Executive Summary — Austin Building Permits & the Economic Pulse (2009–2024)

# Objective

Quantify how macroeconomic conditions relate to monthly Austin building application permits for both residential & commercial (2009–2024) and identify the strongest drivers of permitting activity.

# Data

Monthly totals for **permits** (total / residential / commercial) and U.S. macro series: 30-year mortgage rate, prime rate, CPI inflation (YoY%), Consumer Confidence Index, Austin unemployment rate, plus a recession indicator. Frequency: monthly; Period: Jan-2009 to Dec-2024.

# Methods

* **Pearson correlations** (with p-values) to summarize raw relationships.
* **Multiple OLS regression** to estimate each driver’s partial effect while holding others constant.
* **Diagnostics & spec checks** (residuals vs fitted).

# Findings

* **Strong overall fit:** The model explains ~60% of monthly variation (R² ≈ 0.60).
* **Key drivers** (direction & order-of-magnitude effects):
* **Mortgage rate — negative & primary:** ≈ −128 permits per +1 percentage point, all else equal

(p < 0.001).

* **Consumer confidence — positive:** ≈ +63 permits per +1 index point (p < 0.001).
* **Unemployment — negative:** ≈ −35 permits per +1 percentage point (p < 0.001).
* **Inflation — modest:** +16 permits per +1 percentage point (statistically detectable; smaller than rates/confidence).
* **Leading Indicator:** Permit activity predicts unemployment rates after 6 months. R = -0.346 (p < 0.001)
* Higher permits today = Lower unemployment in 6 months
* **Cyclical:** Permit activity is very seasonal, averaging a 30% swing between spring/summer & fall/winter

# Bottom Line

Mortgage rates and household sentiment are the clearest concurrent signals for Austin’s permitting volume.