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Winter 2022
Solid Waste Forecast

Executive Summary

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Executive Contact

Roy Brower
WPES Director
roy.brower@oregonmetro.gov

Technical Contacts

Joel Sherman
Senior Solid Waste Forecaster
joel.sherman@oregonmetro.gov

Dennis Yee
Metro Economist
dennis.yee@oregonmetro.gov

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600 NE Grand Ave.
Portland, OR 97232-2736
503-797-1700

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Metro Economic Roundtable Advisors

Chris Johnson
Research Center Manager
chris.johnson@oregonmetro.gov

Jeffrey Raker
Investment Areas Analyst
jeffrey.raker@oregonmetro.gov

Luis Sandoval
Senior Solid Waste Planner
luis.sandoval@oregonmetro.gov

Joel Sherman
Senior Solid Waste Forecaster
joel.sherman@oregonmetro.gov

Dennis Yee
Metro Economist
dennis.yee@oregonmetro.gov

Molly Vogt
WPES Information & Analysis Manager
molly.vogt@oregonmetro.gov

Maribeth Todd
Senior Researcher and Modeler
maribeth.todd@oregonmetro.gov

Solid Waste Forecast Review Panel

Roy Brower
WPES Director
roy.brower@oregonmetro.gov

Marta McGuire
WPES Deputy Director
marta.mcguire@oregonmetro.gov

Tom Chaimov
Solid Waste Program Director
tom.chaimov@oregonmetro.gov

Pam Peck
Solid Waste Program Director
pam.peck@oregonmetro.gov

Warren Johnson
Compliance Program Manager
warren.johnson@oregonmetro.gov

Cinnamon Williams
Financial Planning Director
cinnamon.williams@oregonmetro.gov

Forecast Summary

Despite the economic headwinds this past quarter associated with rising Delta infections, inflation worries and supply chain difficulties, regional waste volumes continue to grow.

Economics

Gross Domestic Product: Inflation-adjusted GDP is expected to rebound sharply to 6.8% annualized growth for 2020 Q4, compared to the 2.3% growth in Q3. GDP in Q3 was diminished by the Delta variant and modest restrictions put into place to contain its spread. As the business cycle matures, real GDP is projected to advance 4.1% in 2022, slightly slower than last year's 5.7% annual growth rate. The ending of fiscal support and its waning impact on consumer spending will ease aggregate economic growth. Unexpected inventory accumulation last year is also expected to shift some growth expected this year into last quarter's robust Q4 estimate. The Omicron variant's late emergence last year, so far, has had little impact on overall economic activity . High-frequency economic indicators suggests that this latest variant will have minimal impact on growth going forward, but its full impact remains highly uncertain. Containment measures and restrictions were not immediately ramped up for the Omicron variant, so many pundits believe that the latest COVID wave will not severely curtail the economy. The current economic recovery remains on track.

COVID recovery: Baseline projections of future GDP trend assume the pandemic will transition to an endemic illness. The sudden emergence of the Omicron variant of the COVID-19 surprised consumers and business in December, but has yet to knock down growth projections. Steadily rising COVID-19 vaccination rates (~74% as of Jan. 7) and emerging therapeutics are expected to turn the coronavirus into an illness that will recede. Based on an extrapolation of today's vaccination trend, 90% of US residents will at least be partially immunized against the disease by early-2023.

Fiscal stimulus: The US outlook has yet to include the economic impact of the Build Back Better (BBB) plan as its enactment is far from certain. Analysts who have studied the BBB legislation believe that its passage would have very little stimulus on economic growth. With the end of pandemic-era enhanced unemployment insurance benefits and stimulus checks, the economic stimulus from these fiscal packages has waned and will add very little impact on real GDP growth going forward.

Inflation: Year-over-year CPI inflation rose to 6.9% in December 2021 as supply-side disruptions continue to plague providers of goods and services. Shortages of materials and labor shortfalls, transportation bottlenecks and delivery delays continue to hamstring business output. Mounting backlogs, rising order books and surplus demand continue to apply pressure and elevate consumer prices. While supply difficulties persist, heightened inflation is expected to be prolonged to the end of this year.

