THREE CHECK BETS

NFL Season Win Totals Model

Construction, walk-forward testing, portfolio governors, and the preserved 2026 projection snapshot

RESEARCH REFERENCE MANUAL

Model archive date: May 25, 2026

Primary validation: fixed 2020-2023 training, tested on 2024 and 2025

Status: promising futures research candidate; not yet a locked customer product

Prepared July 19, 2026

Executive Summary

This model estimates each NFL team's regular-season win distribution, compares that distribution with a sportsbook season-win total and price, and qualifies only the Over or Under positions that clear the model's value and portfolio rules.

Best combined research candidate

The tiered V1 plus V4 injury/low-total portfolio produced **28 bets, a 19-9 record, +8.44 units, 30.1% ROI, and a 67.9% win rate** in the fixed 2024-2025 test. It was profitable in both test seasons. The sample is encouraging but too small to call fully proven.

Lane	Bets	Record	Units	ROI	Win rate
V1 broad candidate	19	12-7	+4.00u	21.0%	63.2%
V4 low-total lane	17	11-6	+3.66u	21.5%	64.7%
V4 injury low-total	12	9-3	+4.84u	40.3%	75.0%
Best combined portfolio	28	19-9	+8.44u	30.1%	67.9%

What is protected: This futures lane is separate from the NFL ATS, moneyline, and totals products. Nothing in this document promotes or changes those locked models.

What remains missing: Historical true closing-line value. The archived data contains one settled futures line per team, not verified bet-time and closing snapshots. The CLV tracker is built, but real close data must be supplied.

1. What The Model Predicts

The model does not simply guess whether a team will improve. It produces a distribution of possible regular-season wins and turns that distribution into fair Over and Under probabilities.

Step	Process	What happens
1	Build preseason team strength	Blend the market prior with prior-season team quality, EPA, success rate, quarterback context, coaching continuity, and schedule information.
2	Simulate the schedule	Convert team power and home-field advantage into game win probabilities, then simulate season outcomes to obtain mean, median, and percentile wins.
3	Create a fair futures price	Calculate the probability of finishing Over or Under the posted win total and convert those probabilities into fair American odds.
4	Compare with the sportsbook	Measure expected-win edge and no-vig probability edge against the available season total and price.
5	Apply portfolio governors	Keep only qualified V1 and low-total V4 plays, deduplicate the same team-season, and track future closing-line value.

Core outputs

- Simulated mean and median wins for every team.
- 5th, 25th, 75th, and 95th percentile season outcomes.
- Model Over and Under probabilities and fair American odds.
- Probability edge versus the sportsbook's raw and no-vig pricing.
- A qualified futures card after value, market, and portfolio checks.

Plain-English example

If the model projects 8.4 wins, the book posts 7.5, and the model's Over probability exceeds the market's no-vig probability by at least the required amount, the Over may qualify. It still must survive the market and portfolio governors.

2. Data Foundation

The backtest combines historical futures prices with only information that would have been available before the season being predicted.

Data family	Source	Model use
Historical futures market	SportsOddsHistory archived regular-season win totals	Team, win total, Over odds, Under odds, actual wins, settlement result
Games and schedules	nflverse games	Prior-season wins, points, scoring margin, opponent schedule, current schedule structure
Play-level efficiency	nflverse play-by-play	Offensive, defensive, passing, rushing, and special-teams EPA; success rate
Roster continuity	nflverse snap counts and weekly rosters	Starter return rate and positional continuity
Injuries	nflverse injury reports	QB, offense, defense, front-seven, and secondary injury burden/regression proxies
Draft	nflverse draft picks	Draft capital and rookie counts by position group
Coaching/QB context	nflverse fields plus model context	Coach change, tenure, QB change, prior QB EPA/CPOE, coordinator/system adjustments

Important distinction

The preseason sportsbook win total is intentionally included as a strong prior. That is not leakage: the number exists before Week 1 and summarizes substantial public and market information. The model's job is to make disciplined adjustments when its football evidence disagrees with that prior.

Known data limitation

The public snap-based roster movement features measure participation, not true player value, contract value, scheme fit, or position-adjusted wins added. Those V3 features performed poorly and were not promoted.

3. Leakage-Safe Validation

The primary backtest was designed to prevent the model from learning from the same seasons used to judge it.

