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2024 US Construction Industry Analysis

Residential Optimism, Infrastructure Growth, Nonresidential Deferred Activity

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Building & Construction Team

With over 6 decades of research, consulting and M&A advisory services, our teams offer the greatest depth, rigor and value by translating data into action.

Our accomplished building and construction team has the trust and confidence of business executives and deal-makers around the world.

- Growth Strategy
- Portfolio Optimization
- Competitive Benchmarking
- Pricing and Procurement
- M&A Strategy
- Sell-Side Market Studies
- Buy-Side Diligence

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Ducker Carlisle works with business leaders across **the building and construction sector** to optimize growth, improve channel performance and consolidate through inorganic strategies.

Residential Construction	Residential Remodel	Nonresidential Construction
Facility Management/MRO	One and Two Step-Distribution	Design-Build and Installation Services
Dry Infrastructure (road, utility, telecom)	Wet Infrastructure (water, wastewater, stormwater)	Off-site Construction

Our clients include building product manufacturers and material suppliers, leading one step and two step distribution businesses, associations and industry groups representing the building and construction sector, and private equity firms and investment banks. With over 60 years of experience, our consultants have experience in nearly every construction product market and segment of the value chain.

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A robust continuum of Global services and capabilities backed by decades of experience and proprietary data which optimize client growth and performance

Decades of Experience	We have seen and experienced the cycles and challenges our clients face and provided real solutions for over 60 years
Best in Class Insights	From proprietary data sets and company owned conferences to full scale research and advance analytics capabilities, we have the best data for improving your business
Global, Industrial Expertise	Company owned offices and tenured teams located in the major geographies serving 6 leading industry segments
Full Continuum of Services	Integrated services and a client centric approach to inform, optimize, plan, execute and acquire
Track Record of Performance	Successful M&A support outcomes to operational improvements that save millions of dollars, our teams deliver meaningful results

Construction Industry Activity and Outlook through 2028

2024 IBS/KBIS Design Construction Week Highlights!

Top 6 Insights for the Industry in 2024!

INSIGHT 1: Enthusiasm and Optimism Masks Volume Issues and Concerns

- With near record level of attendance and exuberant optimism by attendees and exhibitors alike, it was not obvious that the construction industry was experiencing a slowdown – especially with single-family starts off by double digits and multi-family construction affected by high interest rates. Optimism appeared to be justified, via carryover from 2023 outcomes:
    a. Second half of 2023 did not collapse
    b. Margins remain decent through ability to hold pricing - both material and labor
    c. Cash receipts and holdings relatively strong end of year
    d. Labor challenges and construction cycle times more manageable
    e. Long term outlook favorable
- However, industry participants noted volumes remain flat or declining in many areas due to demand and adjustments to inventory and procurement strategies. Should price declines occur in 2024 with lower volume, we believe this optimism would quickly change.

INSIGHT 2: Just-in-Time Sourcing will Reduce Inventory Levels and Production Output

- Shifting strategies by manufactures and distributors regarding production (lower) and inventory (lower) have occurred in response to contractors elevating their expectations (higher) for just-in-time delivery of key products and services in the field. Builders note construction timelines are more flexible allowing trades to focus more on the right product, right price, right time. Implications include lower levels of inventory, quick ship and shorter lead times from order to fulfillment. To effectively serve this new requirement, manufacturers and distributors will need to have supply chains, logistics and customer experience operations fine-tuned and tailored to the new expectations.

2024 IBS/KBIS Design Construction Week Highlights!

Top 6 Insights for the Industry in 2024! (Cont.)

INSIGHT 3: Corporate Diversification through M&A Challenges Past Synergy Logic, Elevates Growth Concerns

- Diversification (absent of any obvious synergies) in Corporate M&A continues to be a theme as noted by recent OC/Masonite (and historic Holcim/Firestone/Durolast/Malarkey) transactions. These deals continue to confuse many in the industry as it challenges historic M&A strategies, which favored commercial and operational synergies. Ducker Carlisle sees these recent events as a shift in priorities regarding sector dominance vs. growth through portfolio optionality. We recommend executives consider the following regarding the future of large-scale M&A in the construction industry:
  - Aside from market share and cash flow positions, businesses need to demonstrate new, scaled runways of growth. Outside investors believe a leading market share position in stable markets with strong cash flow and operations are not enough for future value creation. As the industry matures and consolidation within a company's core sector reaches peak, growth prospects are greater in new, diverse sectors
  - As businesses reconfigure portfolios and embark on diversified growth platforms, we anticipate significant amount of portfolio adjustments and continued shifting of historic business positions - including carve outs of core and non-core businesses

INSIGHT 4: Big-Box Professional Contractor Strategy Gaining Momentum

- Big-box investment and strategies to win with the pro are gaining momentum and professional contractors/builders are experiencing a different service level from Lowes and Home Depot. Over the past 3 years both Home Depot and Lowes have invested in new logistics, warehouse and commercial teams aimed directly at converting professional contractors and winning more complete, scaled projects
  - Investment in scaled distribution centers which operate similar to a pro-dealer, continue across the country in Major MSA's. These pilot programs are showing success and higher volume of activity among commodity materials tied to new construction
  - Dedicated and experienced sales reps pulled from product or distribution companies now blanket the trades and builder community to win and pull through business across. A fight for sales talent underway in the industry
  - Pricing and discount strategies remain in question as the industry did not necessarily need added distribution or dealer capacity for the pro

2024 IBS/KBIS Design Construction Week Highlights!
Top 6 Insights for the Industry in 2024! (Cont.)

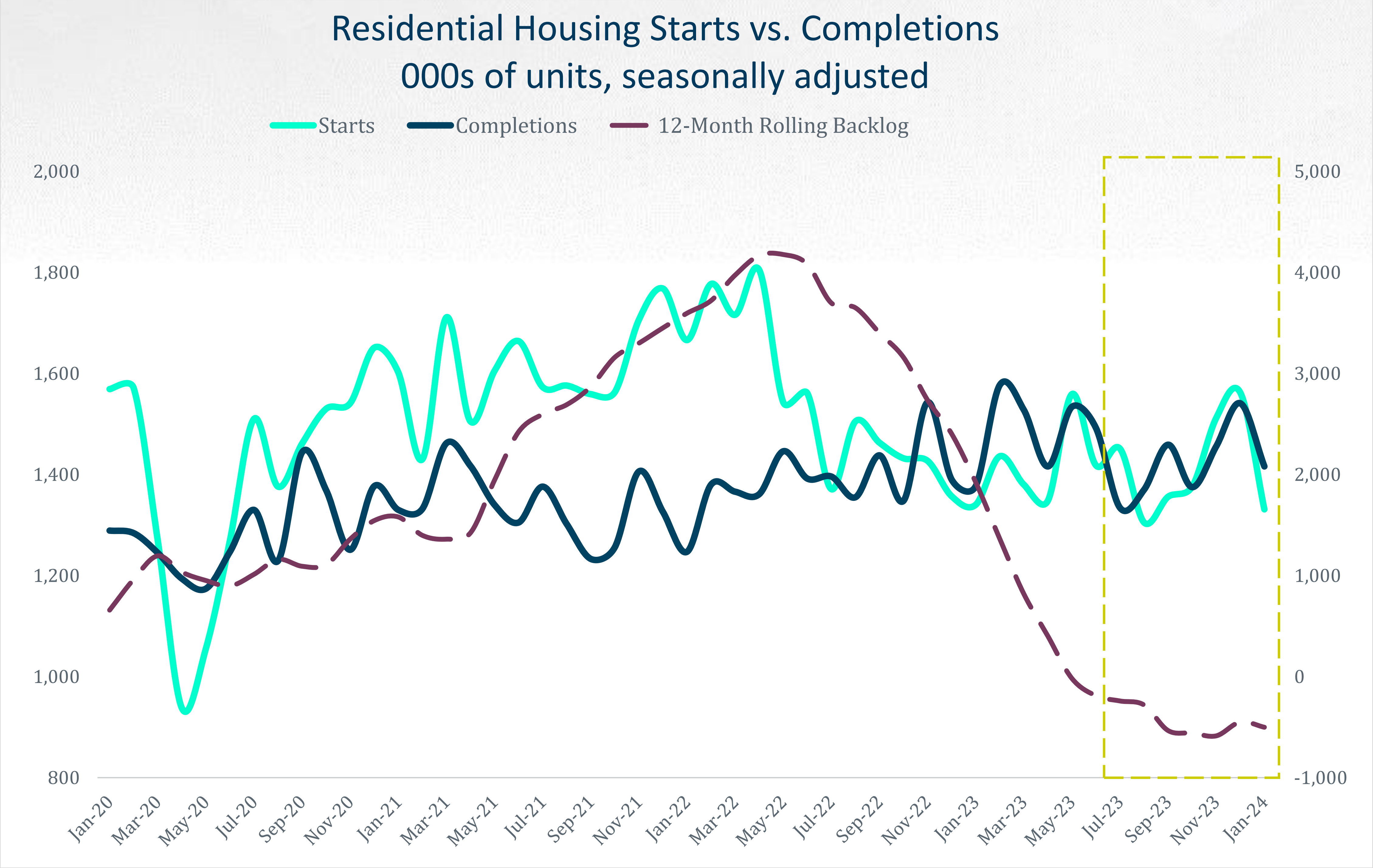
INSIGHT 5: Product and Technology Trends – No Significant Leap Forward

