

Q4 2022 Cost Drivers Memo

November 4, 2022

To:	Kent Keel, Sound Transit Board Chair Claudia Balducci, Sound Transit Board System Expansion Committee Chair Kim Roscoe, Sound Transit Board System Expansion Committee Vice-Chair
Cc:	Sound Transit Board System Expansion Committee (Nancy Backus, David Baker, Cassie Franklin, Bruce Harrell, Joe McDermott, and Dave Somers) Julie Timm, Sound Transit CEO Brooke Belman, Sound Transit Chief of Staff Mary Cummings, Sound Transit Deputy CEO Kimberly Farley, Sound Transit Deputy CEO David Peters, Board Independent Consultant
From:	Eric Beckman, Executive Director, Sound Transit Portfolio Services Office
Subject:	Biannual Program Review – Q4 2022 Cost Drivers Report

PURPOSE

This memo outlines current and anticipated cost drivers that will affect Sound Transit’s system expansion capital program.

EXECUTIVE SUMMARY

This work originates from the Realignment Resolution No. R2021-05 (Section 8, Bullet 1), directing staff to report on cost drivers biannually. Staff prepared the [first edition in Q2 2022](#), reporting that construction and real estate costs, along with inflation, were generally increasing at higher than projected rates, both short- and long-term.

In the six-month period since, the **trends in construction metrics and real estate values appear to be stabilizing. Inflation indices grew in the last six months, but there are indications that this will slow and stabilize in the near future.**

This observation will be better verified when Sound Transit updates cost estimates on projects in planning. No project in planning has updated its cost estimate in this last six-month period¹. Cost estimates are updated throughout project development at key milestones and staff will continue to monitor and verify the trends and report findings to the Board. And while trends do appear to be leveling off for the moment, given continued uncertainties due to the war in Ukraine, supply chain shortages/delays, high inflation, and labor market shortages, staff anticipate continued upward pressures on future estimates. It will be important to manage scope changes, jurisdictional betterment requests, and project assumptions to counter these upward cost pressures and other possible impacts to our estimates.

¹ Everett Link has a draft updated cost estimate from late September 2022 that staff are reviewing. The drivers included therein are being analyzed and therefore not considered in this report.

Q4 2022 Cost Drivers Memo

This second edition of the Cost Drivers Memo provides a comparative analysis between the Spring 2022 Financial Plan and the current Fall 2022 Financial Plan, along with a comparison of cost drivers locally and nationally.

STAFF ACTIONS SINCE Q2

The [Q2 report](#) outlined staff commitments to monitor current and anticipated trends and evaluate mitigation strategies during the planning and design process. These included:

- Alternative contracting strategies (such as design-build) to come up with design-to-budget alternatives.
Q4 update: Staff implemented this approach with three garage projects (Kent, Auburn, and Sumner) where estimates were higher than the previously estimated costs.
- Opportunities to lock in material costs upfront through methods such as early material/equipment procurements and strategic property acquisitions.
Q4 update: Staff are collaborating with local and regional agencies such as WSDOT and LA Metro, who are facing similar challenges and exploring the cost benefit analysis of advance material and equipment procurements.

CURRENT COST DRIVERS

Current drivers are the economic indices that the transportation construction industry is experiencing now in the Pacific Northwest.

Regional vs national comparison of construction market conditions

The Pacific Northwest has an active construction industry. **Most of the Q2 market data indicates that the trends the agency experiences here are very similar to national ones**, with roughly a 3% increase from the previous quarter and an increase of about 12% over the last 12 months for construction-related cost drivers. This increase is in line with the previously reported trends in the Q2 report.

As mentioned in that report, staff are tracking 30 construction categories. Of these, labor, materials, and equipment have experienced significant increases regionally and nationally due to shortages. Staff also consider feedback from industry consultants and contractors during design and construction as another source for information on regional cost increases in labor, materials, and equipment.

To overcome these factors as the agency looks forward to upcoming projects, Sound Transit is actively seeking out various contracting strategies and procurement methods beyond traditional design-bid-build approach. Doing so will allow the agency to adapt and minimize impacts during project planning and execution.

