oregonmetro.gov

# Fall 2022
# Solid Waste Forecast

November 2022


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## Forecast Summary

**As predicted in the summer forecast, solid waste tonnage slowed and leveled off this quarter. Continued heightened inflation forces the Federal Reserve to tighten financial conditions which may eventually lead to an economic contraction. This year, we can expect declines in both wet and dry waste volumes.**

## Economics

***Gross Domestic Product (GDP):*** US GDP adjusted for inflation rose a modest 2.6% in the third quarter, but this was after the Bureau of Economic Analysis (BEA) estimated US GDP had sunk to -0.6% (annualized rate) in the second quarter of 2022. This followed a decline in real GDP of -1.6% in the first quarter. The rise in third quarter GDP growth is considered a blip and is believed to be unsustainable. Inflation has decreased the value of real consumer purchases while the expected slowdown in the housing sector appears to have finally materialized. Other interest-sensitive sectors also showed signs of reduction. Typically, two straight negative quarters of GDP usually define a recession, but strong overall industrial production and robust employment and wage growth during the first half of 2022 pointed to underlying strength in the US economy. Thus, while the economy expanded in the third quarter, headwinds are rising and reducing expectations for domestic growth in the last quarter of this year. Oil and food prices are extremely elevated and volatile, adding to economic headwinds and making positive economic growth more unlikely.

***Inflation:*** The Consumer Price Index (CPI) inflation rate in October stood at 7.7% (seasonally adjusted) over the last 12-months after seeing modest easing after inflation peaked at 9.1% in June. The US inflation rate is still exceedingly high and is expected to remain elevated through the end of the year, until supply difficulties resolve, and the pace of demand slackens. Inflationary pressures are expected to ease as the pace of GDP weakens. Signs of this occurring are starting to appear. Inflation is expected to be less of a burden to US consumers by mid-2023.

***Monetary Policy:*** The Federal Reserve (FED) has pivoted to an aggressive monetary stance to fight inflation. The FED lifted its federal funds policy rate by another 75 basis points (bp) in November 2022 to a range of 3.75% to 4%. This is the fourth time in a row that the FED has raised rates by 75 bp. Another rate hike is expected in December, likely to be 50 bp. More rate hikes are expected next year, the size of which will depend on the news on inflation. The FED will continue to shrink its portfolio of Treasury bonds and mortgage-backed securities (MBS), which will also drive rates up and lower demand in interest sensitive sectors. The terminal rate for federal funds is projected to be between 4.75% and 5% by March 2023, but don’t expect rates to immediately ease after peaking. The FED is determined to "restore price stability" by tightening financial conditions for as long as necessary to return annual inflation to 2%.

## Forecast Summary

***US Employment outlook:*** The US inched over its previous pre-pandemic employment mark sometime in August. Employment growth has been strong throughout the year, adding over 4 million jobs to the nation's payroll this year alone. Since the end of the pandemic-induced recession, US businesses have hired/re-hired over 22.5 million American workers. Job opportunities, according to recent high-frequency data, still reflect a very tight labor market, but other data (especially from IHS Markit purchasing manager surveys) suggest softening of labor demand in coming months as firms look toward the possibility of an economic contraction. A restrictive monetary policy is expected to contribute to a contraction in business investments and diminishing job growth, particularly in interest-sensitive sectors such as construction.

***Mortgage interest rate:*** Rates on 30-year mortgages continue to increase, inching over 7 percent as of early November, according to survey data from Freddie Mac. The interest rate on 30-year fixed mortgages has risen more sharply than the rise in federal funds since the end of last year. Daily mortgage interest rates will fluctuate and may edge even higher than recent rates have shown, but the quarterly average on mortgage interest rates have likely peaked and may begin to edge lower sometime early next year.

***Housing and Construction:*** Private residential, non-residential, and public construction spending all declined, due to higher interest rates. The anticipated downturn in residential construction has begun, particularly the production of single-family homes. The multi-family market continues to be upbeat, but it is unclear how long this will last. Housing values remain elevated, and rents are catching up. Beginning this quarter, the pace of home prices began to decelerate. Permits for new home construction declined, which may foreshadow more slowdowns in residential construction activity in coming months. Construction employment is expected to decline faster and more likely sooner than other job sectors.