- Greater emphasis on building envelope solutions and composite solutions to manage air, water, moisture and fire performance. Waterproofing industry continues to gain attraction from many due to the increase in severe climate events and emerging codes driving demand for products and innovative solutions.
  a. Metal construction products provide advanced durability, structural performance, ability to coat or apply unique films for design/aesthetics, and offer important lower life cycle or recycling benefits at end of life
  b. Home technology and automation represented by connected home solutions and digitally enabled products have grown in number. Almost every appliance, bathroom or kitchen fixture, and door/window can be digitally enabled to control the comfort or security desired. What once was innovative is now becoming mainstream and the challenge remains regarding unification of the many unique software and digital platforms into a common open-source platform for integrated products from different manufacturers
  c. Growing popularity of silica-reduced or silica-managed stones slabs and boards. Particularly in the countertop and tile markets, the impact of silica in fabrication and construction becoming a talking point – innovative materials on the move to address
  d. Digital contractor tools, apps, and software which tackle the administrative, documentation, and build process steps/timing in a more effective, mobile manner. New start-ups – advanced software from outside the industry aims to help simplify and drive efficiency of the build process

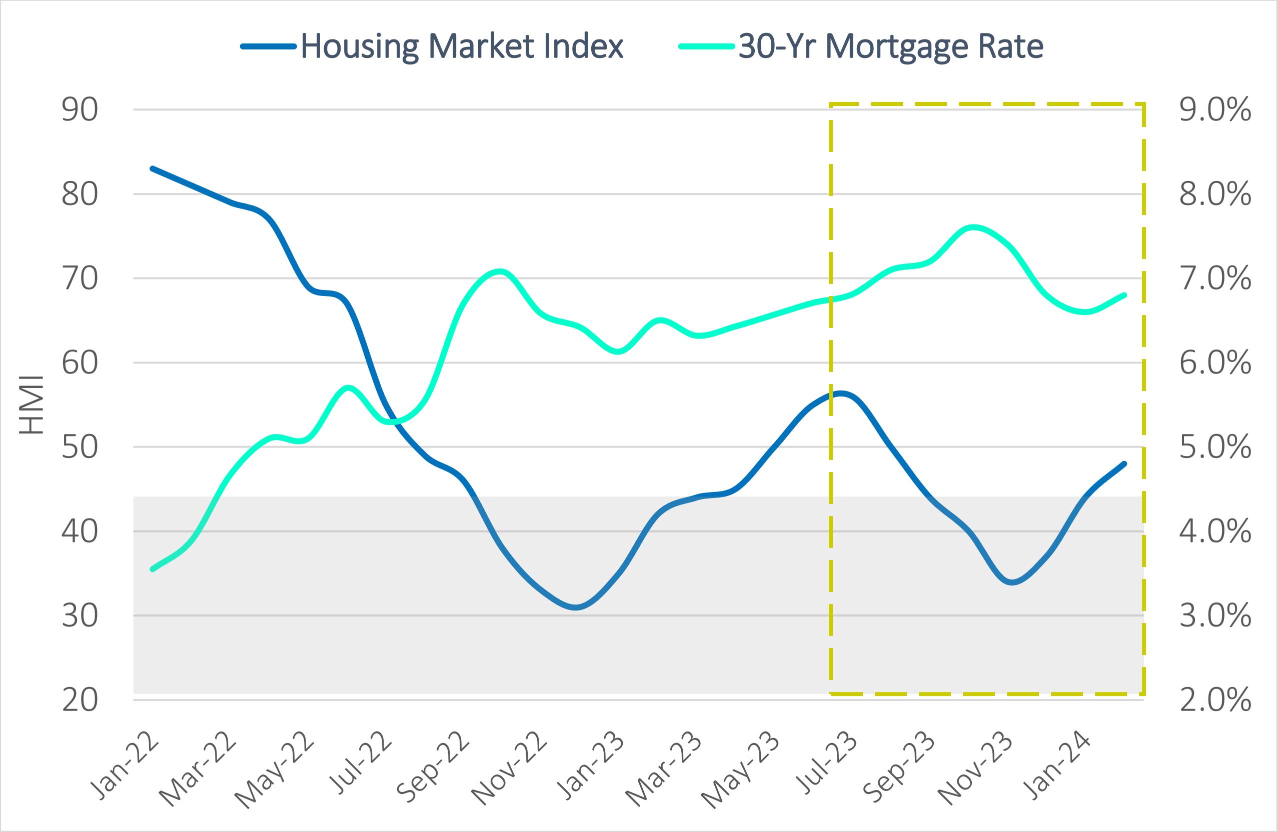
INSIGHT 6: Stalling of New Construction Process Adoption (off-site, modular etc.)

- Despite the applied resources and business models for off-site construction, modular construction and 3D printing – the industry hasn't experienced the rate of adoption or change anticipated. We don't see this changing in the near term as these new construction processes will slowly evolve and find their niche. Important developments which are slowing adoption include:
  a. Decline in absolute construction projects, activity and volume
  b. A more manageable pace and labor mix among many project types
  c. Healthy, appreciable margins achieved in traditional construction process
  d. Local code and valuation dynamics (municipality building codes often out of data with new process valuations)
  e. Published failures of off-site, modular firms like Katera

Housing starts 12 month decline and erosion of housing backlog following interest rate hikes until recent stabilization amid renewed positive builder sentiment



- New housing completions have continued to track/slightly exceed starts through '23 and into '24 which has led to a stabilization of project backlog
- Homebuilder sentiment* has stabilized, following seasonal trends since significant decline from Feb '22 to Dec '22 (fell from 81 to 31; rose from 44 to 48 in Feb '24)
- Long term housing gap remains with a deficit of 5 million new housing completions compared to new households formed since 2010



New model input data

*NAHB/Wells Fargo Housing Market Index - >50 majority positive

Sources: Ducker Analysis, Fannie Mae, NAHB, MBA, NAR, Market Feedback

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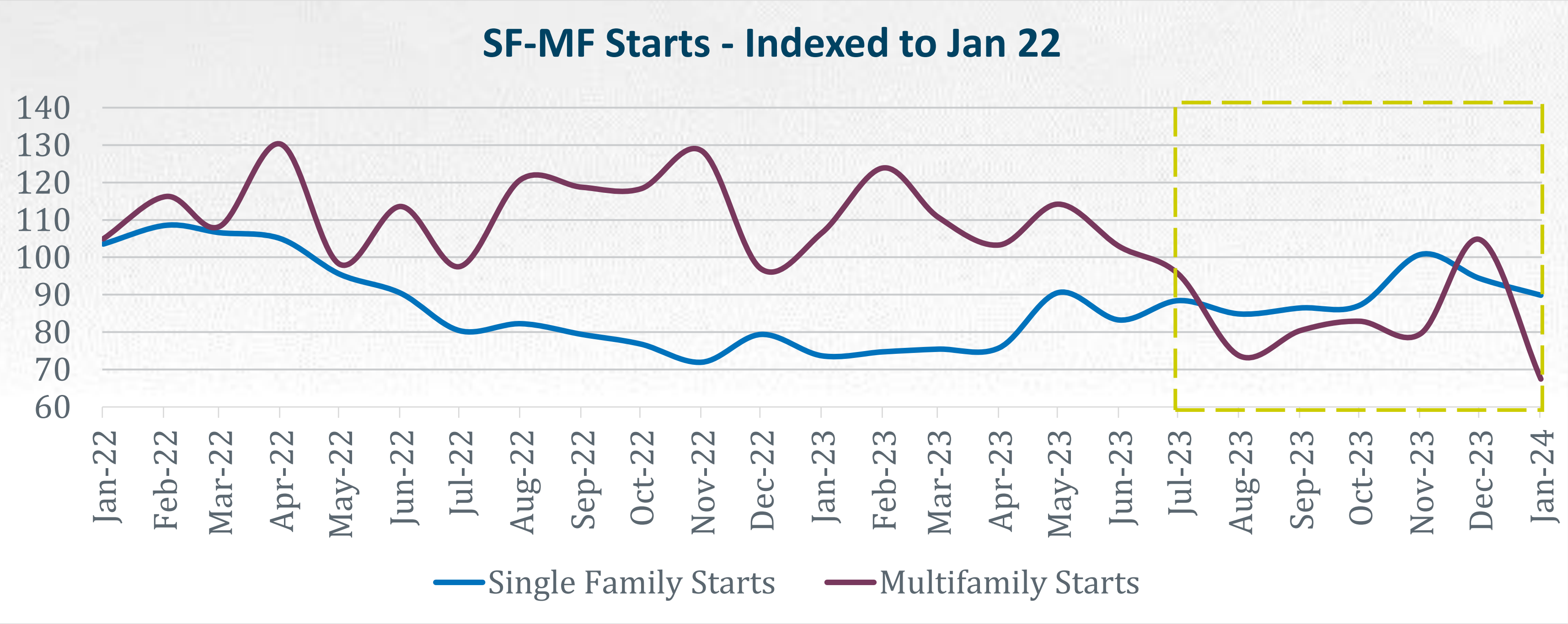
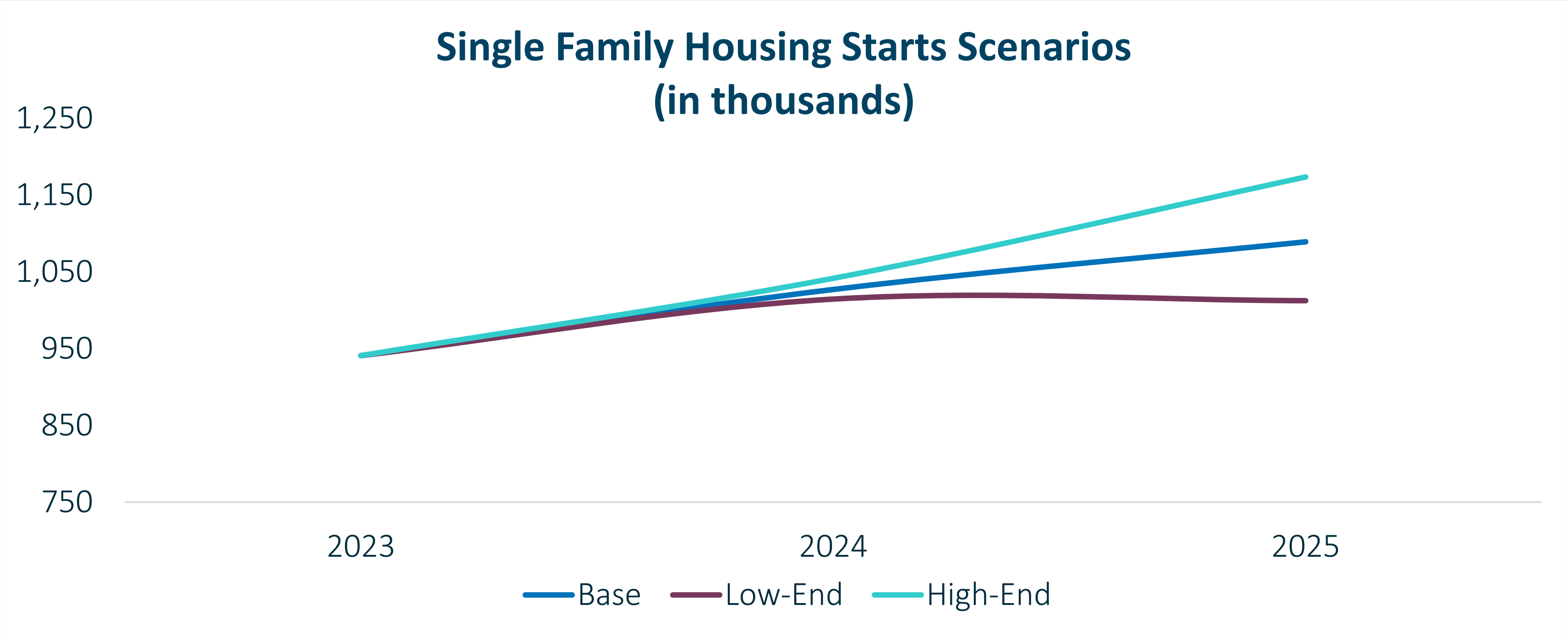
Stabilizing mortgage rates expected to drive single-family growth while tight lending conditions for development loans causing drop in multifamily starts