Forecast Summary

FED monetary policy: The Federal Reserve is pivoting to a less accommodative monetary policy. The FED is ramping up its pace to eliminate long-term securities and asset purchases (LSAP). Prior to this, the FED was buying $120B a month in treaury and mortgage-backed securiries in order to add liquidity to financial markets. The central bank is now on pace to end bond purchases by mid-March of this year. The benchmark federal funds rate target remains at the zero effective bound of 0% to 1/4%, but FED committee members hint that interest rate hikes may follow as soon as LSAP comes to an end. Mainstream pundits believe that the first rate increase will be announced in May and could be followed up by two more rate hikes this year that could raise the target rate up 100 basis points. A drag on future growth is concern that the FED might find it necessary to ratchet interest rates well above 1 percentage point this year.

US Employment outlook: For over a year, the outlook for payroll employment has remained largely unperturbed, despite the many vissitudes in the economy. Employment rebounded sharply with re-openings of the economy and availability of vaccines, but since then, the return to a pre-pandemic job peak has been grudgingly slow. Emergence of new coronavirus variants continue to pose health risks, roiling labor markets and raising uncertainty for its full recovery. Even with these forecast risks, December's seasonally adjusted job figures have the economy at just 2% below its pre-pandemic peak. With GDP expanding, employment is expected to fully reach pre-pandemic level some time in the second quarter of 2022.

Mortgage interest rate: The interest rate on 30-year fixed mortages has risen about 40 basis points in the last several weeks in anticipation of rate hikes from the FED.

Housing and Construction: The National Association of Home Builders (NAHB) housing market index (HMI) showed builders were still highly optimistic in the 83 point reading in January, which marked the 5th highest reading since the beginning of the data series. By any practical measure, the residential construction sector has withstood against the pandemic headwinds and shown remarkable resilience during the COVID-era economic cycle. US construction spending continued to grow during difficult times, albeit largely because of the strength in residential demand. Permits for new home construction were elevated during this time due in part to 1) historically low mortgage rates, 2) pent-up demand during the pandemic, and 3) Millennials coming of age and looking to be first-time homeowners. Housing price indices revealed double-digit price appreciation in the purchase price of homes in the last year, but should taper soon and prices to normalize by year's end. The construction sector had managed to increase hiring and cyclically greater housing production. However, with the Fed likely to lift interest rates soon to stem elevated CPI inflation rates, home production is likely to lower beginning this year. Recently, non-residential construction has reflected strength in warehousing and manufacturing as a result of recent strong gains in demand for goods and should add to the outlook for construction employment.

Forecast Summary

Regional employment trends: The recovery in Portland metropolitan area employment remains intact, despite the recent emergence of the Omicron variant. The latest reading for regional employment has payroll employment inching to just under 2% below the region's pre-pandemic job peak. Regionwide unemployment, on a seasonally-adjusted basis, fell in November 2021 to 4.1%, its lowest value since the pandemic. A reading this low shows the region is near to full employment.

Economic Risks: Risk alternatives continue to evolve rapidly in this COVID era. The Delta variant appeared in 2020 Q3 and now the Omicron variant threatens the present outlook. Virus variants continue to negatively impact labor markets and disrupt supply chains in the economy. Weak links in the supply chain will create shortages and delivery delays which will heighten inflation risks and force the FED to raise interest sooner and faster than expected. Credit risks for consumers and businesses will rise.

Solid Waste

Regional Waste Outlook: Regional garbage volumes continued to grow through the fourth quarter of last year, posting year-over-year increases of about 3.5%. Growth is expected to continue, and actually accelerate, hitting growth rates of over 7% by the third quarter of this year, 2022. This outlook is a good deal better than our last one, thanks in part to a very healthy construction sector, especially in the short-term. But for the putresible sub-stream here, the economics are a little more challenging, and will put enough pressure on household wealth to force waste to essentially move sideways starting next year. First up to blame are home prices. After putting up furious, double-digit growth this past year, home prices are expected to slow considerably over the coming years, and after adjusting for expected inflation, should actually run dead-flat by 2024. This means that the value of a typical household's biggest financial asset will no longer keep pace with the cost of living. Second, and related, mortgage rates are already starting to rise from historic lows. Rates are expected to increase almost 16% in 2022, and over 22% next year, making the cost of owning that home asset that much higher. So, lower home values, higher home costs does not a happy consumer make.