Stage	Seasons	Rule
Training	2020-2023	Used to fit the model and select the official V1 betting threshold.
Primary test	2024	Scored with a model trained only on 2020-2023.
Primary test	2025	Also scored with the fixed 2020-2023 model for the cleanest anti-overfit comparison.
Diagnostic only	2025 expanding	A separate model trained on 2020-2024; useful context, but not the primary result.

What the model was not allowed to see

- No games from the season being predicted.
- No final standings, final third-order ratings, or final injury outcomes from that season.
- No threshold selected by looking at the 2024-2025 betting results.
- No current-season EPA or success-rate features in a preseason prediction.

Threshold selection

The V1 edge threshold was selected with 2020-2023 leave-one-season-out validation. Candidate thresholds ranged from 0.50 to 2.00 projected wins. The frozen choice was **0.75 wins**, paired with at least a **3 percentage-point no-vig probability edge**.

Win edge	Training bets	Training units	Training ROI
0.50	67	-5.99u	-8.9%
0.75 selected	45	+3.36u	+7.5%
1.00	26	+2.60u	+10.0%
1.25	17	+2.36u	+13.9%
1.50	10	+1.44u	+14.4%

4. Model Versions And What We Learned

Version	Main idea	Decision	2024-2025 result
V1 industry	Market prior, weighted EPA/success rate, QB, coaching, schedule	Official research candidate	19 bets, +4.00u, 21.0% ROI
V2 injury	Raw injury burden	Watch-list only	9 bets, +2.43u, 27.0% ROI
V2 continuity + draft	Snap continuity and draft inputs	Rejected	12 bets, +1.21u, 10.1% ROI
V2 all features	Continuity, injury, draft together	Rejected for overfit	14 bets, -2.10u, -15.0% ROI
V3 injury regression	Normalized injury regression	Research only	22 bets, +2.69u, 12.2% ROI
V3 roster value	Snap-based incoming/outgoing value	Rejected	10 bets, -4.53u, -45.3% ROI
V4 market schedule	Market-implied strength, schedule, division, rest	Complementary lane	37 bets, +3.43u, 9.3% ROI
V4 injury low-total	V4 + injury, totals of 7.5 or lower	Premium shadow lane	12 bets, +4.84u, 40.3% ROI

Central modeling lesson

Adding more offseason features did not automatically create a better model. The strongest path was a stable market-aware V1 foundation plus a narrow V4 low-total complement, not an all-in feature stack.

Why V4 mattered

V4 converts the entire preseason win-total board into market-implied team and opponent strength. This improves schedule context and revealed that teams with posted totals of 7.5 or lower formed the most useful complementary market pocket.

5. Three Check Futures Process

Check	Purpose	Current futures rule
Check 1	Model value	V1: projected-win edge at least 0.75 wins and no-vig probability edge at least 3 percentage points. V4 injury low-total: the same minimum edge plus a posted total of 7.5 wins or lower.
Check 2	Market discipline	Use the sportsbook win total as a prior, remove vig from Over/Under prices, account for market-implied schedule strength, and require the model to beat the market probability by a meaningful amount.
Check 3	Context and portfolio governor	Apply QB/coaching/injury context, add only unique V4 low-total plays after V1, and never count two model lanes as separate bets on the same team-season.

Best portfolio order

1. Start with every V1 broad play that clears the frozen value rules.
2. Add a V4 market-schedule + injury low-total play only when V1 did not already qualify that team.
3. If multiple lanes identify the same team-season and side, keep the first qualifying lane instead of double-counting it.
4. Record the exact win total and price at bet time for live CLV tracking.

Why deduplication matters

The models are related and often express the same underlying team-strength disagreement. Counting both as two independent bets would exaggerate volume and expose the customer twice to one futures outcome.

6. Backtest Results

V1 fixed-train results

Season	Bets	Record	Units	ROI	Model MAE	Market MAE
2024	9	6-3	+3.28u	36.4%	2.83	2.86
2025	10	6-4	+0.72u	7.2%	2.54	2.44
Combined	19	12-7	+4.00u	21.0%	-	-

Best combined portfolio

Window	Bets	Record	Units	ROI	Win rate
Training validation 2020-2023	63	36-24*	+8.49u	13.5%	60.0%
2024 test	13	-	+5.01u	-	-
2025 test	15	-	+3.43u	-	-
2024-2025 test	28	19-9	+8.44u	30.1%	67.9%

*The saved training summary reports 36 wins and 24 losses across 63 bets; three training settlements are not represented as wins or losses in that compact row. The test window has a complete 19-9 record.

