Joel Sherman: Good morning, and thank you for tuning in to this year's presentation of the Solid Waste Forecast. I'm Joel Sherman, a senior planner here at Metro and coordinator of the Solid Waste Forecast. I'll be presenting today, along with my colleague and Metro economist Dennis Yee. Dennis and I will be covering the major aspects of this year's forecast, but you can access more detail on the forecast report online.

Joel Sherman: Also, in previous versions of this presentation, we held a Q and A session at the end, but, since this is a prerecorded presentation, we obviously can't do that. Instead, you should feel free to email Dennis or myself with any questions that you might have, and we'll do our very best to get back to you as soon as possible.

Joel Sherman: So today's presentation will begin with an overview of the purpose and uses of the Solid Waste Forecast. I'll then summarize our planning and review process that we go through in order to build the assumptions and review and refine forecast results. We'll then provide an overview of the model and methods that we use to do the forecast and the primary inputs and assumptions that built this year's forecast. Dennis will review the economic assumptions, while I'll focus on the solid waste assumptions, and then I'll finish with a high-level review of our results.

Joel Sherman: The forecast has a pretty well-defined set of objectives, which haven't changed for some time. One of its main uses is to help set rates for the next fiscal year - in this case, July 1, 2022 to June 30, 2021. For its own disposal utility, Metro currently sets a tonnage charge for each major material stream, except at its transfer station, so five charges in total. It sets two transaction fees and a minimum load charge.

Joel Sherman: For the region as a whole, Metro sets a regional system fee, which is a fee charged on regional disposal that helps pay for regional programs such as those targeting waste reduction and hazardous waste disposal, for example.

Joel Sherman: Related to rate setting, the forecast also serves important budgeting functions for the next fiscal year and up to five additional years after. Since most of Metro Solid Waste operations contracts have cost components that vary with tonnage or loads, the forecast helps estimate the bulk of Metro's operating costs, and, on the revenue side, it allows for estimating expected revenues to the solid waste in general funds as well as passthrough funds for community enhancement.

Joel Sherman: On the regulatory side, the forecast is used in making wet waste tonnage allocations to private solid waste facilities for the next calendar year - in this case, January 1, 2022 to December 31st, 2020.

Joel Sherman: Finally, the forecast is often used for general planning purposes - for example, as a baseline from which other predictions or "what if" scenarios can be made.

Joel Sherman: Every year, the forecast goes through a process with a variety of internal and local government stakeholders to build the inputs and assumptions for the forecast and review and approve results. The process starts in mid-August, with a questionnaire that's distributed to stakeholders. The purpose of the questionnaire is to identify the main inputs and assumptions of the forecast.

Joel Sherman: Results from the questionnaires are then combined with economic forecasts to build the preliminary solid waste forecast, typically by the end of September. A panel consisting of Metro Solid Waste program managers, a finance manager, Metro's economist, and a DQ representative will then review the preliminary forecast and make any modifications as needed.

Joel Sherman: After that, the forecast is finalized and distributed to stakeholders in early November via the Metro website. Then we follow that up with a presentation, which is where we are now.

Joel Sherman: We take a systems approach when building the forecast. So, at a high level, we use statistical and other models to forecast eight aggregate waste streams. Then we use a distributional model to dis-aggregate and then re-aggregate these forecasts into output quantities needed to meet the objectives of the various users of the forecast.

Joel Sherman: So the distributional model is where we apply important assumptions about waste stream characteristics, how waste will be distributed among the various facilities in the system, and how much recovery, post-collection, will take place, to name just a few.

Joel Sherman: With respect to outputs, the forecast produces a number of data series, but they can be generally grouped within three areas, which we call focus areas in the forecast document.

Joel Sherman: The first relates to regional tonnage and available tonnage for Metro's regulatory allocations of wet waste to private solid waste facilities. I'll present the results here on a calendar year basis, since allocations are made on that time basis.

Joel Sherman: The second focus area relates to tonnage that incurs regional fees and taxes, specifically the regional system fee, the solid waste excise tax, and the community enhancement fee.