Macroeconomic factors

Compared to the Spring 2022 Financial Plan, inflation forecasts from the Fall 2022 financial projections now reflect that the **Consumer Price Index (CPI), Construction Cost Index (CCI), and Right-of-Way Index (ROWI) are all higher for 2022**, as shown in Table 1 below. (See Glossary on pg. 8 for more information on cost indices.)

Compared to Spring 2022, the capital program during the period of 2017-2046 has grown \$1.4 billion in year-of-expenditure (YOE) dollars due to inflation increases.

Q4 2022 Cost Drivers Memo

- **CPI:** Prices continue to increase since Spring, with increases driven up by increased demand of goods following the recovery from the pandemic, supply chain constraints, and the war in Ukraine. By the end of Q1 2022, consumer prices had seen the largest annual rise since 1981.
- **CCI:** Inflation continued to rise in 2022. Since Spring, commodity prices, contractor bids, rising transportation costs and general price inflation, exacerbated by ongoing supply chain challenges, led to even higher-than-expected construction cost index inflation.
- **ROWI:** Right-of-way inflation has continued to increase throughout the year including the period since the Q2 report, but recent changes in the market are giving signs of slowing (though they aren't expected to significantly effect inflation until 2023). Residential properties in the Puget Sound region experienced the largest value gains in years throughout 2022. Property values in all commercial real estate sectors also increased steadily throughout 2022, with especially strong gains seen in industrial properties.

Table 1. 2022 Inflation Rates in the Spring 2022 Plan compared to Fall 2022

Index	2022 Growth Rates	
	Spring 2022	Fall 2022
CPI	4.31%	8.90%
CCI	5.16%	6.35%
ROWI	4.25%	7.46%

ANTICIPATED COST DRIVERS

Anticipated drivers evaluate trends that are monitored and reported in the construction industry, as well as from direct experiences, that are not yet included in the current cost estimates supporting the Financial Plan.

Construction labor

Construction wages have moderately increased over the past year. The current Associated General Contractors Master Agreement indicates an additional 3-5% increase, while inflation has risen in the range of 6-8% in the same period (2021-2022). Labor wages have therefore not kept up with inflation and may need to be adjusted in upcoming periods to help bridge the gap. As labor is such a large component of the construction cost estimate, this anticipated-yet-uncertain adjustment could significantly impact construction and project costs.

Construction materials

Material costs significantly increased through 2021, and many industry analyses indicated that prices in 2022 could be higher than the rising prices of 2021. Although these material cost increases slowed during the first quarter of 2022, they are still above normal averages. **Through the second and third quarters of 2022, material prices did not decline nor increase materially. They appeared to have stabilized, albeit at a higher-than-average level.** Analysts now anticipate prices will decrease over the next few years.

Material cost increases significant to ST projects include:

- **Steel** (structural and rebar): Significant (up to triple-digit) increases in 2021, still trending toward double-digit increases in 2022, but the latest forecasts for 2023-25 indicate an annual 10-20% decrease during that time.

Q4 2022 Cost Drivers Memo

- **Fuel** (gas, diesel, other): Staff anticipate this to continue trending high given the double-digit increases in 2021 and current world events. Scheduled maintenance along with oil companies switching from summer to winter blend have resulted in significant recent increases.
- **Lumber:** Prices have fluctuated through 2021 and early 2022, seeing triple-digit increases in early 2021, decreasing prices by the end of 2021, and again increasing slightly in first quarter 2022. Since the Q2 report, prices started to drop. Factors behind this change include the impact of recent interest rate increases on supply and demand in the slowing residential market, and fears that a recession will put a stop to projects in the planning cycle.
- **Concrete:** The concrete industry experienced double-digit increases in 2021 that are continuing through 2022 but expected to stabilize during the next few years.

Professional labor

Rates for professional services are trending high (8.5%) rather than the 4% rate increase allowed per our current contracts, and staff expect this trend to continue in the foreseeable future as consultants and contractors struggle to retain staff.