Honest interpretation

The model beat its market-total MAE slightly in 2024 but not in 2025. Betting profitability came from selective price disagreements, not from dominating the market on every team's raw expected wins. The 28-bet portfolio remains too small for a guarantee or a customer-facing performance claim without qualification.

7. 2026 Projection Snapshot

The following table reproduces the model output saved on May 25, 2026. It is a preserved research snapshot, not a current recommendation card. Prices, injuries, depth charts, and market totals must be refreshed before any live decision.

Tm	Team	Mean wins	Book	Over	Under	Best side	Raw edge
LA	Los Angeles Rams	12.66	10.5	88.9%	11.1%	Over	30.6 pp
SEA	Seattle Seahawks	11.83	10.5	77.4%	22.6%	Over	22.8 pp
HOU	Houston Texans	11.26	9.5	82.9%	17.1%	Over	27.3 pp
DET	Detroit Lions	11.03	10.5	61.9%	38.1%	Over	9.5 pp
JAX	Jacksonville Jaguars	10.80	8.5	88.6%	11.4%	Over	41.0 pp
BUF	Buffalo Bills	10.73	10.5	55.6%	44.4%	Over	0.0 pp
NE	New England Patriots	10.53	10.5	51.4%	48.6%	Over	7.0 pp
PHI	Philadelphia Eagles	10.47	10.5	50.3%	49.7%	Over	1.5 pp
DEN	Denver Broncos	10.15	9.5	63.5%	36.5%	Over	10.1 pp
GB	Green Bay Packers	9.88	10.5	37.7%	62.3%	Under	4.0 pp
KC	Kansas City Chiefs	9.86	10.5	37.4%	62.6%	Under	4.3 pp
BAL	Baltimore Ravens	9.79	11.5	18.9%	81.1%	Under	22.7 pp
SF	San Francisco 49ers	9.74	10.5	35.1%	64.9%	Under	5.7 pp
IND	Indianapolis Colts	9.62	7.5	86.6%	13.4%	Over	30.0 pp
CHI	Chicago Bears	9.32	9.5	46.5%	53.5%	Under	-1.0 pp
LAC	Los Angeles Chargers	9.31	9.5	46.4%	53.6%	Under	5.9 pp
MIN	Minnesota Vikings	8.56	8.5	50.9%	49.1%	Over	-1.4 pp
TB	Tampa Bay Buccaneers	8.54	8.5	51.4%	48.6%	Under	-0.2 pp
PIT	Pittsburgh Steelers	8.46	8.5	48.8%	51.2%	Over	-1.2 pp
NO	New Orleans Saints	7.73	7.5	54.0%	46.0%	Over	-0.5 pp
ATL	Atlanta Falcons	7.60	6.5	70.1%	29.9%	Over	16.7 pp
CIN	Cincinnati Bengals	7.58	9.5	16.4%	83.6%	Under	37.1 pp
NYG	New York Giants	7.38	7.5	46.9%	53.1%	Under	1.9 pp
DAL	Dallas Cowboys	6.99	9.5	9.7%	90.3%	Under	32.0 pp
CAR	Carolina Panthers	6.51	7.5	30.0%	70.0%	Under	13.5 pp
CLE	Cleveland Browns	6.08	6.5	40.7%	59.3%	Under	4.7 pp
WAS	Washington Commanders	6.06	7.5	21.9%	78.1%	Under	28.1 pp
TEN	Tennessee Titans	5.33	6.5	25.2%	74.8%	Under	22.4 pp
ARI	Arizona Cardinals	5.10	4.5	62.2%	37.8%	Over	17.8 pp
MIA	Miami Dolphins	4.82	4.5	56.1%	43.9%	Over	3.8 pp
LV	Las Vegas Raiders	4.45	5.5	26.2%	73.8%	Under	28.4 pp
NYJ	New York Jets	3.84	5.5	15.7%	84.3%	Under	34.3 pp

Raw edge is the saved model probability minus the corresponding raw sportsbook implied probability. Final qualification still requires the frozen model and no-vig rules.