Single Family Housing Starts ('000)	2023	2024F	2025F	2023F to 2024F	2024F to 2025F
Fannie Mae	935	989	1,046	+6%	+6%
MBA	943	1,052	1,152	+12%	+10%
NAR	944	1,080	1,130	+14%	+5%
NAHB	943	988	1,029	+5%	+4%
Average	**941**	**1,027**	**1,089**	**+9%**	**+6%**

Multifamily Housing Starts ('000)	2023	2024F	2025F	2023F to 2024F	2024F to 2025F
Fannie Mae	471	385	367	-18%	-5%
MBA	472	364	319	-23%	-12%
NAR	469	355	350	-24%	-1%
NAHB	472	379	388	-20%	2%
Average	**471**	**371**	**356**	**-21%**	**-4%**

Total Housing Starts ('000)	2023	2024F	2025F	2023F to 2024F	2024F to 2025F
Fannie Mae	1,406	1,374	1,413	-2%	+3%
MBA	1,415	1,416	1,471	+1%	+4%
NAHB	1,415	1,366	1,417	-3%	+4%
Average	**1,412**	**1,398**	**1,445**	**-1%**	**+3%**

New model input data

Sources: Ducker Analysis, Fannie Mae, NAHB, MBA, NAR, Market Feedback

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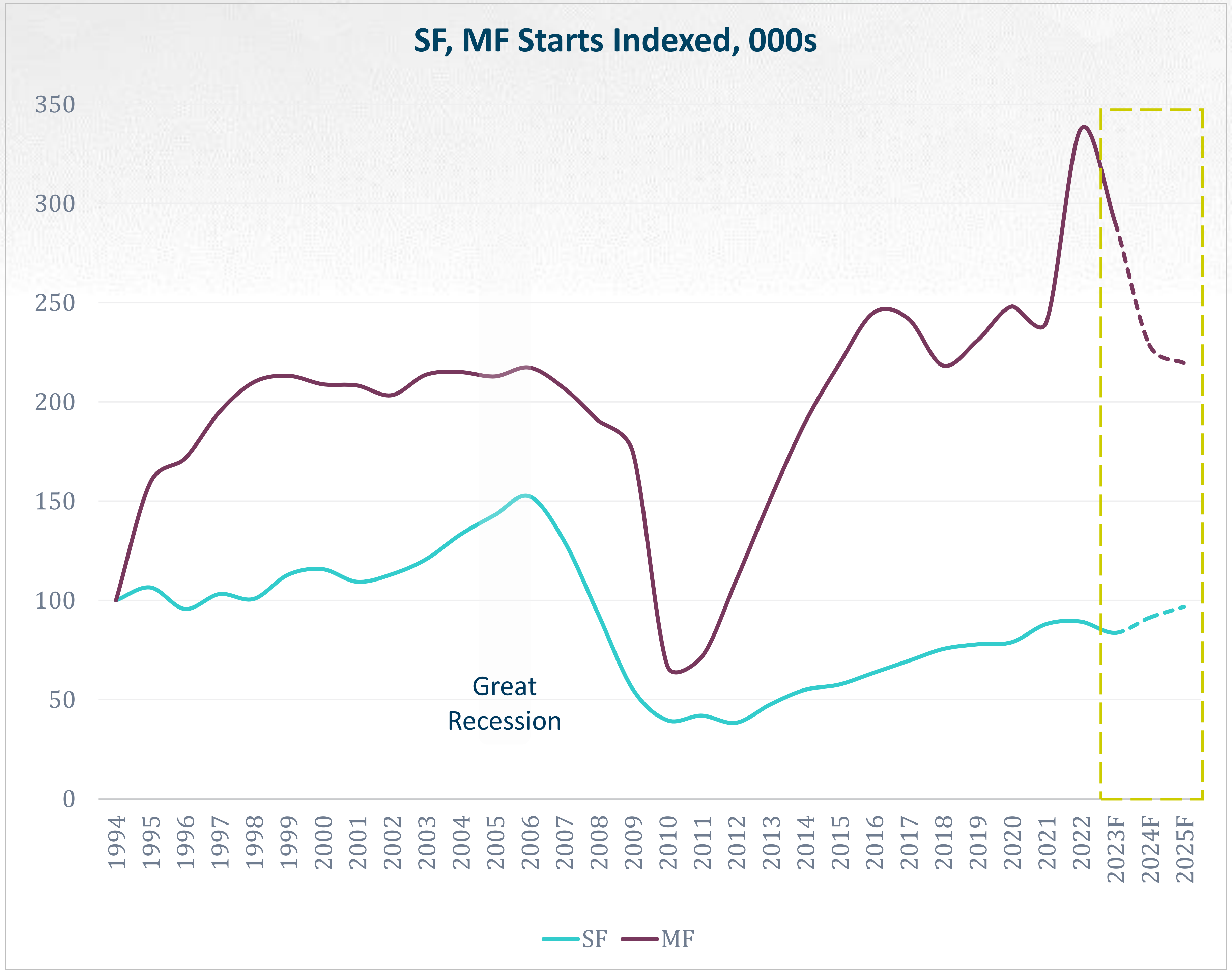
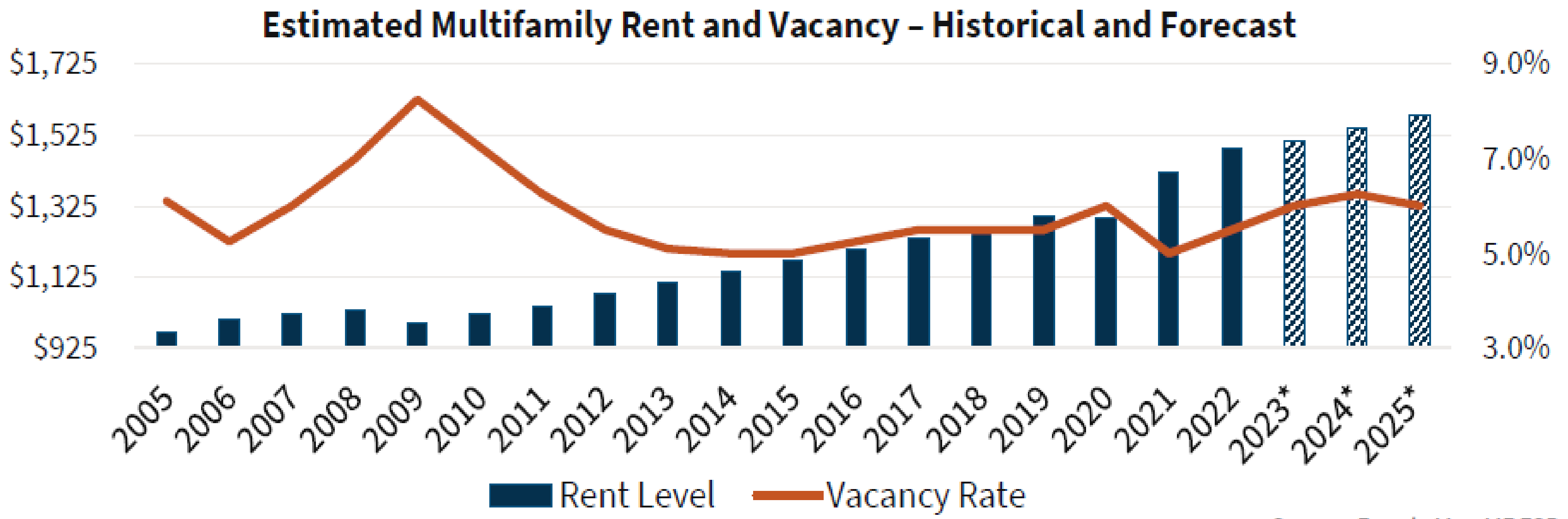
Decline in multi-family starts expected to continue through 2025 while single family starts begin to rebound following an ~6% decline from 22-23