Joel Sherman: The third focus area relates to both the tons and loads of various waste streams that are expected to flow specifically to Metro's two transfer stations. I'll present the results for these latter two areas on a fiscal year basis, since bug and rate setting is done on that time basis.

Joel Sherman: I mentioned that we use a variety of methods to forecast the input waste streams involved in the forecast. For the most significant of those, specifically

wet and dry garbage, we use an economic model. Wet waste, often referred to as putrescible waste, is garbage that tends to have an organic component in the stream, and it arises from households and businesses in the region. Think your kitchen or cafeteria waist bin.

Joel Sherman: Dry waste, or non-putrescible waste, doesn't have this organic component and consists of bulky waste and construction and demolition waste from households, businesses, and, of course, construction activities in the region.

Joel Sherman: The economic model has two equations. The first predicts total tri-county garbage as a function of regional employment and home prices. Since the combination of wet and dry waste arise from the consumption behaviors of homes, businesses, and construction activities in the region, these variables represent really aggregate measures of the economic conditions that buttress consumption - namely, jobs and major asset prices.

Joel Sherman: The second equation predicts the share or percentage of total tri-county garbage that is dry, as a function of regional construction employment, regional single family and multifamily home permits, and average mortgage rates. The idea with these variables is to use indicators that track the relative contribution of construction to overall economic growth.

Joel Sherman: More technical detail on the economic model is available in the forecast document in appendix C, and I'm sure Dennis will touch on some additional details in his portion of the presentation. With that, I will indeed turn it over to Dennis, who will take us through the economic outlook behind our garbage forecast. Dennis?

Dennis Yee: Thank you, Joel, for the introduction. At this point, I'll present the set of national and regional macroeconomic conditions and forecast outlook underlying the Solid Waste Forecast.

Dennis Yee: The general economic outlook in our forecast is one in which nationwide growth has slowed as business investment remains weak, but consumer spending is strong. The conditions include a heightened sense of economic uncertainty from a year ago - certainly less certainty in our latest baseline forecast. Included is slower global growth, a trade dispute between the US and China, slumping gross domestic product outlook for both China and the US economy, and a manufacturer's recession going on in the US.

Dennis Yee: So the key takeaway, as I see it, for the economic forecast is more uncertainty and slower economic growth than before.

Dennis Yee: Because we believe there's greater uncertainty going forward, it behooves us to consider the possibility of recession. We still have strong confidence in our baseline forecast, but the risk of a recession has increased compared to a year ago. We consider the probability of a recession in this year's forecast, unlike last

year, when the recession risk was only minimal. So we produced a recession scenario to accompany the baseline economic forecast.

Dennis Yee: This recession scenario considers three things: The recession's depth - that is, how deep will this perspective downturn, if it does occur, actually be, at least in terms of forecast? Its duration, or the length of this possible recession, and any specific lags or leads in the key solid waste variables that we use in our forecast.

Dennis Yee: So let's review some of the key trends in both the baseline forecast and the recession scenario. The US is in the middle of the longest running economic expansion. The economy grew at a healthy pace of 2.9% last year and is likely to end this year at about 2.3% growth. IHS Market, which is our macro forecaster, is forecasting about 2% gross domestic product growth, or GDP, over the next couple of years. This projected growth from IHS is a bit slower than the forecast from a year ago.

Dennis Yee: The Portland MSA has produced even faster gross metropolitan product growth since the Great Recession, but economic uncertainties have increased recently. So the US growth is expected to be slower than the current baseline macro forecast. Eventually, this will dampen regional growth prospects.

Dennis Yee: The growth worries, if recession were to happen, include an ISF ISM Institute of Supply Management Manufacturer's Index, also known as the Purchasing Manager's manufacturing Index, slowed in the last six months and has been actually contracting in the last three. Our latest reading is from October 2019.

Dennis Yee: Second, inverted yield curve readings in which short-term interest rates are now higher than long-term treasury bond rates, an indication of a possible recession, certainly.

Dennis Yee: Then, third, the Fed, the Federal Reserve, cutting short-term interest rates three times this year as insurance, as I say, against a possible recession. Certainly, this is a threat of negative real interest rates looming.