Source-Separation: While we keep one eye on the economy, we need to (and do) keep another on the upcoming solid waste programs and policy decisions that will pull waste OUT of the garbage stream. There are two places this can happen, pre and post-collection from the generator (more on the latter below, at 'Post-Collection Recovery'). Pre-collection recovery (otherwise known as source-separation) programs can target increased capture of waste from the wet sub-stream, the dry sub-stream, or both. Currently, the only known programs expected to occur in the forecast horizon are aimed at capturing additional wet waste, specifically food waste, through the Business Food Waste Program. As we've been reporting now for several quarters, that program is expected to begin capturing significant amounts of additional food waste from garbage beginning later next year. By early 2025, the amount of additional capture is expected to reach 27,000 tons per year. As a result, regional wet waste tonnage, already slowing due to a maturing business cycle, should run flat next year, and post outright declines in 2024 and beyond.

Forecast Summary

Waste Distribution: For the forecast, figuring out which facilities get which wastes and when has always been challenging, but doing so is vital to acheiving the objectives of the forecast. The market forces affecting (non-wet) waste distribution and shares of waste by type at various facilities can be varied and complex. A single change of ownership of a hauler, a down compactor, or a new entrant into the system are all factors that can affect the distribution and flow of waste in the system. Thankfully, our forecast benefits from a couple areas of stasis. First, for the non-wet waste stream volumes that we need to get right at Metro's transfer stations, there haven't been many recent changes, nor many expected future ones, that would impact market shares. So we can essentially rely on recent historical patterns to project future ones. One exception to this built into our current outlook here will be about 6 months of construction at Metro Central, slated for early 2023, which will permanently divert about 25,000 tons per year of residential organics, and temporarily divert about 8,000 tons of commercial organics for the duration of the project. The second area of stasis is that there is no market for wet waste to worry about. Wet waste flows are regulated by Metro government, and Metro sets the terms. As a matter of policy, Metro allocates up to 60% of the available putrescible (wet) waste to private transfer stations after allocating a small portion of tonnage to haulers and generators that wish to deliver waste directly to Covanta Marion waste-to-energy facility. Our assumption for this forecast is the same as it always is, which is to assume the full 60% allocation of waste to private facilities, plus some expected under-use of those allocations (around 1%, or 99% use). This should ensure that Metro transfer stations receive at least 40% of the regional wet waste in calendar year 2022 and beyond, so long as our regional wet waste forecast stays true.

Post-collection Recovery: As we've been reporting for some time, the recovery of mixed dry waste after (or "post") collection by material recovery facilities (MRFs) and transfer stations in the region has been declining since the early 2000s. Closures of several critical local urban wood waste markets over the years, plus China's National Sword have impacted demand for recovered materials. Out of about 400,000 tons of mixed dry waste materials, private facilities in the region are projected to recover around 66,000 tons and disposed of the remaining 334,000. We do build in to this forecast some recovery line improvements at one particular MRF, which were funded in part by a Metro Investment and Innovation Program grant. These improvements should add about 5,800 tons of additional recovered material per year by 2023.