New model input data

- With multifamily units under construction near a 50-year peak and increasing costs associated with acquisition, development and construction loans (AD&C), starts are expected to continue to decline sharply in 2024; cost of construction and development loans have increased for eight consecutive quarters starting in Q1 ‘22
- Despite pushback of interest rate declines, stabilizing mortgage rates are expected to improve single family starts in ‘24 and ‘25



Source: Fannie Mae MF ESR

Sources: Census, NAHB, Fannie Mae, MBA, NAR, Ducker Interviews and Expertise

Implications for manufacturers and distributors in 2024 regarding volatility of signals and uncertainty regarding demand

SIGNAL		IMPACT	ASSESSMENT
CPI- Inflation Metrics (~3.3% growth in '23)			▪ Overall CPI grew ~3.3% in 2023, which is positive compared to ~6.4% and ~6.9% growth in 2022 and 2021 respectively, stabilizing inflation helps to reduce pressure on household spending power ▪ Forecasts by pundits and economists for interest rate cuts have been pushed out to the later half of 2024
Mortgage Rate Product Mix (ARM share of mortgage loans was >18% in '23)			▪ Responsiveness of lower mortgage rate to CPI and economic changes can speed or slow pace of construction activity and sentiment. ▪ New variable rate products are gaining momentum like they had in the 1990's as homebuyers expect rate drops in the near future, these products open up more options for consumers below 7%
Builder Sentiment (Grew from '23 low of 34 in Nov to 51 in Mar '24)			▪ Stabilizing inflation and mortgage rates helped overall builder sentiment to rebound in Q4 of 2023 and expectation of further rate cuts in the 2nd half of 2024 are encouraging to builders ▪ Worse than expected Q1 2024 traffic generated concern for the year, however recent reports indicate improvement
Seasonality and Construction Timing			▪ The housing market started to pick up in Nov. '23 for single-family, yet early 2024 levels 13% below prior year, despite overall warmer months for construction. Hopeful on H2 2024 with an interest rate cut and election year optimism ▪ Multifamily less likely to perform well after a number of big projects get finalized this year; wait-and-see approach from the larger MF builders
Construction Input Price Stabilization (0.6% growth in res. YoY from Jan '23 to Jan '24)			▪ PPI construction indexes for Res. were within 0.6% over the past year; decline of 1.1% in pricing for Non-res despite large >75% increase in spending YoY ▪ Lumber price declines (6.4% YoY) the biggest drop-off among key material indexes

Sources: Ducker Analysis, Fannie Mae, NAHB, MBA, NAR, Market Feedback

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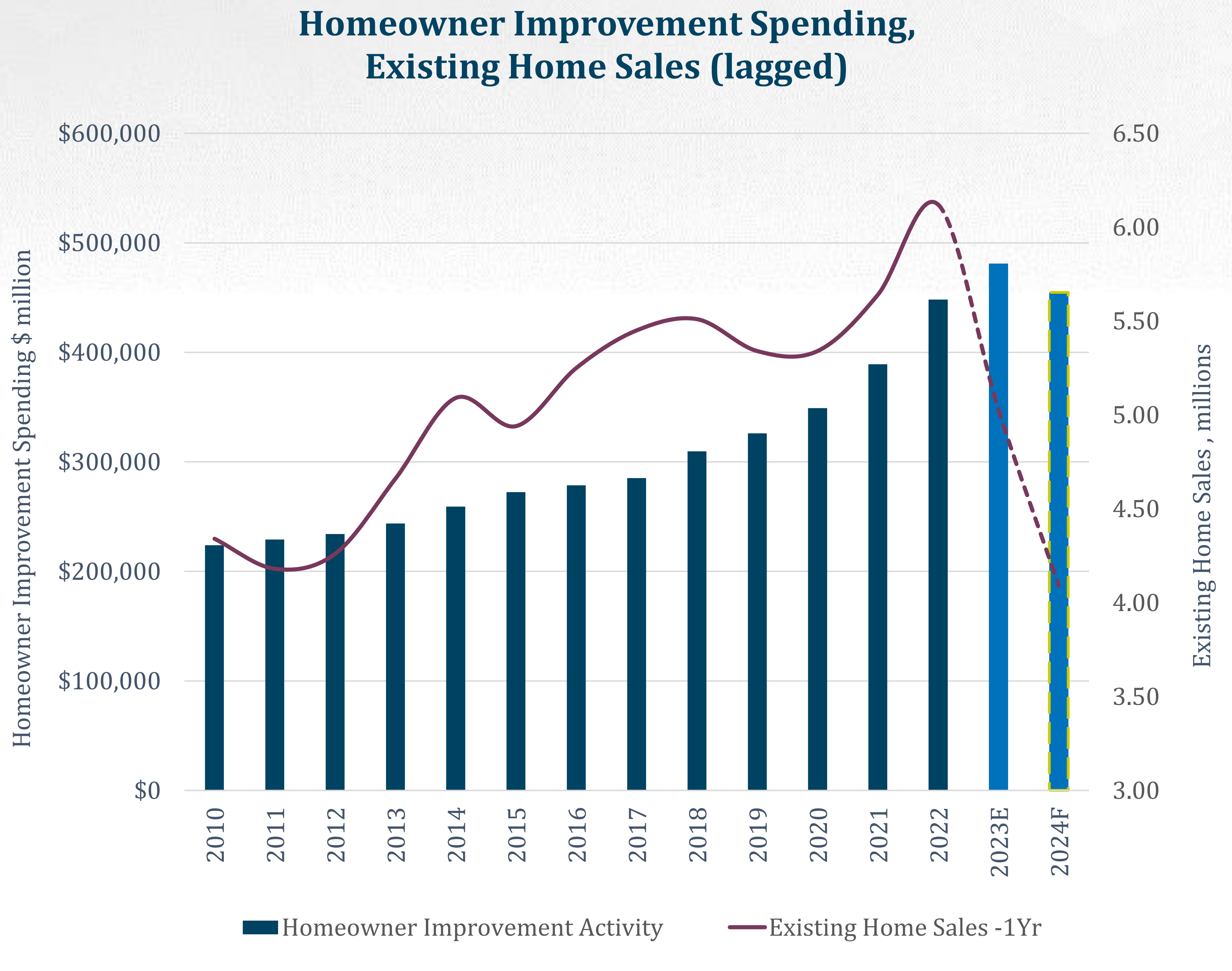
Remodeling expenditures expected to drop in 2024 due to declining existing home sales as homeowners continue to hold on to low-rate mortgages



- Inflationary carry-over from 2022 continues to boost homeowner improvement spending on a dollar basis but volume activity on a downward trend with a decline of 5% forecast for 2024
- Lower volumes of existing home sales, which traditionally correlate with improvement activity before and after home sales, due to higher interest rates and the large number of homeowners locked in low rates, weaker home prices, and home equity levels
- The market is leveling off after several years of above-cycle spending during the Covid pandemic, and activity returning to more normal levels

Home Improvement Spending, $Billions (LIRA)	Annual	2022	2023F	2024F	2022 to 2023	2023 to 2024
		$448.0	$481.1	$454.8	+7%	-5%

Sources: LIRA, NAR

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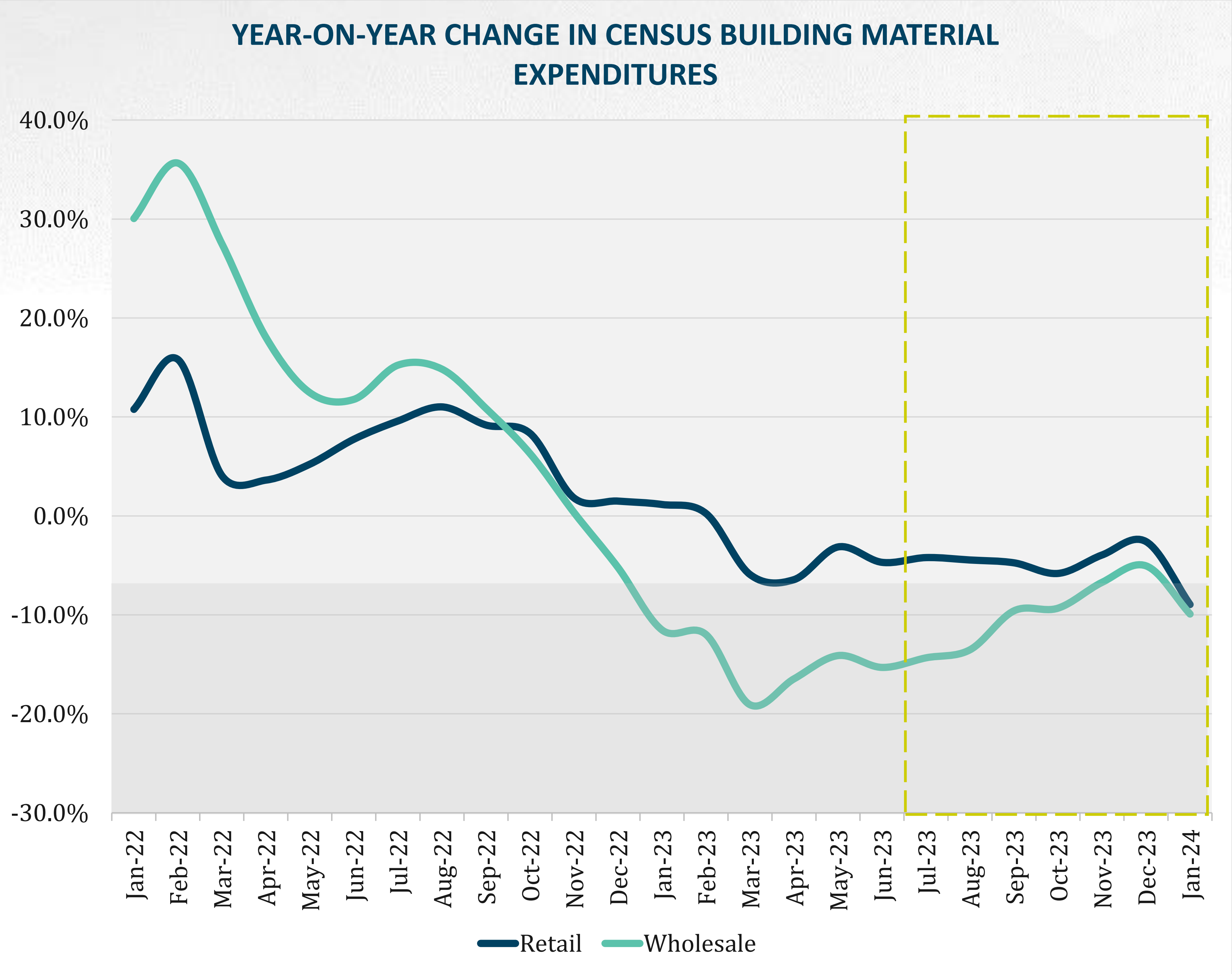
Declines in retail and particularly wholesale building material expenditures illustrate soft renovation and new construction market demand



