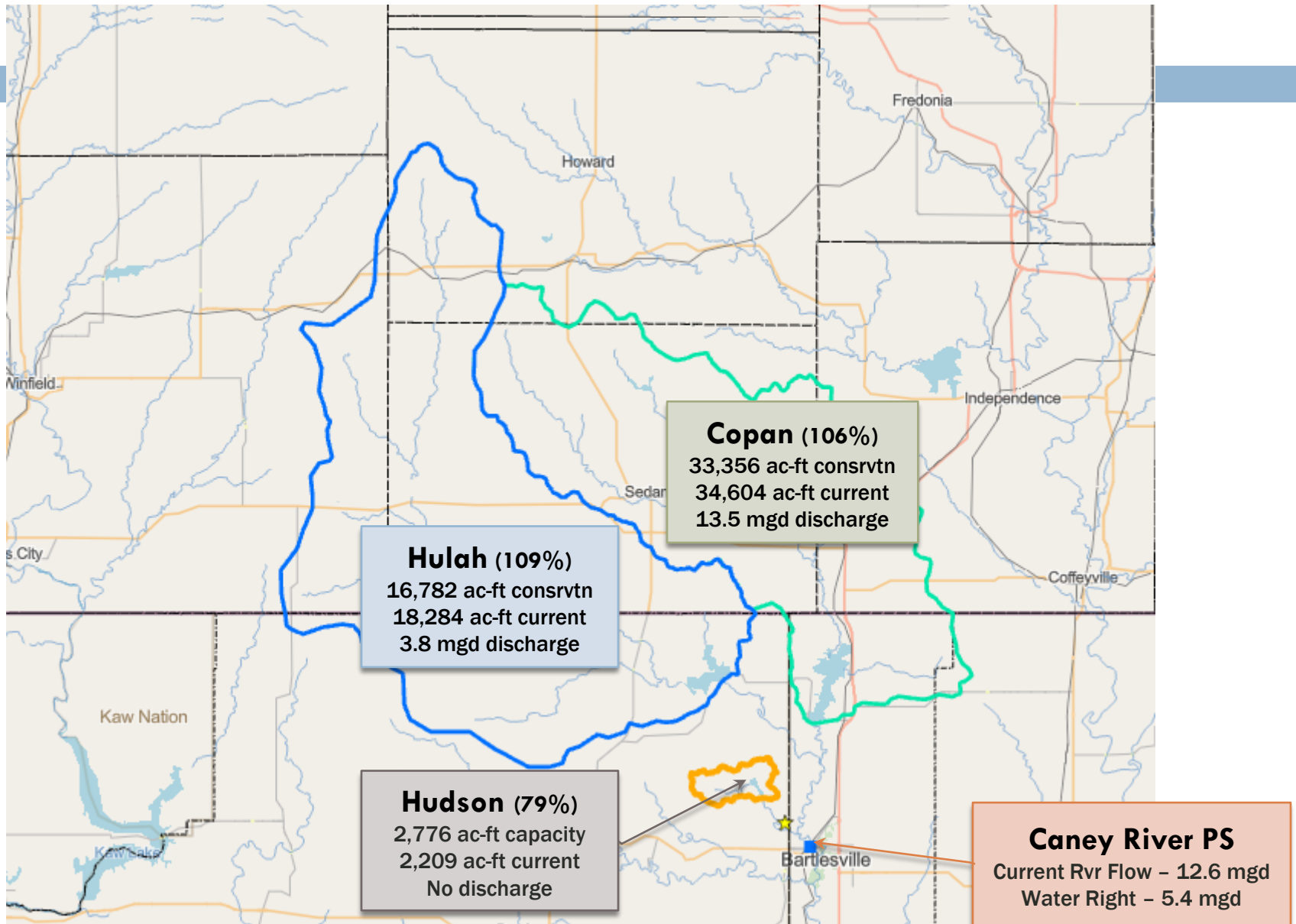
SUPPLEMENTAL WATER SUPPLY OPTIONS

TARGET SECURING BETWEEN
10 TO 16 MGD FOR LONG TERM SUPPLY

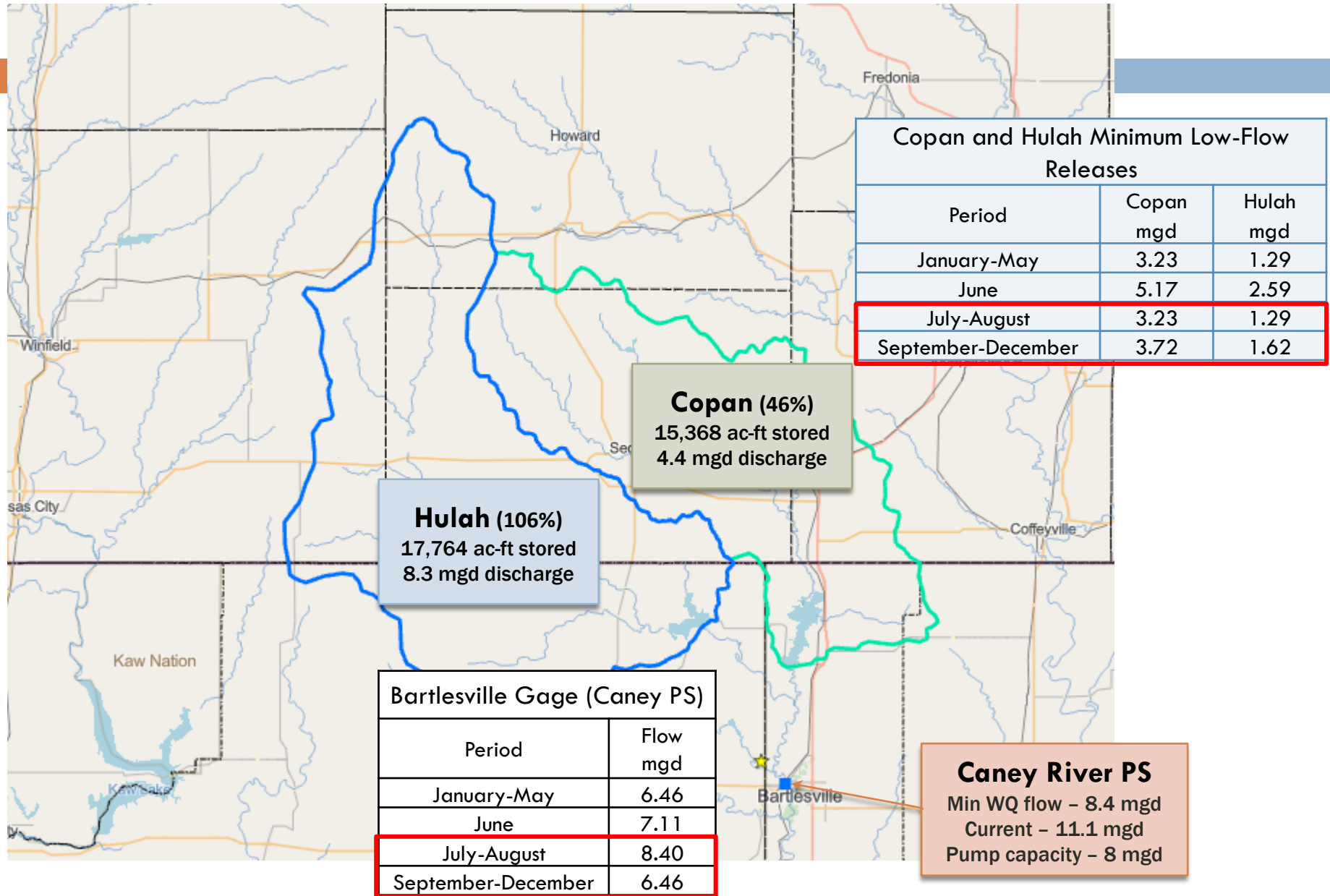
SOURCE	WATERSHED SIZE (SQ. MI)	WATER YIELD (mgd)	COST**	COST per MGD	NOTES
HULAH LAKE	732	10	\$ 42,500,000	\$ 4,250,000	REALLOCATE 10 MGD (10% - 6.75') OF FLOOD CONTROL TO WATER SUPPLY. EXISTING INFRASTRUCTURE FROM HULAH TO HUDSON CAN CONVEY 10 MGD. PIPELINE AND PUMP STATION UPGRADE NOT NEEDED IMMEDIATELY, COST TO SECURE WATER STORAGE RIGHTS WOULD BE APPROX. \$1.25MM/MGD. PURSUE 2026 WRDA LEGISLATION TO AUTHORIZE REALLOCATION & ENVIRONMENTAL STUDY, DSAC.
COPAN LAKE	505	12.5	\$ 70,000,000	\$ 5,600,000	SECURE REMAINING 2 MGD THROUGH PARTNERSHIP WITH THE TOWN OF COPAN – 2024 WRDA LANGUAGE, REALLOCATE 10 MGD (10%) OF FLOOD CONTROL TO WATER SUPPLY
ADA-VAMOOSA AQUIFER	N/A	1.4	\$ 12,810,000	\$ 9,150,000	NEED 25 WELLS, REQUIRES LAND ACQUISITION OR LEASE OF 700 AC OF LAND. TO PURSUE, PROPERTY INVESTIGATION AND TEST WELLS - \$600K TO \$1MM