Dennis Yee: Finally, as I mentioned, slowing global GDP. The European Central Bank has warned of plans to cut interest rates and perhaps bring back their own version of quantitative easing. This was reported in the September 2019 Wall Street Journal.

Dennis Yee: These risks are factors into consideration in our hypothetical recession alternative. For the hypothetical recession, we assert a mild downturn in late 2021 that, in some ways, is shallow and short, as the 2001 downturn that we experienced over a decade ago, more than a decade ago. The baseline forecast still reflects our best estimate of where growth is headed, but the recession scenario is our hedge if the economy sours.

Dennis Yee: Let's take a closer look at the manufacturing sector, which oftentimes provides an early warning of what's to come. IHS believes near-term recession risk to be contained and only a mild weakness in manufacturing. Are they right? If not, the purpose of our recession scenario is to incorporate that unknown "what if" into the Solid Waste Forecast.

Dennis Yee: Here we show the manufacturing PMI, and that's where we've seen, the last six months, the reading declining and, in the last three, as I mentioned, the recession scenario - or, excuse me, the PMI index falling below the 50 mark, which is a very strong indicator of manufacturers in recession. Latest reading was October, a reading of 48.3.

Dennis Yee: Historically, there's never been a recession without an inverted yield curve proceeding it, but not every rate inversion leads to a recession. A rate inversion doesn't cause a recession. It's usually an early warning. It's the proverbial canary in the coal mine, and, as we see in the latest bond yield, ten-year bond yield and the Fed funds rate, that inversion still existing. The latest September reading for the ten-year treasury bond is 1.7%.

Dennis Yee: So let's turn to the unemployment rate. On the economy supply side, it appears to be running at or near full employment, so it's not surprising to see rates as low as they are. In the Portland MSA, it's 3.9%. Going forward, the forecast will be somewhat constrained by the fact that there is little head room for further growth.

Dennis Yee: Employment is one of the broadest indicators of economic growth for both businesses and consumers, so it's a good indicator for both wet and dry waste disposal. After hitting bottom in the Great Recession, the Portland MSA has enjoyed some of the strongest job growth in the US, which is also reflected in a steady uptick at the same time, as we've seen for wet and dry waste. The region added over a quarter million jobs during this recent expansion with business service ...

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Dennis Yee: Quarter million jobs during this recent expansion with business services and the construction industry having been growth leaders. In the baseline forecast, future job growth is expected to slow for both the US and MSA due to demographics as well as economic concerns, but in the recession scenario, forecast risk causing unemployment rates to go up and to trigger a job downturn. Job growth slows in 2021 and turns negative in 2022 for the recession scenario.

Dennis Yee: Turning to median home prices, home values represent one of the major asset items in a household's financial portfolio. As a proxy for homeowner growth, excuse me, homeowner wealth, and spending capability is a strong indicator of solid waste disposal trends. The baseline forecast predicts slower home price

growth. The outlook is for slower growth but no recession, and that's the baseline. On the other hand, for Portland MSA real estate market, which is now deep in its mid cycle, it'll likely switch to an oversupply in [contraction 00:16:14] phase in a recession scenario. If so, the change in median home prices will slow until negative.

Dennis Yee: So, looking at the home permits. Home construction data is most closely tied to construction and demolition and dry waste. Residential permits to build new homes rebounded coming out of the great recession. The baseline forecast anticipates permits to still trend upwards but start to level off in the future, but no significant drop in production. The recession scenario assumes a slump in housing production and asset values cycling down as a recession pulls down growth in this sector.

Dennis Yee: Economics. In terms of construction jobs, the share of regional construction is a data series that statistically predicts waste disposal trends very well. The construction job outlook shows a leveling out of the share of construction jobs in the baseline forecast. This means that construction is expected to grow more slowly than overall other employment sectors. In the recession scenario, the real estate market takes a dive as the economy sours. The recession scenario assumes a deeper decline in construction jobs.