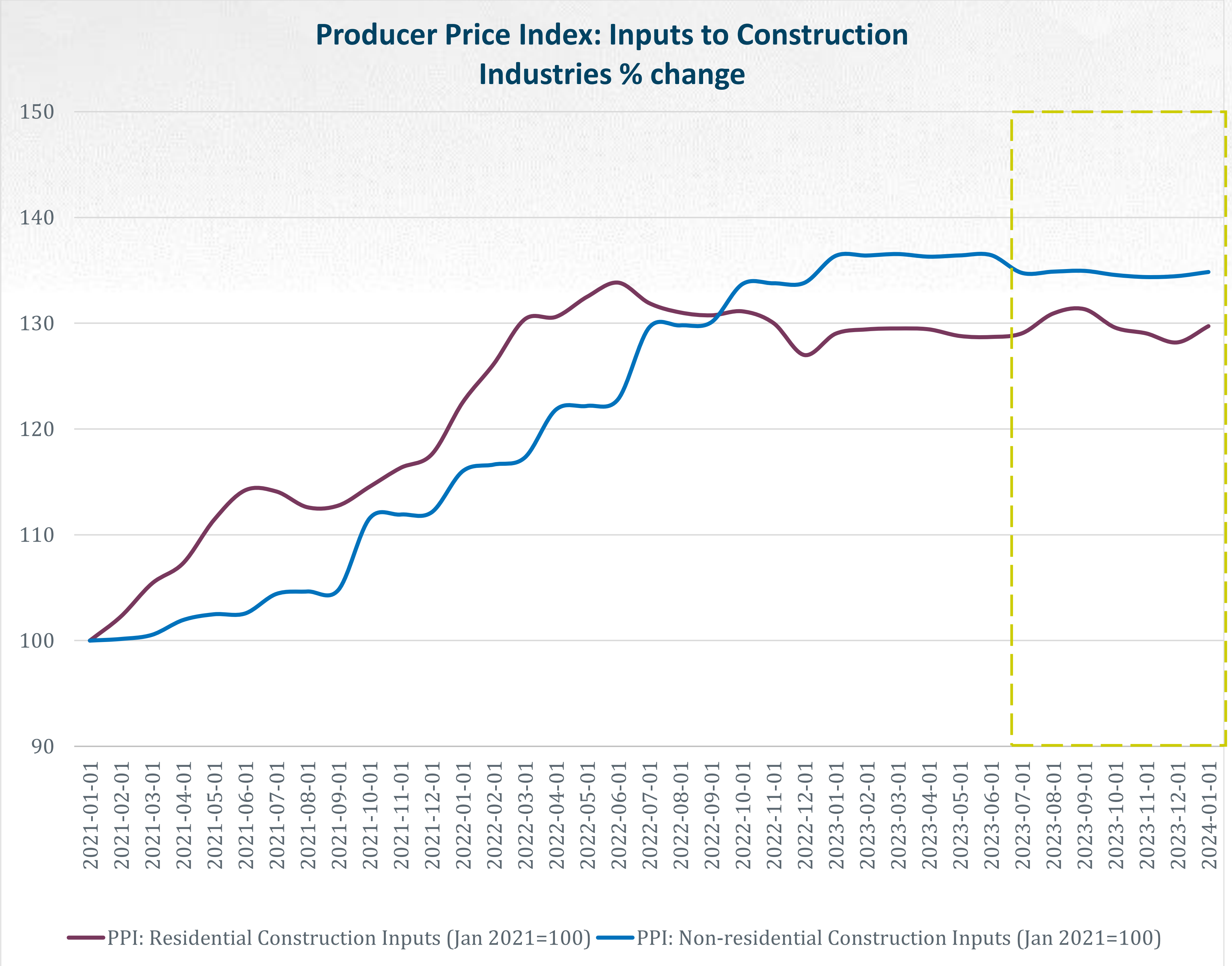
New model input data

- Double digit decline in wholesale building material expenditures in first half 2023 following new construction market slump; flat in the 2nd half with recovery expected for 2024
- Modest low single digit decline in retail building material spending as homeowner activity moderates post pandemic and without inflationary impact

Building Material Expenditures, $B	2022-H2	2023-H1	2023-H2	2022-H2 to 2023-H1	2023-H1 to 2023-H2
Retail	$222.6	$216.8	$213.0	-3%	-2%
Wholesale	$122.4	$110.6	$110.3	-10%	Flat
Total	**$345.0**	**$327.3**	**$323.3**	**-5%**	**-1%**

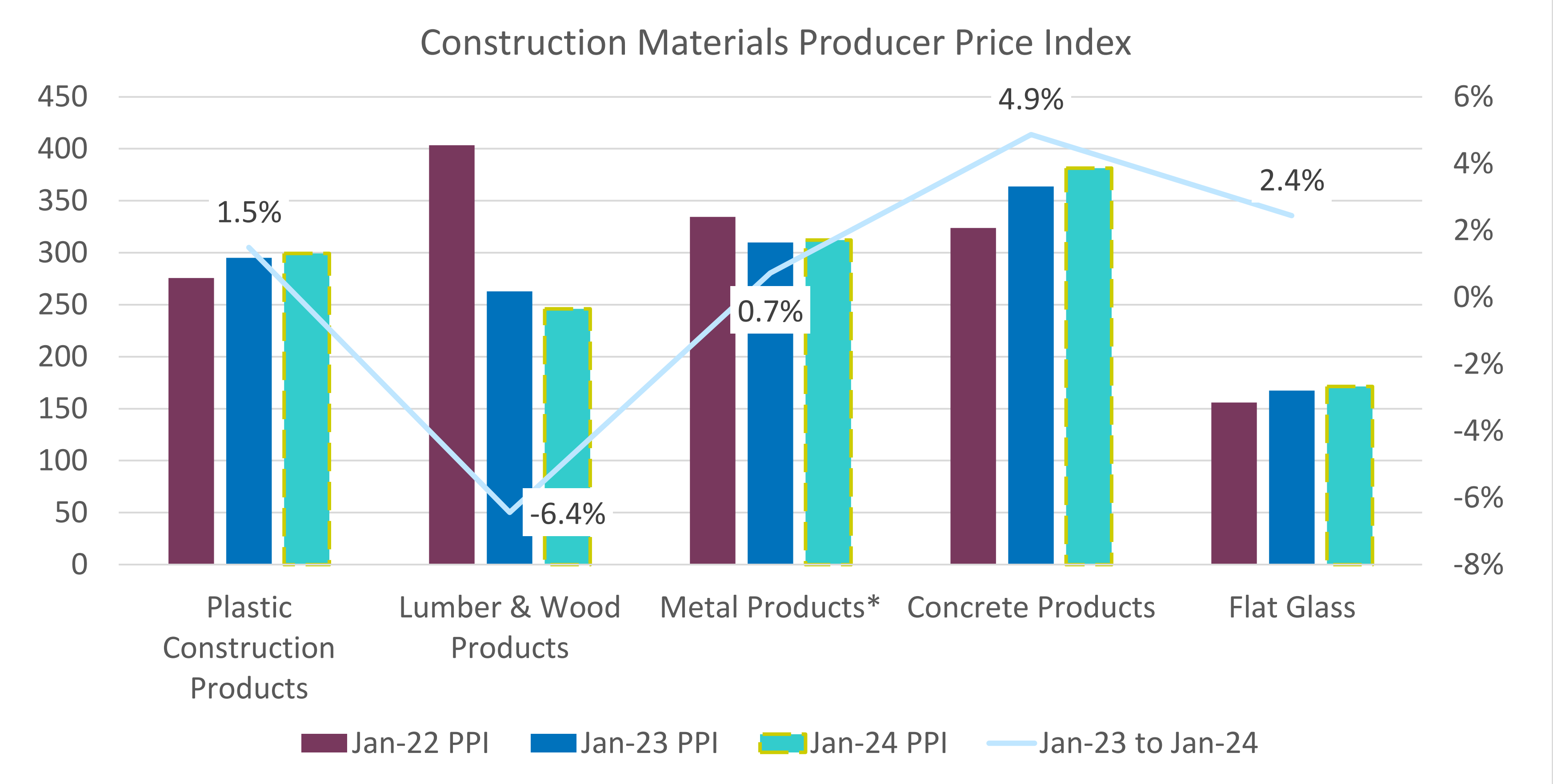
Sources: Census

Residential input pricing softened since mid-2022 peak while non-residential index has flattened from beginning of 2023