Forecast Flash

	Calendar Quarter					Calendar Year			
	2021:3	2021:4	2022:1	2022:2	2022:3	2021	2022	2023	2024
Key Economic Drivers (seas-adj)									
Consumer Sentiment Index	75	77	81	84	86	79	85	92	93
change (%)	*(12.6)*	*2.6*	*5.6*	*3.2*	*3.3*	*(2.7)*	*7.1*	*8.2*	*0.7*
*change from fall fc (%)**	---	*0.3*	*(0.9)*	*(1.8)*	*(5.4)*	*0.1*	*(3.5)*	*(2.7)*	*(2.1)*
Home Prices (real)	128	129	131	135	136	126	135	138	138
change (%)	*2.4*	*0.2*	*1.6*	*3.3*	*0.6*	*11.4*	*7.2*	*2.7*	*0.2*
*change from fall fc (%)**	---	*(2.7)*	*(2.4)*	*(0.0)*	*(0.1)*	*(0.7)*	*(0.7)*	*(0.2)*	*(0.1)*
Mortgage Rates (real)	2.72	2.91	2.92	3.11	3.43	2.83	3.29	4.02	4.38
change (%)	*(5.3)*	*6.9*	*0.4*	*6.3*	*10.5*	*(8.1)*	*15.9*	*22.3*	*9.1*
*change from fall fc (%)**	---	*2.1*	*(4.5)*	*(3.9)*	*0.2*	*0.4*	*(1.2)*	*3.6*	*4.4*
GDP (real, $T)	19.5	19.8	20.0	20.1	20.3	19.4	20.2	20.7	21.3
change (%)	*0.6*	*1.6*	*0.9*	*0.8*	*0.9*	*5.7*	*4.1*	*2.5*	*2.5*
*change from fall fc (%)**	---	*0.6*	*0.3*	*0.0*	*0.0*	*0.2*	*0.0*	*(0.2)*	*(0.4)*
Construction:Total Emp (ratio)	6.5	6.5	6.4	6.4	6.4	6.4	6.4	6.2	6.1
change (%)	*1.1*	*(0.3)*	*(1.1)*	*(0.6)*	*(0.1)*	*0.0*	*(1.1)*	*(2.3)*	*(2.1)*
change from fall fc (%)	---	*(0.0)*	*(0.9)*	*(0.9)*	*(0.9)*	*0.1*	*(0.9)*	*(0.9)*	*(0.9)*
Home Permits (4QMA, thous)	3.7	4.0	4.3	4.3	4.2	14.2	16.9	15.9	15.3
change (%)	*9.3*	*8.8*	*6.6*	*(1.0)*	*(0.7)*	*(5.0)*	*18.9*	*(6.0)*	*(3.6)*
change from fall fc (%)	---	*1.5*	*3.6*	*5.9*	*5.1*	*(0.9)*	*3.9*	*0.0*	*0.0*
Tri-County Core Tons *(thous)*	386	367	369	402	414	1,481	1,563	1,553	1,528
yoy change (%)	*5.6*	*2.1*	*5.5*	*6.2*	*7.3*	*5.0*	*5.6*	*(0.6)*	*(1.6)*
change from fall fc (%)	---	*1.6*	*1.0*	*1.2*	*1.2*	*0.3*	*1.1*	*(0.7)*	*(1.1)*
Wet Tons Avail. For Alloc. *(thous)*	191	187	188	195	195	747	774	770	750
yoy change (%)	*5.8*	*1.2*	*4.1*	*3.6*	*2.1*	*4.5*	*3.6*	*(0.6)*	*(2.6)*
change from fall fc (%)	---	*(5.1)*	*(0.5)*	*(0.5)*	*(0.5)*	*(1.4)*	*(0.5)*	*(0.8)*	*(0.9)*

	Calendar Quarter					Fiscal Year (ending)			
	2021:3	2021:4	2022:1	2022:2	2022:3	2021	2022	2023	2024
Metro Enterprise Tons									
MSW (thous)	145	149	136	148	150	545	579	575	569
yoy change (%)	*11.3*	*13.3*	*(0.9)*	*2.1*	*3.4*	*10.0*	*6.3*	*(0.6)*	*(1.0)*
change from fall fc (%)	---	*14.5*	*1.7*	*2.1*	*2.1*	---	*4.3*	*1.2*	*0.4*
Res. Organics (thous)	9.8	12.7	8.4	15.7	11.0	51.2	46.6	34.9	21.4
Com. Organics (thous)	3.0	2.9	2.9	2.9	3.2	11.9	11.6	10.2	18.0
Wood (hunds)	5.6	4.7	5.3	6.1	6.9	26.7	21.7	23.7	23.7
Yard debris (thous)	3.8	4.4	3.6	6.9	4.8	20.5	18.7	20.1	20.1
Staffed (thous)	104	76	87	114	119	380	381	405	402
Automated (thous)	30	30	28	30	31	113	118	116	114
Regional Fee/Tax Revenue Tons									
Regional System Fee (thous)	385	366	370	395	404	1,437	1,516	1,547	1,533
yoy change (%)	*7.1*	*2.3*	*7.2*	*5.6*	*4.9*	*3.0*	*5.5*	*2.0*	*(0.9)*
change from fall fc (%)	---	*2.3*	*1.3*	*1.4*	*1.4*	---	*1.1*	*0.5*	*(0.5)*
Excise Tax (thous)	389	371	375	400	409	1,456	1,535	1,567	1,553
Environmental Cleanup (thous)	69	50	66	70	79	230	256	292	304
Community Enhancement (thous)	300	301	275	309	304	1,115	1,185	1,181	1,176

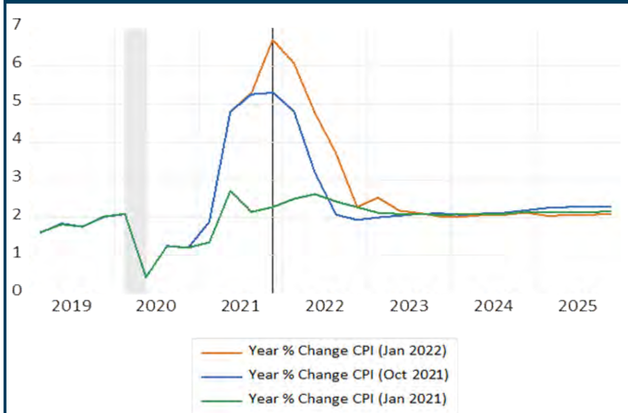
* These are new features in our model this quarter, and have no corresponding Fall 2020 vintage