Dennis Yee: The final economic indicator is interest rates. The solid waste economic forecast uses the conventional 30 year fixed rate mortgage series. Rates in the baseline forecast are expected lower in 2019 than 2020 because the federal reserve is expected to cut rates. The fed already cut rates for the third time in as many months. The last rate cut in October set the fed funds target interest rate between one and a half and 1.75%. This guidance, subsequently and along with other economic uncertainties, coincided with renewed market turbulence in both the stock and bond markets with bond prices rising as rates fell. Combined with global fears and a brewing trade war with China, these threats led to inverted rates in long term treasury bonds and the federal funds rate.

Dennis Yee: In the baseline forecast, no recession means that the fed can raise rates so that monetary policy returns to a more neutral position. Although, as I mentioned, inverted yields don't cause recessions, each of the last recessions were proceeded by short rate exceeding long rates. The accuracy of such a phenomenon is roughly about 50/50 in predicting the next recession, but all recent recessions have been proceeded by rate inversions, so that's what we have for the baseline.

Dennis Yee: Now we turn to the recession scenario, and the recession scenario calls for the fed, instead, to trim rates to offset this hypothetical recession and to prevent deeper damage to the economy. So that's, in a nutshell, both the baseline and the recession scenario key economic indicators for this year's solid waste forecast. So, let's get back to Joel for an overview of the solid waste details.

Joel Sherman: Thanks Dennis. The resulting wet waste forecast from the baseline and recession scenario economic forecasts that Dennis just laid out are presented here. The baseline forecast by NERC in IHS market is the light dotted red line, while the recession forecast is the heavier dotted red line. Just looking at history, we can see that over time, wet waste is a fairly stable waste stream. Since 2000, it's come in pretty much between about 700,000 and 800,000 Tri-County tons per year.

Joel Sherman: While not as cyclical as dry waste, which we'll see in just a minute, wet waste does appear to move with the business cycle. It declines during periods of economic slowing or outright contraction, and it increases during more significant economic growth periods. For example, waste declined a little during the 2001 recession, and then increased during the proceeding expansion, when it hit a high of about 805,000 tons in 2006. It then declined pretty dramatically during the last great recession that started in 2008. When it finally hit bottom, wet waste had reached a new low of about 685,000 tons in 2013. From then, waste grew pretty quickly through 2017 when it came in just shy of 800,000 tons, not quite hitting its 2006 peak. Then, as the economy slowed considerably, waste was flat to slightly down last year, and this year, that trend is expected to continue.

Joel Sherman: Looking forward to next year, both the baseline and recession forecasts see mild growth returning, and it's not until about 2023 when the two scenarios diverge with the recession scenario moderately impacting the wet waste stream for about a year before picking back up. In addition to the model forecast, we also incorporate an independent forecast of stakeholder expectations, which we gathered from folks in the questionnaire. The red dots represent the average of stakeholders' expected forecast for each year.

Joel Sherman: Here we can see that stakeholder expectations are generally in line with the models through 2021. They then follow along with our recession scenario through 2024, and then only diverge thereafter. To arrive at a final Tri-County wet waste forecast, we perform a subjective weighting of these scenarios. For the recession scenario, we use a weight of 40% to reflect the approximate current probability of a U.S. recession in the next few years. We then essentially split the difference between the other two scenarios, so 30% to baseline economic growth and 30% to growth along independent stakeholder expectations.

Joel Sherman: And that weighted average forecast, before new food waste diversion, which I'll cover in just a minute, ends up looking like this. So after a transitory period of decline this year, mild growth picks up next year in 2020 and continues through 2024 with average growth of about 1.5% Per year. After 2024, when the recession scenario begins to converge with the baseline scenario, annual growth picks up to about 2.5% per year.

Joel Sherman: The largest proportion of Tri-County wet waste is generated inside the metro jurisdictional boundary of what we call metro region. This graph shows the distribution of in region two out of region waste. The out of region portion runs between 6% to 8% of the total. There's a very slight upward trend, but it's been pretty stable. The forecast is consistent with this general trend and it's actually based on metro's land use forecasts of household and employment growth for areas outside of the region.