New model input data

- Producer Price Index for inputs to both residential and nonresidential construction has flattened since late 2022
- Residential PPI has been in decline since May-22 while nonresidential PPI peaked more recently in Jan-23
- Construction materials are expected largely to hold at current levels/slightly increase with exceptions for a limited set of materials (i.e., lumber); even in cases of price decline, materials are universally expected to maintain above pre-covid pricing



*Structural, Architectural, Pre-Engineered Metal Products

Sources: Census

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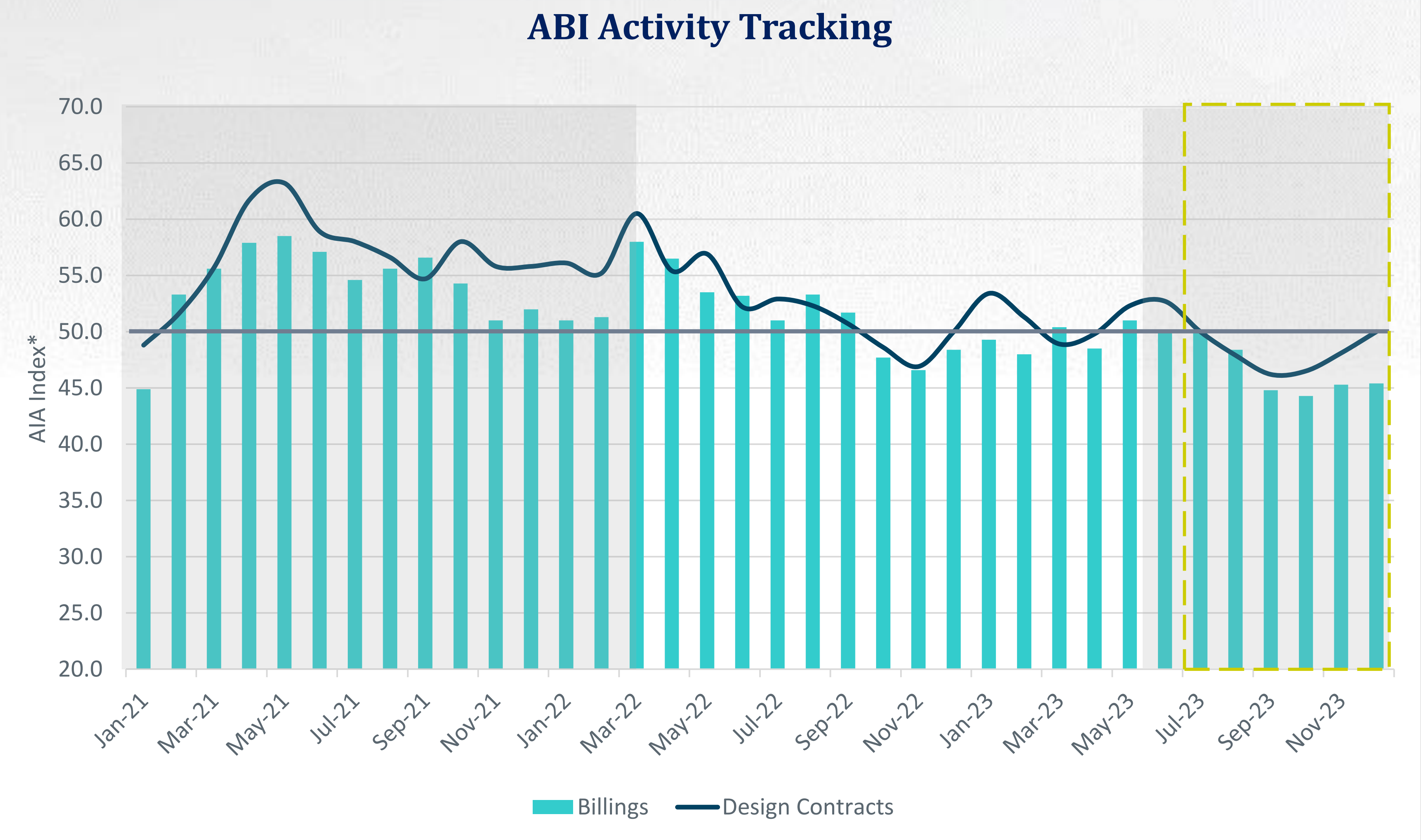
Growth in nonresidential building expenditures still expected in 2024 and 2025 from the tailwinds of major government initiatives

Construction PIP $ - Nonresidential	2023 Actual	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast
Lodging	24.5%	7.6%	7.3%	-0.2%	4.9%
Office	11.6%	-0.4%	1.0%	0.5%	3.2%
Commercial	12.7%	-0.9%	-0.9%	2.7%	5.0%
Health care	18.5%	4.3%	3.8%	2.9%	1.9%
Educational	16.2%	6.7%	4.7%	2.1%	1.5%
Religious	17.4%	2.1%	1.4%	0.2%	-0.2%
Public safety	17.0%	9.1%	3.5%	-2.6%	-0.8%
Amusement and recreation	17.5%	4.6%	4.0%	-0.9%	1.0%
Manufacturing	78.6%	16.0%	6.2%	-2.9%	-0.8%
NONRESIDENTIAL BUILDING	28.2%	6.6%	3.4%	0.1%	1.7%

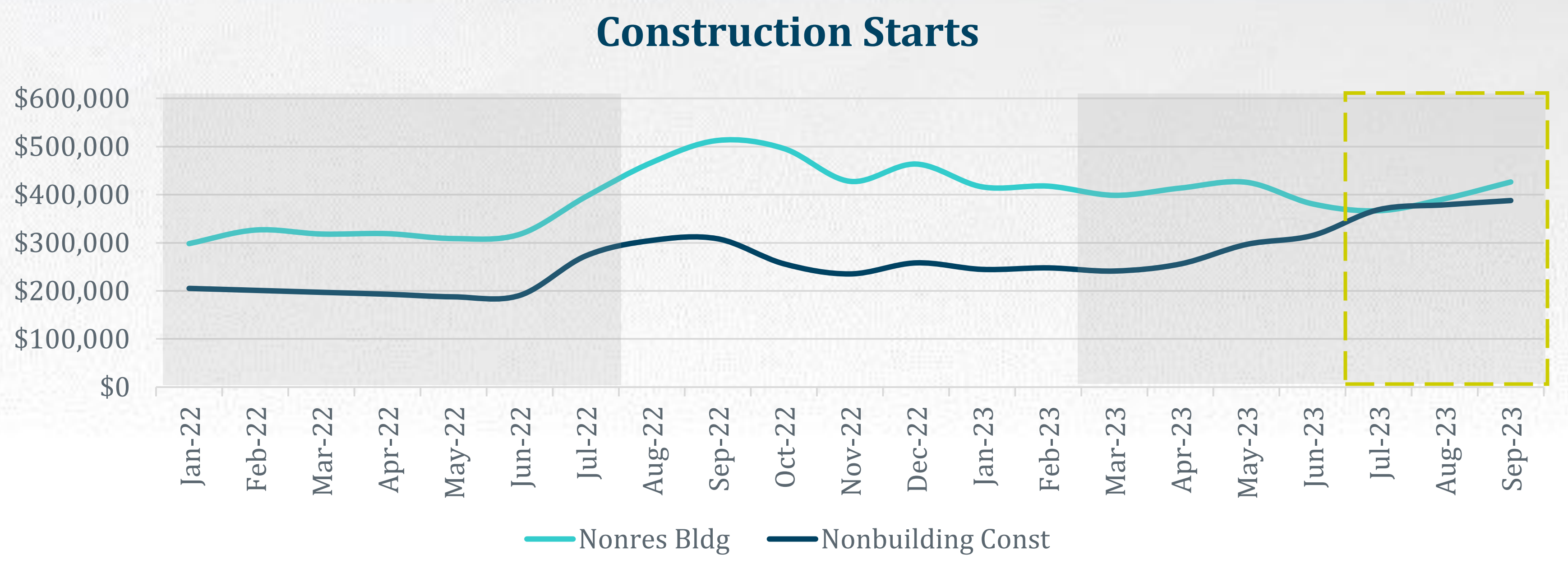
- Significant 2023 growth fueled by federal subsidies in the Inflation Reduction Act and CHIPS and Science Act, highlighting >75% growth in Manufacturing spending as well as Institutional spending (Public Safety, Education, Health Care)
- Office sector buoyed by data center growth (11% CAGR expected from ‘23 – ’28); traditional office sector expected to decline over next 3 years as occupancy rates remain elevated relative to pre-pandemic levels

Sources: Ducker Carlisle, AIA

AIA indicators and nonresidential building starts trended up through Q4 23 but remain below 2022 results



Sources: Ducker, AIA



Construction Starts, $B	Sep 22	Sep 23	Sep 22 to Sep 23
Nonresidential Building	$438.8	$459.4	-17%
Nonbuilding Construction	$213.3	$344.8	25%