***Regional Employment Trends:*** Payroll employment grew to above pre-recession levels in August 2022. The recovery in Portland metropolitan area payroll employment remains intact but may experience slower growth coinciding with a nationwide slowdown. Higher interest rates will likely constrain regional growth, particularly in the construction sector. Overall, job growth is expected to recede and initial unemployment claims and the unemployment rate are expected to begin rising next year.

***Economic Risks:*** The current landscape presents increased economic risks. Economic alternatives have turned cloudier, and the economy now faces stiffer headwinds. The Federal Reserve has indicated a commitment to restoring price stability, but to do so, the FED is raising borrowing costs. The FED's aims are good for long-run economic health, but it runs a greater short-term risk of tipping the US into a recession. Metro's macroeconomic advisor, IHS Markit, anticipates that financial tightening will lead to higher unemployment and a mild economic contraction. The chance of a recession has been elevated in the current forecast to reflect these views.

# Forecast Summary

## Solid Waste

***Regional Waste Outlook :*** During the last recession, garbage declined from a peak of 1.45 million tons in the first quarter of 2020, to a trough of 1.40 million tons in the third quarter of 2020. Since then, growth has been consistent, if a little slower, right up through this summer. We were even tracking our Fall 2021 forecast quite well. And then, suddenly we weren't, and tonnage growth stopped! This last quarter, tonnage moved sideways. Tonnage was still above our pre-recession peak, but there was no growth. Regional garbage should decline from about 1.50 million annual tons to about 1.45 million tons by FY 2023-24. This decline is similar to the one we saw during the last (pandemic-induced) recession, but should last through the fourth quarter of 2024. After that, tonnage should start to grow again. The putrescible (wet) sub-stream has been showing signs of weakness over the last several quarters. Actual tonnage has been consistently under-performing the Fall 2021 forecast every single quarter. We're currently expecting about 751K tons this calendar year, which is significantly lower than the 779K tons we thought last fall, and which informed the tonnage allocations we made to private transfer stations. Next year in CY 2023, we expect even less; tonnage should come in around 730K tons.

***Source-Separation:*** While the majority of the wet waste decline is due to economic factors, some of it is due to expected increased capture of food waste. The Business Food Waste Program is slated to begin recovering extra food waste from the wet sub-stream next year. The increased recovery should begin modestly, with about 6,000 additional tons in calendar year 2023 (or 16,000 additional tons in fiscal year 2023-24), but then grow from there. By the beginning of 2025, the quantity of additional capture should reach 27,000 tons per year, bringing the total regional food waste capture to over 50,000 tons.

***Waste Distribution*:** Less regional waste generated means less to be transported to facilities operating in the region, including Metro's two transfer stations. While wet waste allocations in 2022 were around 74,000 tons per station, next year's numbers look to be around 69,000 tons per station. If private transfer stations utilize 100% of their tonnage allocations, Metro's two public stations are projected to receive a little less than 40% of the wet waste tons this year in 2022. Many factors impact Metro stations' shares of other waste streams, but the assumption is that recent trends persist. For Metro's shares of regional dry waste, residential organics, and commercial organics, this means about 36%, 34% and 60% respectively. Tonnage to Metro's transfer stations has been coming in roughly as forecasted last Fall 2021. Tonnage increased to 545,000 tons in fiscal year 2020-21 (a 10% increase year-over-year), and then to 576,000 tons in fiscal year 2021-22 (a 6% increase). Next fiscal year, however, garbage is projected to decrease by roughly 9% to around 527,000 tons, which is much less than was predicted in the fall of 2021.

## Forecast Summary

***Post-collection Recovery:*** Since the mid-2000s, the amount of recoverable material removed as a proportion of private facilities' annual waste intake has been falling. In the past, private facilities recovered over a half-ton of material for every ton they accepted, but in the past year that ratio has dropped to below one ton for every five tons accepted. Last November, Metro's forecast assumed the floor had been reached, but in 2022 it appears that average recovery rates will fall by another point before increasing to 16%. These are average recovery rates across facilities, and some facilities exhibit significantly higher and lower rates than the average. The number of tons subject to fees and taxes increased by around 5 percent between fiscal years 2020-21 and 2021-22, reaching over 1.53 million tons. This figure is expected to decline to just over 1.50 million tons in the coming year, considerably less than anticipated. Tonnage for the upcoming fiscal year 2023-24 is projected to decrease further, to around 1.49 million tons.