Forecast Flash

GDP rebounds in Q4, despite Omicron and inflation risks, and will grow moderately

Source: Bureau of Economic Analysis, IHS Markit

Higher inflation will prompt Fed to raise funds rate sooner, likely in May this year

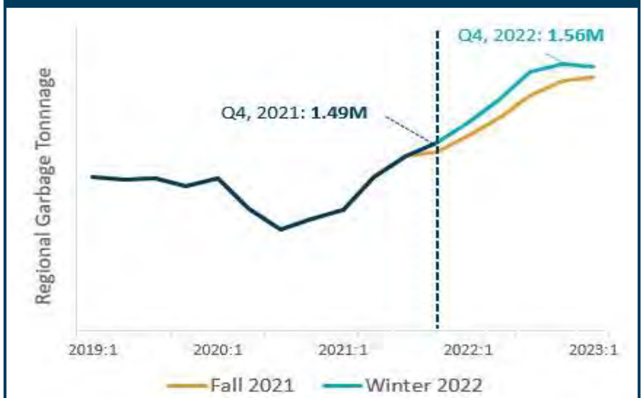


Source: BLS, IHS Markit

Mortgage rates rise with a sooner Fed-funds "lift-off"

Source: Freddie Mac, IHS Markit

Regional garbage to continue strong growth through the end of this year



Source: Metro

Business Food Waste Program will capture significant amounts of wet waste

Source: Metro

For the upcoming calendar and fiscal years, the current outlook is about the same

Source: Metro

Key Assumptions

	Baseline Assumption	Change from Fall Forecast
Bioscience/Vaccine	No additional containment measures from Omicron assumed. US vaccinations continue climbing, up to roughly 75% as of mid-January 2022. If recent vaccination trends continue, the population in the US will achieve roughly 90% immunization rate by Feb 2023.	No change in containment measure assumptions; vaccination rate slightly slower
US Macro	Real GDP expected to slow in 2022 as the business cycle matures	No change this year, slightly slower growth 2023 and beyond
Fiscal Stimulus	The administrations Build Back Better (BBB) proposal was voted down by the Senate and has not been included in the current economic outlook.	No change
Monetary Policy	"Lift-off" in the federal funds rate to occur in May 2022, followed by several more rate hikes. Rates could ratchet up by at least 100 basis points in 2022 to slow the economy and dampen CPI inflation.	Federal funds rate liftoff is 6 months sooner
Home Prices	Inflation-adjusted home prices continue to grow quickly in 2022, and then moderate significantly in 2023	Slightly slower growth
Construction	Total construction activity expected to maintain strong growth levels. Residential expected to wante, while commercial begins to pick up it's slack.	Home permits expected to be higher this year, before converging with Fall expectations in 2023 and beyond
Commercial Food Waste	The Business Food Waste Program enforcement deadlines pushed out; Groups 1 and 2 will need to be in compliance by Fall 2023; Group 3 by Fall of 2024	No change
Residential Food Waste	No new curbside programs	No change
Wet Waste Allocations & Utilizations	Allocations at 60% (plus 4-5 K to Covanta Marion), utilizations at 99% in each calendar year through horizon.	No change

Key Assumptions

	Baseline Assumption	Change from Fall Forecast
Mixed dry and food waste market shares at Metro facilities	No expected firm entry/exit for mixed dry waste; Metro Central will undergo significant renovation affecting organics streams	New renovation at Metro central in 2023 will permanently divert residential organics, and temporarily divert commercial organics to other facilities
Pre-consumer wastes and Environmental Cleanup	Tons of pre-consumer (special) wastes that incur Metro's full fee and tax at disposal sites are expected to move sideways through 2022 and grow moderately thereafter. Environmental cleanup materials, which incur reduced Metro fees and taxes, are expected to grow moderately but steadily through horizon.	No change
Post-collection Recovery	Recovery rates stabilize at about 16%, and increase slightly to over 17% with some recovery line modifications at a specific private facility that were funded in part by a Metro Investment and Innovation Program grant	Recovery line modifications increase average regional rates slightly