New model input data

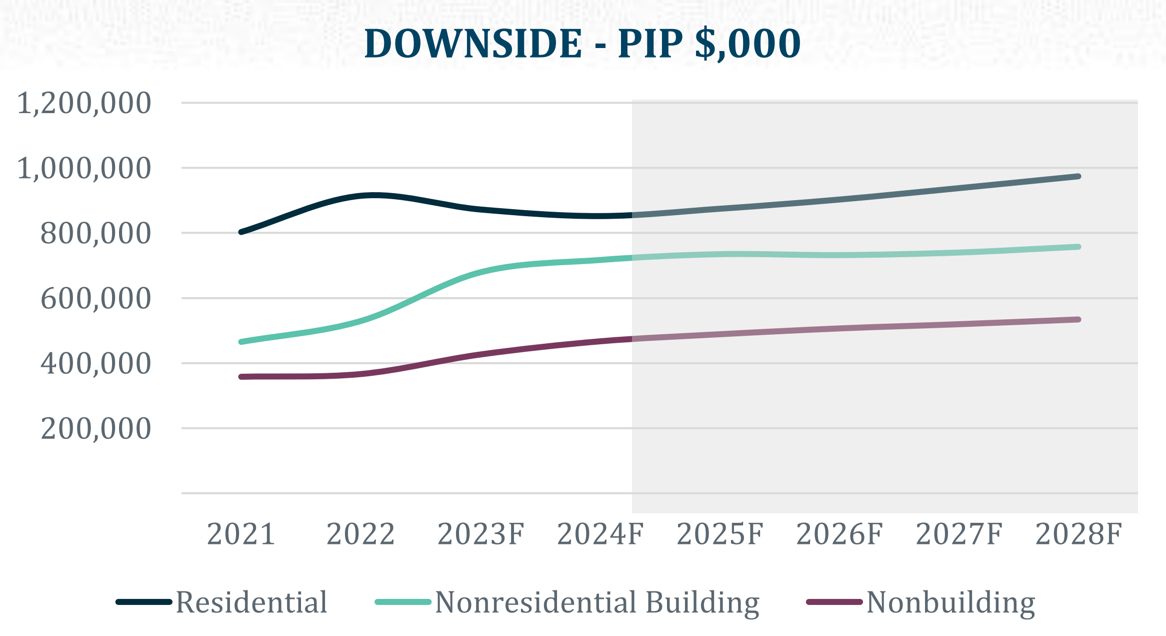
- Billings and Design Contracts activity began to decline significantly in July of 23, but rebounded through Q4
- Nonresidential building starts began to rebound in Jul 23 but were still down by ~17% YoY compared to Sep 22 which was a peak month for nonresidential building starts that year
- Growth in nonbuilding starts expected to continue with ~25% growth year-on-year as of Sep 2023

**A score above 50 indicates an increase in billings from the previous month, and a score below 50 indicates a decline*

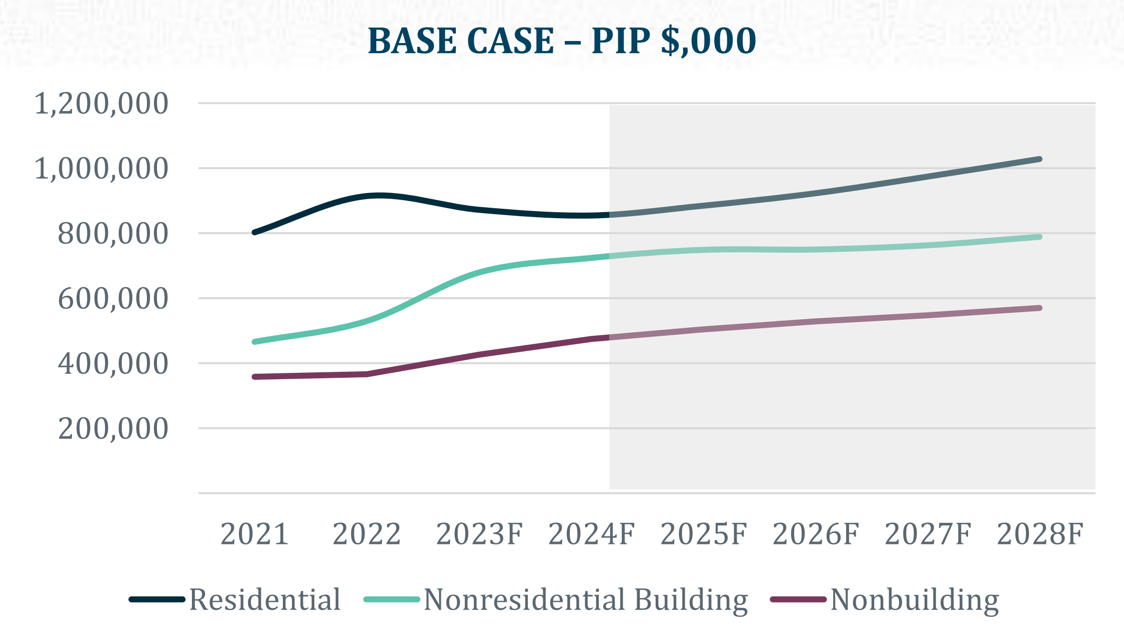
Sources: Census, NAHB, Dodge

Industry Insights – Forecast Scenarios

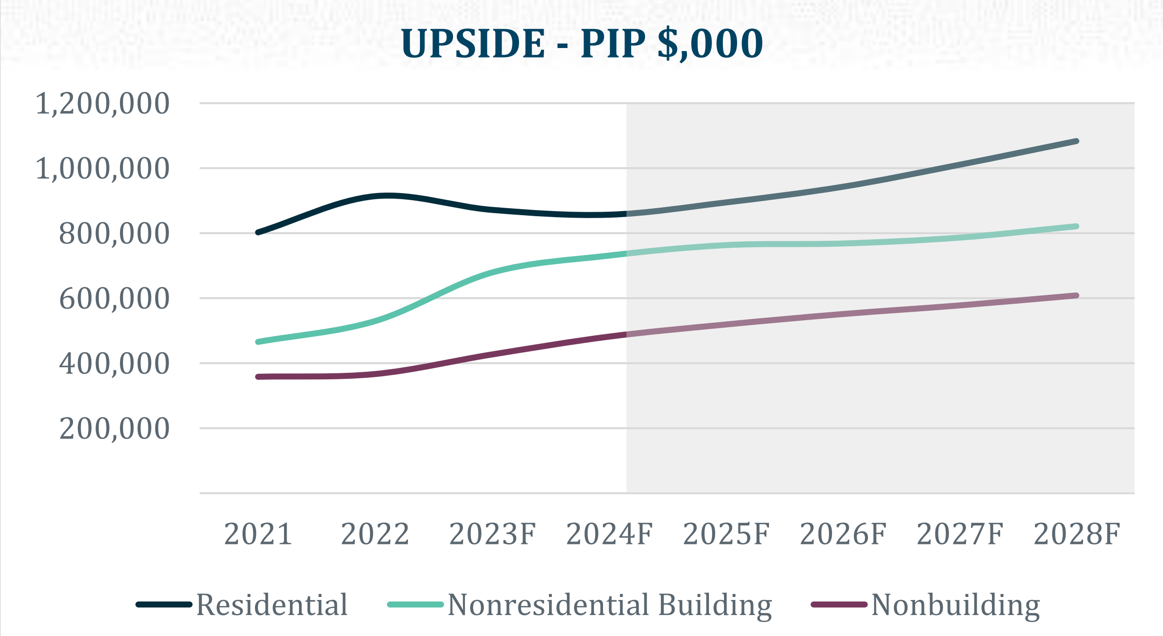
- All scenarios show an overall increase in $ expenditures over the next 5 years, with nonbuilding construction leading the way with future annual growth between 5% and 7%; nonresidential building spending will moderate after a strong surge in 2023, with continued annual growth over the next 5 years driven by continued funding from IIJA (Infrastructure Investment and Jobs Act); expectations for residential activity in 2024 has softened following pushback of interest rate reductions by the Federal Reserve but is expected to resume growth in 2025



	'23 to '24	2023-2028 CAGR
Residential Building	-2.3%	2.2%
Nonresidential Building	5.6%	2.2%
Nonbuilding Construction	9.5%	4.6%
Total PIP Construction	2.9%	2.8%



	'23 to '24	2023-2028 CAGR
Residential Building	-2.0%	3.3%
Nonresidential Building	6.6%	3.0%
Nonbuilding Construction	11.2%	6.0%
Total PIP Construction	3.8%	3.8%



	'23 to '24	2023-2028 CAGR
Residential Building	-1.7%	4.4%
Nonresidential Building	7.7%	3.9%
Nonbuilding Construction	12.8%	7.4%
Total PIP Construction	4.7%	4.9%

Sources: Census, NAHB, AIA, FRED, CBRE, HUD, NAR, Ducker Interviews and Expertise