Sound Transit's Procurement, Contracts & Agreements division is actively working with architecture and engineering (A&E) firms under contract, who are requesting rate increases above their contracted rates, to better understand and mitigate this trend. The agency's A&E contracts contain a clause that an individual's direct labor rate shall not be increased by a factor more than 4% per year. In view of the extraordinary market pressures that are driving labor cost, along with the agency's desire to be good partners as well as responsible stewards of public funds, agency leadership has approved the same 2% relief approved for Sound Transit employees. This increases the 2022 cap for to 6%.

Market conditions

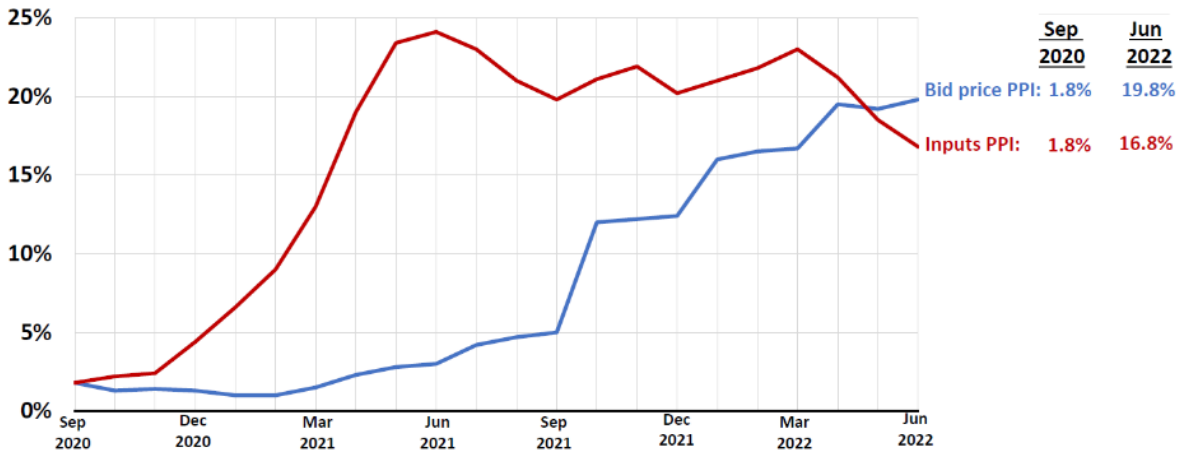
In the Q2 report, staff anticipated that contractors would no longer be willing to take on the risk of cost escalation and would put that risk back on owners through escalation clauses in contracts and in higher bid prices. Sound Transit has not received any bids over this past period to validate or dispute that assumption, so staff will continue monitoring this anticipated trend. Data from the Bureau of Labor Statistics does provide insight, however. The Bureau creates Producer Price Indices (PPIs) for inputs to construction which are weighted averages of the cost of materials and services purchased for every type of project (see Glossary on pg. 8 for more information).

From September 2019 to September 2020, bid-price PPI rose at the same rate as cost PPI, 1.8% year-over-year. However, as shown in Figure 2, while the bid-price PPI continued rising at a modest rate through mid-2021, the year-over-year change in costs accelerated to more than 24% by June 2021. And in the latter half of 2021, bid-price PPI responded, accelerating considerably as contractors attempted to pass on their rising materials and labor costs on to owners. By June 2022, the bid-price index had surpassed the cost index, climbing at 19.8% year-over-year versus 16.8%.

Without new bids for Sound Transit work, staff cannot yet validate trends; however, given that bid prices have surpassed inputs, **staff expect these trends will now level off for the time being.**

Q4 2022 Cost Drivers Memo

Figure 1. Cost of construction (inputs) vs bid prices for new nonresidential construction



Source: Bureau of Labor Statistics Produce Price Index, www.bls.gov/ppi

Real estate prices

Over the past few years, the United States has experienced one of the strongest real estate bull markets in recent history. Figure 2 below shows nationwide median home sale prices since 2013. Between the start of 2013 and April 2022, median home prices increased by 70%, with a significant growth occurring between early 2020 and the present.