## Forecast Flash

| | Calendar Quarter | | | | | Calendar Year | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2022:3 | 2022:4 | 2023:1 | 2023:2 | 2023:3 | 2021 | 2022 | 2023 | 2024 |
| **Key Economic Drivers* (seas-adj)** | | | | | | | | | |
| Consumer Sentiment Index | 56 | 56 | 64 | 70 | 76 | 78 | 58 | 73 | 88 |
| *change (%)* | *(3.1)* | *(0.2)* | *14.3* | *9.4* | *8.6* | *(4.8)* | *(24.9)* | *25.3* | *20.5* |
| *change from fall fc (%)* | *(38.6)* | *(40.3)* | *(32.1)* | *(26.0)* | *(19.7)* | *(2.1)* | *(33.8)* | *(22.7)* | *(6.9)* |
| Home Prices (real) | 132 | 129 | 127 | 125 | 123 | 125 | 132 | 125 | 121 |
| *change (%)* | *(2.1)* | *(2.3)* | *(1.5)* | *(1.7)* | *(1.6)* | *11.6* | *5.6* | *(5.8)* | *(3.3)* |
| *change from fall fc (%)* | *(2.6)* | *(5.6)* | *(7.5)* | *(9.7)* | *(10.9)* | *(1.0)* | *(2.4)* | *(10.0)* | *(13.0)* |
| Mortgage Rates (real) | 5.40 | 6.53 | 6.37 | 6.21 | 5.97 | 2.83 | 5.11 | 6.07 | 5.33 |
| *change (%)* | *8.6* | *20.8* | *(2.4)* | *(2.6)* | *(3.8)* | *(8.2)* | *80.7* | *18.7* | *(12.1)* |
| *change from fall fc (%)* | *57.7* | *82.6* | *71.1* | *61.3* | *52.1* | *0.3* | *53.8* | *56.5* | *27.0* |
| GDP (real, $T) | 20.0 | 20.0 | 19.8 | 19.8 | 19.9 | 19.6 | 19.9 | 19.9 | 20.1 |
| *change (%)* | *0.6* | *(0.3)* | *(0.6)* | *(0.2)* | *0.3* | *5.9* | *1.7* | *(0.5)* | *1.3* |
| *change from fall fc (%)* | *(1.5)* | *(2.5)* | *(3.7)* | *(4.4)* | *(4.7)* | *1.2* | *(1.3)* | *(4.5)* | *(5.8)* |
| Construction:Total Emp (ratio) | 6.7 | 6.6 | 6.5 | 6.4 | 6.3 | 6.5 | 6.6 | 6.3 | 6.1 |
| *change (%)* | *1.0* | *(0.8)* | *(2.3)* | *(1.5)* | *(1.4)* | *0.8* | *0.4* | *(3.8)* | *(3.8)* |
| *change from fall fc (%)* | *3.7* | *3.5* | *1.8* | *0.9* | *0.2* | *1.7* | *2.3* | *0.7* | *(1.1)* |
| Home Permits (4QMA, thous) | 3.3 | 3.2 | 3.1 | 3.1 | 3.1 | 14.1 | 13.7 | 12.3 | 12.8 |
| *change (%)* | *(4.9)* | *(2.3)* | *(3.4)* | *0.7* | *(1.1)* | *(6.1)* | *(2.7)* | *(10.4)* | *4.0* |
| *change from fall fc (%)* | *(19.3)* | *(21.2)* | *(23.6)* | *(22.5)* | *(22.7)* | *(1.7)* | *(15.6)* | *(22.6)* | *(16.5)* |
| **Tri-County Core Tons *(thous)*** | 386 | 357 | 342 | 372 | 383 | 1,481 | 1,493 | 1,449 | 1,443 |
| *yoy change (%)* | *0.1* | *(2.6)* | *(6.1)* | *(3.3)* | *(0.8)* | *5.0* | *0.8* | *(2.9)* | *(0.4)* |
| *change from fall fc (%)* | --- | *(4.8)* | *(7.3)* | *(7.4)* | *(7.4)* | *0.3* | *(3.5)* | *(7.4)* | *(6.5)* |
| **Wet Tons Avail. For Alloc. *(thous)*** | 190 | 186 | 177 | 183 | 184 | 747 | 751 | 729 | 716 |
| *yoy change (%)* | *(0.7)* | *(0.5)* | *(2.5)* | *(5.2)* | *(3.2)* | *4.5* | *0.5* | *(3.0)* | *(1.8)* |
| *change from fall fc (%)* | --- | *(5.6)* | *(6.1)* | *(6.0)* | *(6.0)* | *(1.4)* | *(3.5)* | *(6.1)* | *(5.3)* |