8. How To Read One Team

New York Giants example from the saved snapshot

Field	Saved value
Simulated mean wins	7.38
Simulated median wins	7.0
25th to 75th percentile	6 to 9 wins
5th to 95th percentile	4 to 11 wins
Saved sportsbook total	7.5
Model Over probability	46.9%
Model Under probability	53.1%
Model fair Under price	-113
Saved market Under price	-105
Raw Under probability edge	+1.9 percentage points

The model slightly preferred the Under, but the saved edge was below the official 3 percentage-point no-vig requirement. This illustrates the difference between a model opinion and a qualified bet: the model may lean Under without placing it on the official futures card.

Offseason context in the snapshot

The Giants received a +0.95-point manual context adjustment for the saved coaching/system assumptions. That context must be audited against current, verified personnel before rerunning the model.

9. CLV, Risk, And Promotion Standard

Why the saved CLV file shows zero

The included closing-line template repeats the bet-time line. It was created only to verify that the CLV tracker runs correctly. Its 0.0 CLV output is not evidence that the model did or did not beat the close.

Required field	Why it matters
Bet-time total	The exact season-win total when the recommendation is posted
Bet-time price	The exact Over or Under odds available to the customer
Closing total	The consensus or designated reference total immediately before the futures market closes
Closing price	The corresponding closing Over/Under odds
CLV outputs	Total movement in wins, price movement in implied probability, and percentage beating the close

Recommended 2026 live-validation protocol

- Freeze the model coefficients and governor thresholds before grading any 2026 result.
- Record the sportsbook, total, side, price, and timestamp for every posted recommendation.
- Archive at least one reference close and a multi-book consensus close before Week 1.
- Report result ROI and CLV separately; do not treat one as a substitute for the other.
- Do not promote based on a hot early subset. Review the complete frozen card after settlement.

Current status

Best label: **promising research/watch-list futures model**. It becomes a stronger business product only after frozen 2026 live tracking supplies real bet-time and closing prices.

10. Rebuild And File Map

The complete working archive is stored in the following local folder:

Primary model folder

C:\Users\willi\Desktop\old data\three check bets\nfl football\futures_model

File	Purpose
nfl_futures_walk_forward_backtest.py	Builds the fixed-train and expanding futures backtests.
nfl_futures_feature_family_compare.py	Compares V1, V2, V3, and V4 feature families.
nfl_futures_governor_grid.py	Evaluates value, probability, side, and low-total governor combinations.
nfl_futures_portfolio_governor.py	Builds the deduplicated V1 plus V4 futures portfolio.
nfl_futures_expected_wins.py	Produces team power, schedule simulations, win distributions, and 2026 fair prices.
nfl_futures_clv_tracker.py	Compares bet-time futures lines with supplied closing lines.
BACKTEST_NOTES.md	Full method, leakage controls, results, and research decisions.
outputs/nfl_futures_backtest_dataset_2020_2025.csv	Model-ready historical futures dataset.
outputs/nfl_futures_portfolio_governor_picks.csv	Saved candidate portfolio picks.
outputs/nfl_2026_futures_expected_wins.csv	Full preserved 2026 team projection snapshot.

OneDrive backup:

C:\Users\willi\OneDrive\Desktop\old data\three check bets\nfl football\organized_model_archive\09_futures_model\futures_model

Final owner instruction

Preserve V1 and the best combined portfolio exactly as documented. Refresh inputs and prices for live use, but do not retroactively retune the 0.75-win or 3-point probability thresholds against the 2024-2025 test results.

Appendix: Terms

Term	Meaning
Expected wins	The average number of wins across the model's simulated seasons.
Pythagorean wins	An estimate of team quality from points scored and allowed, reducing close-game noise.
EPA	Expected Points Added; the value created or allowed by a play relative to game context.
Success rate	The percentage of plays that meet an efficiency threshold for down and distance.
No-vig probability	The market probability after removing the sportsbook's built-in hold.
Model edge	The model projection or probability minus the corresponding market number.
ROI	Profit divided by total amount risked.
CLV	Closing-line value: whether the bet-time number was better than the final market price.
Fixed-train test	A test where model fitting stops before the evaluation seasons begin.
Portfolio governor	A rule that decides which qualified lanes enter the card and prevents duplicate exposure.

This document is an internal research and education reference. Historical backtests do not guarantee future results. Futures markets can move materially after injuries, depth-chart changes, trades, suspensions, and preseason information.