Figure 2. Residential Real Estate Value Growth Since Q1 2013, Nationwide



Source: <https://fred.stlouisfed.org>

Q4 2022 Cost Drivers Memo

Figure 3 below shows total cumulative growth in King County real estate values between Q1 2013 and Q3 2022. Since 2013, value increases have significantly exceeded local and national long-term historical trends, with particularly strong appreciation in single-family home values, industrial property values, and those multi-family properties located in the “outer-county”, or areas within King County but further from the Seattle and Bellevue core.

As a point of comparison, while national median single-family home prices increased 70% between Q1 2013 and April 2022, King County home prices increased approximately 135%.

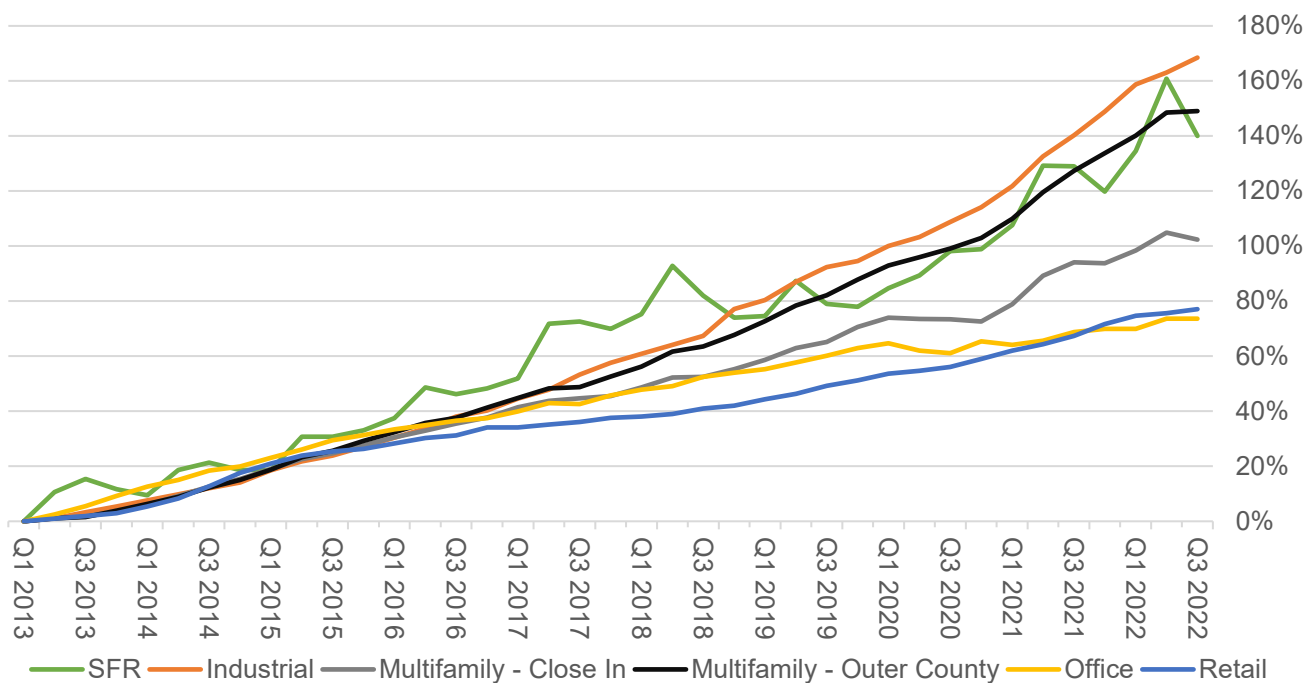
However, **current data indicates a significant slowdown in value growth—from 10%+ annual appreciation to zero growth or even depreciation**—due to factors including:

- Increasing interest rates that have doubled since the start of 2022,
- Employers converting to hybrid or work-from-home models and reducing their office space needs, and
- Increasing fears of an economic recession.