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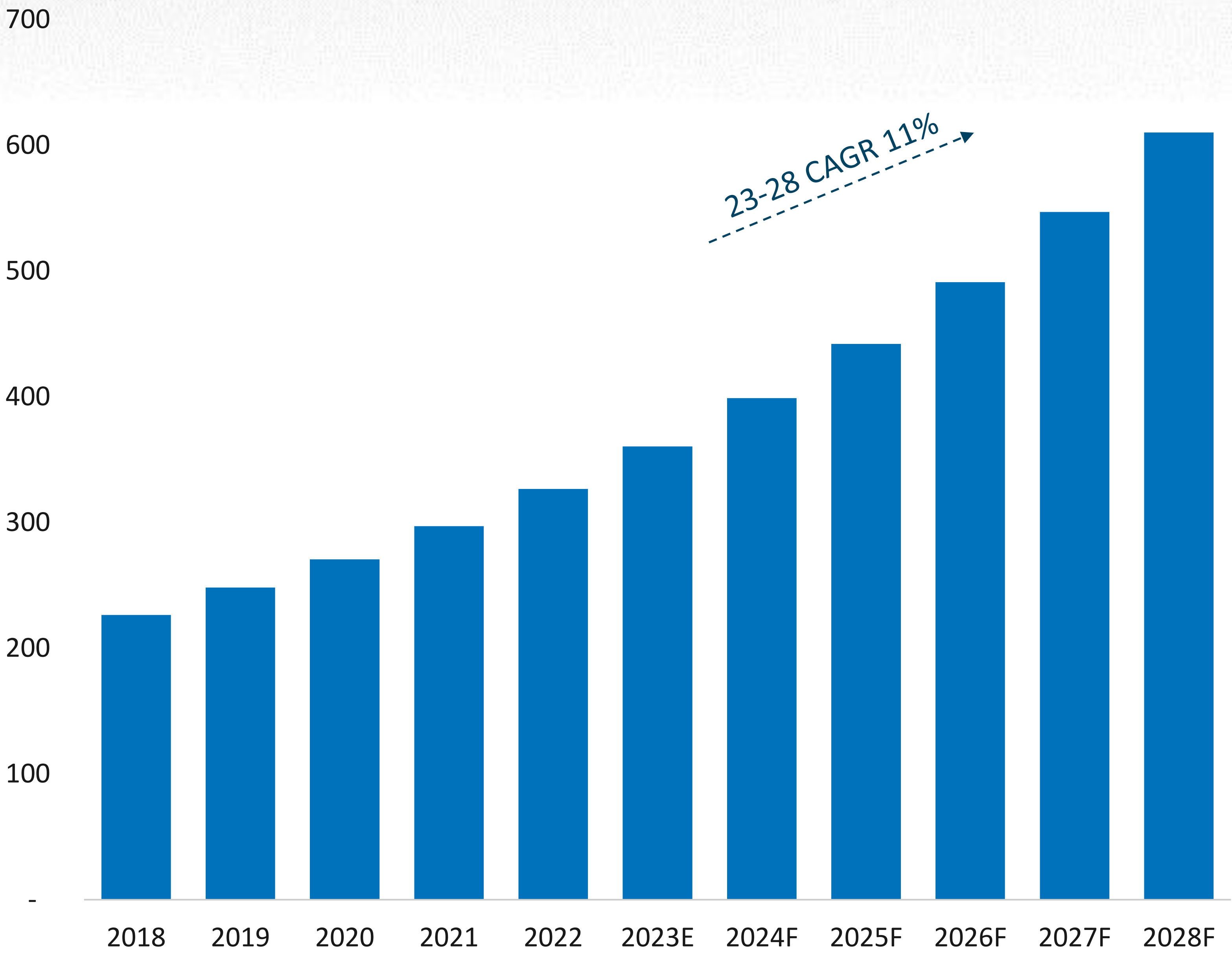
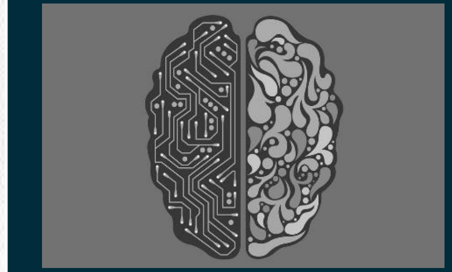
Sector Spotlight: Data Centers and Infrastructure

Data centers is one of the fastest growing new, nonresidential building applications consuming a variety of specialized construction products, HVAC and energy management solutions

NA Data Center Total Floorspace

in millions of square feet





Acceleration of computing-intensive technologies

- Continued reliance on computer technologies drive DC construction; this trend will continue as businesses globally seek to integrate data-intensive AI solutions and increased data storage
- DC providers expect energy consumption to double within the next decade (rising from ~17 GW in 2022 to 35 GW by 2030) to support the growth in AI

Demand for web-based technologies remains high

- Web-based businesses continue to grow across the globe due to sustained demand for services (e.g., e-commerce, streaming, social media, etc.)
- Streaming surpassed cable television for the first time in July of 2022, representing ~35% of all television watched, evidencing the continued growth of key businesses that require DCs

Hyperscale Growing Plans

- Google has 12 Data Centers in North America with ~15 Data Center projects in progress
- Meta has 14 Data Centers in the United States and ~18 new project planed
- Amazon has ~15 Data Center projects announced
- Microsoft has 10 Data Centers in the US with ~24 projects underway

Data Center Facility Square Footage is Increasing

- Enterprises/Corporations are opting to outsource data storage needs which has driven growth in overall size of data centers; this is a transition from self maintained rooms to larger scale operators
  - The average floorspace for data centers has grown to 137k sqft (previously ~100k sqft)

Sources: Ducker Carlisle Analysis, Expert Interviews, U.S. International Trade Commission

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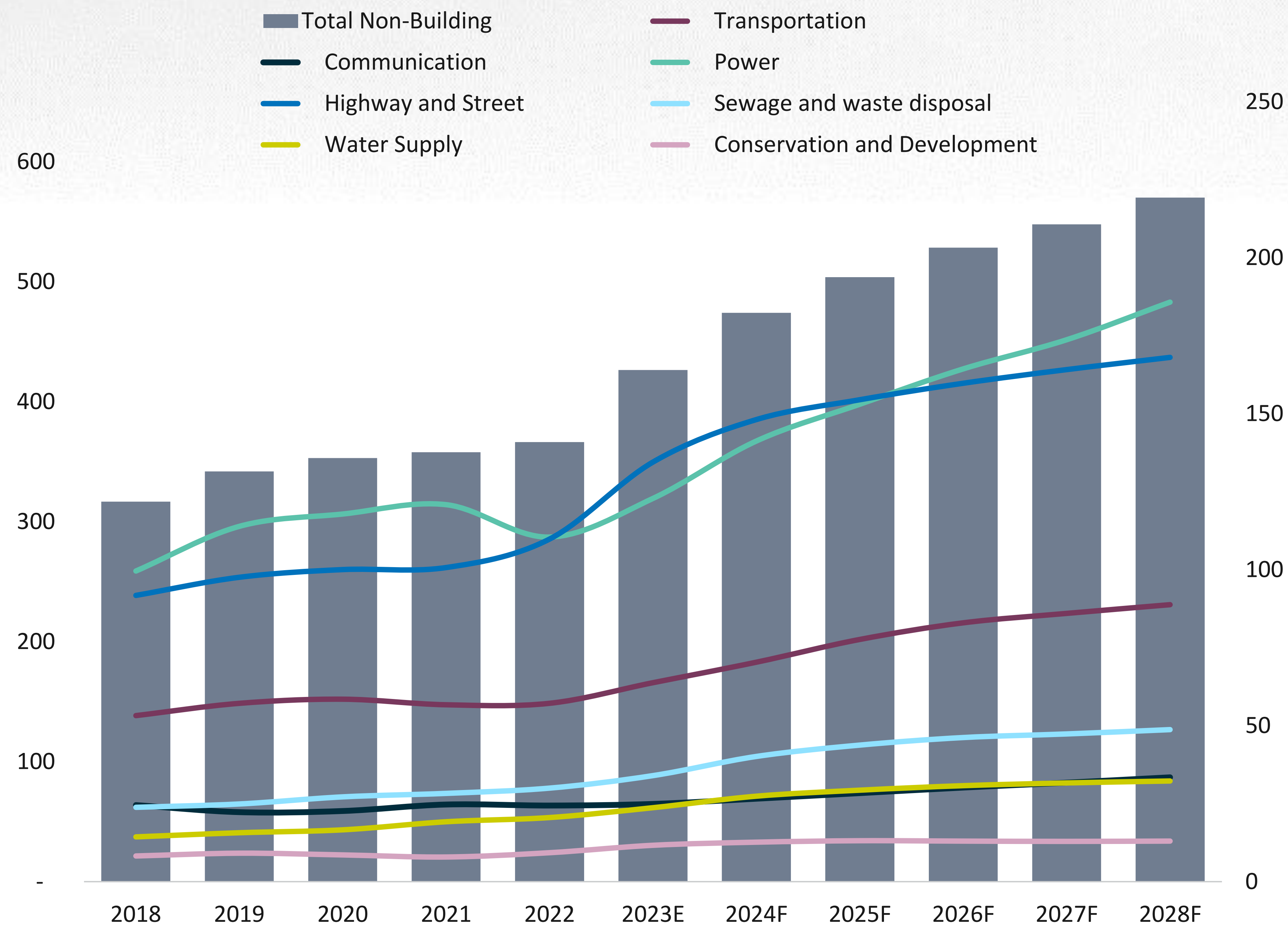
Strong infrastructure spend outlook expected throughout forecast driven by enhanced funding from bills like IIJA

US Infrastructure Construction Spend
in billions USD



- ~94% of infrastructure funding comes from local and state governments; bills like IIJA increase federal government spend, but also drive an increase in overall spend as federal programs are often structured as subsidies that encourage further state & local investment
- The secured nature of government funding insulates construction spend for these categories from broader economic cycles
- 6.0% CAGR expected for Infrastructure from '23 – '28, with the most significant growth in Power (8.6%) and Sewage (7.5%) sectors

Infrastructure Investment and Jobs Act Funding Breakdown

Spend Category	IIJA Funding Allocation
Roads, Bridges	$111B
Power Grid	$79B
Rail Network	$66B
Broadband	$65B
Water Infrastructure	$48B
Public Transport	$39B
Airports	$25B
Electric Vehicles & Buses	$15B
Ports / Waterways	$17B
Other	$58B

Sources: Census, NAHB, AIA, FRED, CBRE, HUD, NAR, Ducker Interviews and Expertise

Unrivaled Experience.
Worldwide Coverage.

Let’s connect to discuss your goals and how we can help you gain confidence and clarity on every decision.

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