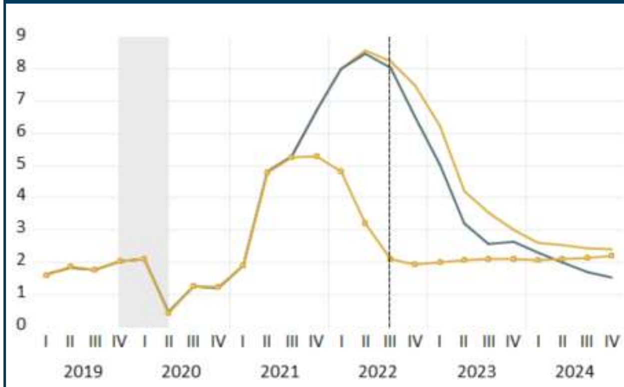
| | Calendar Quarter | | | | | Fiscal Year (ending) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2022:3 | 2022:4 | 2023:1 | 2023:2 | 2023:3 | 2021 | 2022 | 2023 | 2024 |
| **Metro Enterprise Tons** | | | | | | | | | |
| MSW (thous) | 144 | 115 | 128 | 139 | 141 | 545 | 576 | 527 | 540 |
| *yoy change (%)* | *(0.7)* | *(22.7)* | *(6.4)* | *(4.3)* | *(2.3)* | *10.0* | *5.8* | *(8.6)* | *2.5* |
| *change from fall fc (%)* | --- | *(17.2)* | *(5.2)* | *(5.2)* | *(5.2)* | --- | *3.9* | *(7.3)* | *(4.8)* |
| Res. Organics (thous) | 10.7 | 13.0 | 8.6 | 16.1 | 11.3 | 51.2 | 47.6 | 48.5 | 48.8 |
| Com. Organics (thous) | 3.0 | 2.6 | 3.4 | 3.5 | 3.9 | 11.9 | 11.1 | 12.5 | 20.2 |
| Wood (hunds) | 3.4 | 7.8 | 4.5 | 5.2 | 5.9 | 26.7 | 19.3 | 20.9 | 20.2 |
| Yard debris (thous) | 3.7 | 4.6 | 3.0 | 5.8 | 4.0 | 20.5 | 16.9 | 17.1 | 17.0 |
| Staffed (thous) | 96 | 84 | 71 | 94 | 98 | 380 | 343 | 344 | 335 |
| Automated (thous) | 31 | 24 | 27 | 29 | 30 | 113 | 120 | 112 | 116 |
| **Regional Fee/Tax Revenue Tons** | | | | | | | | | |
| Regional System Fee (thous) | 392 | 362 | 352 | 375 | 382 | 1,437 | 1,509 | 1,481 | 1,469 |
| *yoy change (%)* | *1.8* | *(1.2)* | *(5.0)* | *(3.2)* | *(2.5)* | *3.0* | *5.0* | *(1.9)* | *(0.8)* |
| *change from fall fc (%)* | --- | *(3.6)* | *(4.8)* | *(5.1)* | *(5.2)* | --- | *0.7* | *(3.7)* | *(4.6)* |
| Excise Tax (thous) | 398 | 367 | 357 | 380 | 388 | 1,456 | 1,528 | 1,502 | 1,489 |
| Environmental Cleanup (thous) | 52 | 38 | 44 | 47 | 53 | 230 | 244 | 181 | 194 |
| Community Enhancement (thous) | 287 | 281 | 259 | 292 | 287 | 1,115 | 1,147 | 1,120 | 1,119 |