KAW LAKE	38,771	14	\$ 252,533,789	\$ 18,038,128	38 MGD IS AVAILABLE AT KAW, INCREASING THE SYSTEM TO CONVEY 18 MGD WILL ADD \$7MM TO THE COST
SAND LAKE	137	12	\$ 130,000,000	\$ 10,833,333	COST DOES NOT REFLECT MITIGATION FOR MINERAL RIGHTS OR CULTURAL/ARCHAEOLOGICAL IMPACTS
SKIATOOK LAKE	354	8.5	\$ 128,577,092	\$15,126,707	STORAGE RIGHTS FROM COE - \$21,759,281. YIELD FROM SKIATOOK LAKE IS 5.5 MGD, IF GO TO SKIATOOK WOULD PICK UP YIELD FROM BIRCH AS WELL.
POTABLE WATER FROM COLLINSVILLE/SKIATOOK/TULSA	N/A	3	\$ 50,000,000	\$ 16,666,667	PURCHASE TREATED WATER (1 MGD FROM COLLINSVILLE AND 2 MGD FROM TULSA/SKIATOOK).
BIRCH LAKE	66	3	\$ 76,817,811	\$ 25,605,937	STORAGE RIGHTS - \$21,817,811



WATER SUPPLY

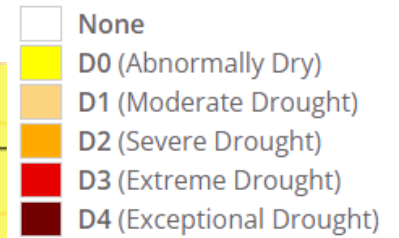


HULAH – COPAN – CANEY RIVER



DROUGHTS

NOV. 2024



Exceptional and widespread crop and pasture losses, exceptional fire risk, shortages of water in reservoirs, streams and wells causing water emergencies.