Between Q2 and Q3 of 2022, Figure 3 shows that market values decreased in three real estate sectors: single-family homes, office properties, and multi-family properties located in the City of Seattle and “close-in” suburbs. **This is the first quarter since 2013 where Sound Transit data indicates more than two sectors of real estate decreasing in value at the same time.** The largest decrease was seen in single-family homes, where the median sale price dropped 8.25%.

Meanwhile, industrial and retail properties experienced their slowest quarterly value increase since late 2020, and outer-county multi-family property values were essentially flat, with their lowest value increase since 2013. It remains to be seen whether this is a momentary adjustment or the beginning of a sustained trend.

Figure 3. Real Estate Value Growth Since Q1 2013, King County



Sources: SFR Data - Northwest Multiple Listing Service, InfoSparks; Commercial Property Data - CoStar Group Analytics

Note: “Close-In” designation includes cities of Bellevue, Bothell, Lake Forest Park, Mercer Island, Kenmore, Kirkland, Redmond, Seattle and Shoreline. “Outer County” includes remainder of county.

Q4 2022 Cost Drivers Memo

Macroeconomic factors

The high inflationary environment reflected in the Spring 2022 Financial Plan is expected to begin stabilizing and eventually cool slightly in the short-term. Below is a summary of anticipated short-term macroeconomic factors for each of the financial plan forecasts:

- **CPI:** To date, inflation has seen historically high rates in 2022. Forecasters anticipate it will begin to level off in 2023 and may drop below historical averages in 2024. To counter inflation, the Federal Reserve began raising interest rates in March 2022 and has continued with three consecutive 0.75% increases in June, July, and September 2022. Inflation is expected to return to historical averages by 2025.
- **CCI:** Materials such as concrete and construction equipment, as well as labor (which are components of the CCI) increased at above-average rates in 2021 and are beginning to level off (i.e., grow less quickly) in 2022. Forecasters anticipate that other components than labor may even see decreases in 2023 as prices begin to realign to levels experienced prior to supply chain issues and the pandemic.
- **ROWI:** Residential property value gains seen in 2021 continued in the first half of 2022. Continued interest rate hikes from the Federal Reserve will impact property values in the Puget Sound region, with assessed values and the right-of-way index reflecting slowed property value growth in 2023 and 2024.

CONCLUSION

After a volatile two to three years, cost drivers in construction, labor and real estate have fluctuated slightly since Q2 2022 but are generally stabilizing now and into the immediate future. Similarly, macroeconomic inflation factors grew in recent months but will likely level off in the next two to three years.

Staff will continue to monitor current and anticipated trends and provide continued reporting to the Board of Directors.

Q4 2022 Cost Drivers Memo

GLOSSARY

Current drivers are 1) the comparative differences between newly received project estimates compared to the previous period estimate for the same project, if any, and 2) the economic indices that the transportation construction industry is experiencing now in the Pacific Northwest.

Anticipated drivers evaluate trends that are monitored and reported in the construction industry, as well as from direct experiences, that are not yet included in the current cost estimates supporting the Financial Plan.

Consumer Price Index (CPI) (for All Urban Consumers, Seattle-Tacoma-Bellevue) is applied to operations and maintenance expenses and soft capital costs, excluding construction-related elements and property acquisitions. This forecast is currently provided by Western Washington University.

Construction Cost Index (CCI) is applied to construction-related elements of the capital program (as well as state of good repair), and a Seattle-area forecast of the construction cost index is produced by an independent third party. This forecast is currently provided by WSP global engineering consultants.

Producer Price Index (PPI) is a family of indices measuring the average change over time in selling prices received by domestic producers of goods and services. PPIs measure price change from the perspective of the seller. This contrasts with other measures, such as the CPI, which measures price change from the purchaser's perspective.

Right-of-Way Index (ROWI) forecast is applied to property acquisition costs using an assessed valuation forecast for the Sound Transit District produced by WSP.