* Forecasts are from IHS/Markit and Northwest Economic Research Center

## Forecast Flash

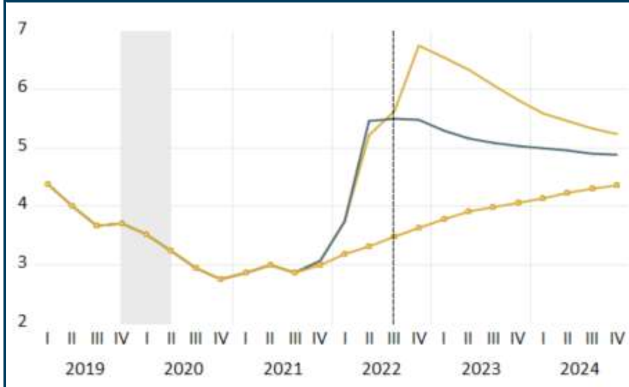
**Color Key:** Forecast Vintages: Actuals, Spring, Winter, Fall, Summer

### Inflation slows in the 3rd quarter but remains elevated



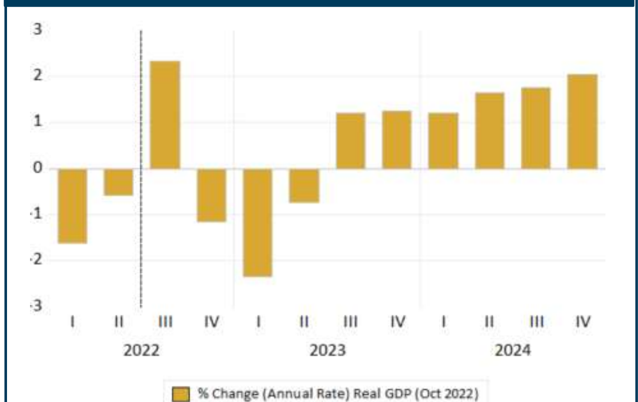

Source: IHS Markit, Bureau of Labor Statistics

### Federal Reserve lifts funds rate 3rd straight time in Sep, set to do so again in Nov 2022



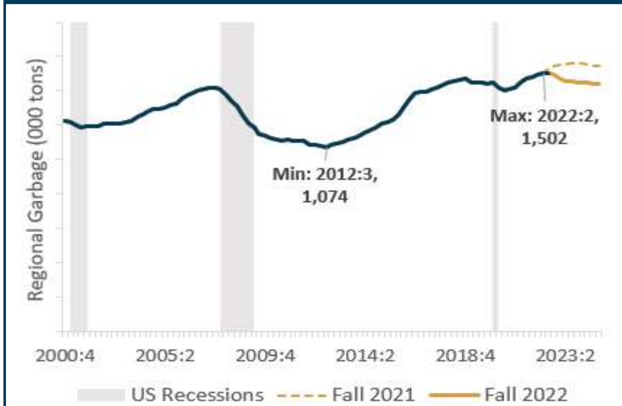

Source: IHS Markit, US Federal Reserve

### US GDP turns negative in 4th quarter; FED tightens to battle inflation



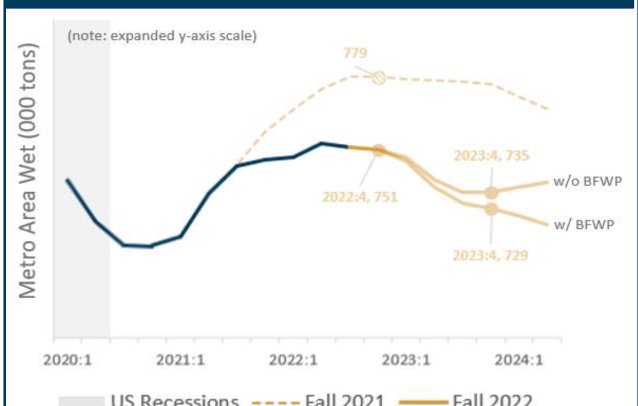

Source: IHS Markit, Univ. of Michigan

### Regional garbage growth ceases in Q3, set to decline through the end of CY 2024



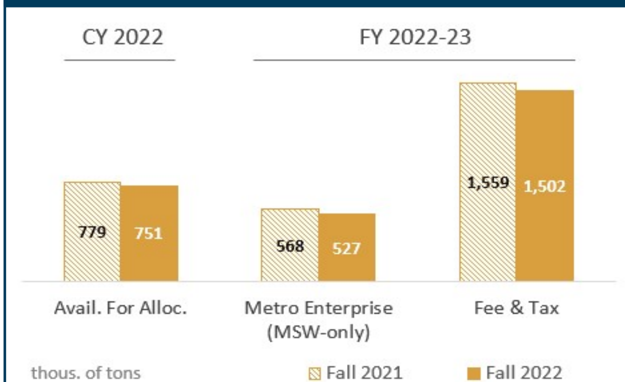

Source: National Bureau of Economic Research, Metro

### Wet waste declines extended into 2024 from increased BFWP food waste capture




Source: National Bureau of Economic Research, Metro

### Lower than expected tonnage this calendar and fiscal years, across the board




Source: Metro

## Key Assumptions

| | Baseline Assumption | Change from Fall Forecast |
|---|---|---|
| US Consumer sentiment | Declines continue through the end of the year, before increasing next year; Declines of -25% in 2022, increasing 25% in 2023, and another 21% increase in 2024 | Lower outlook over all the next few years; 34% lower in 2022, 23% lower in 2023, and 7% lower in 2024 |
| Real US home prices | Recent increases slow and turn to outright declines through the summer of 2025; Year-on-year increases of 6% in 2022, followed by declines of 6% in 2023, and 3% in 2024 | Lower outlook over all the next few years; 2% lower in 2022, 10% lower in 2023, and 13% lower in 2024 |
| Real US mortgage rates | Rates increase to an average of 5.1% in 2022 (80% increase over 2021) and over 6% in 2023, before declining a bit in 2024. | Higher outlook over all the next few years; 54% higher in 2022, 57% higher in 2023, and 27% higher in 2024 |
| Real GDP | Growth slows to 1.7% in 2022, declines in 2023 by -0.5%, and then increases 1.3% in 2024 | Lower outlook over all the next few years; 1.3% lower in 2022, 4.5% lower in 2023, and almost 6% lower in 2024 |
| Ratio of Portland MSA construction to total employment | Ratio begins to decline consistently starting 4th quarter 2022, rendering flat 2022; ratio declines by 4% in 2023, and another 4% in 2024 | Slightly higher outlook in 2022 (2% higher) and 2023 (~1% higher), but then 1% lower in 2024 |
| Portland MSA home permits | Permits continue to decline through 2022, posting decreases of -3%, and decrease by another -10% in 2023; growth (4%) returns in 2024 | Lower outlook over all the next few years; 16% lower in 2022, 23% lower in 2023, and 17% lower in 2024 |

## Key Assumptions

| | Baseline Assumption | Change from Fall Forecast |
|---|---|---|
| Additional commercial food waste capture | Business Food Waste Program Groups 1 and 2 in compliance by Sept. 30, 2023. Group 3 in compliance by Sept. 30, 2024. | No change |
| Additional residential food waste capture | No new curbside programs | No change |
| Wet waste allocations and utilizations | 60% Allocation, approximate utilization 98% | No change in allocation, slightly less utilization |
| Metro dry waste share | No major disruptions ensure steady 36% share | Slightly higher outlook (~1%) |
| Metro organics waste shares | Residential and commercial organics shares steady at 34% and 60%, respectively. | Slightly lower residential share (~2%), no change in commercial share |
| Private facility mixed dry waste recovery | Long-run declines stabilize in 2022 at 15%, followed by a slight bump to 16% in 2023 and beyond | Slightly lower rate this year, but no change thereafter |
| Pre-consumer "special" wastes | Significant growth (27% year-on-year) continues through 2022, flattens in 2023, and then grows slightly (3%) in 2024 | Significantly higher tonnage through horizon |