Joel Sherman: So moving on to the dry waste forecast. Here again we have the baseline and recession scenario economic forecasts laid out as the light blue and heavier blue dotted lines respectively. Like wet waste, dry waste is cyclical, but even more so than wet waste. Whereas wet waste can cycle by about a hundred thousand tons during the business cycle, dry waste can go three times that or more during business cycles, as we can see from the low in 2011 to the high last year.

Joel Sherman: Coming out of the 2001 recession, waste grew very quickly, averaging about 6% annual growth through 2006. When it hit bottom in 2011 during the last recession, dry waste grew quickly again, especially in 2015 and 2016 when it hit double digit annual growth rates. Tremendous amounts of building activity, particularly apartment construction, really caused the stream to grow to new heights. Even though growth slowed down pretty significantly in the last couple of years, 2018 marked the new high point for this stream. It's 674,000 Tri-County tons.

Joel Sherman: Since then, we've seen a dramatic slowdown in an employment and building activity. In 2019, it's actually showing small declines in tonnage. The forecast moving forward seeing mild growth in 2020 and 2021. The recession scenario then diverges from the baseline, causing a small decline in 2022, relatively flat tonnage in 2023 and then a slow convergence in tonnage toward the baseline in those outlined years.

Joel Sherman: Like we do with a wet waste forecast, we incorporate an independent stakeholder forecast of dry waste expectations, and that is shown here as the blue dots. We can see that stakeholders hold a slightly more pessimistic view than our modeled forecasts with the average seeing a slow decline in tonnage through about 2023, and then a slow increase thereafter. However, when we looked at the distribution of stakeholder responses, which is pretty big, we know that the model forecasts fall within a reasonable range of stakeholders' expectations.

Joel Sherman: Again, we use a weighting scheme to produce a final Tri-County dry waste forecast. We stick to the 30/40/30 weights we used for the wet waste stream, and this is the weighted result. So after a slight decline this year of about 2%, tonnage grows by almost 4% in 2020 and another point in 2021 before the recession scenario causes a small decline in tonnage in 2022 and then flat tonnage in 2023. From then on, however, tonnage should grow by an average of about 2% per year.

Joel Sherman: Moving on to residential food waste generation, and this stream is food waste mixed with yard debris. The forecast calls for the existing programs in the region to essentially maintain their current capture, which is about eight, excuse me, 108,000 tons per year of food waste mixed with yard debris. So these are the current curbside programs in the cities of Portland, Lake Oswego, Forest Grove, Milwaukee and Beaverton. And then next year, the assumption is that the city of Hillsborough will implement its program and add an additional 10,000 tons of material per year to the stream, bringing the total to about 118,000 tons per year.

Joel Sherman: Of course, not all of this new material is food waste. So if we use a composition estimate of 6.5%, that is about 6.5% of the average household's green waste bin is food and the other 93.5% is yard debris by weight, we can figure out how much that new city of Hillsborough program will pull food waste from the wet waste stream. It's pretty simple math, it ends up being about 650 tons per year and we adjust the wet waste forecast down by that amount starting next year in 2020.

Joel Sherman: We'll also make an adjustment for expected new commercial food waste diversion. In terms of that waste stream, there are a variety of existing businesses that participate throughout the region. They currently capture about 27,000 tons of food waste per year. We're still expecting significant additional capture of commercial food waste, albeit a little slower than we did last year as the regional business food waste program rolls out in phases starting this March and moving through about 2022. All total, source separated commercial food waste in the region should grow from 27,000 tons this year to 35,000 tons next year to 50,000 tons in 2021.

Joel Sherman: And since the stream is all food, the net diversion of food from the wet waste stream should be pretty significant, starting at about 8,000 tons next year, ramping up to about 30,000 additional tons of diversion from wet by 2022. The distributional assumptions in the forecast have large effects on tonnage, particularly how much waste metro transfer stations will get. I'm going to review the assumptions for the main non wet streams-

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Joel Sherman: I'm going to review the assumptions for the main non wet streams first and then move on to the distributional assumptions for the wet waste stream.

Joel Sherman: For dry waste, unless there are major disruptions to operations, we've seen shares hold pretty steady among the various players that accept this waste stream. We're going to assume that this stability holds through the forecast horizon. And Metro will take about 34% of the regional mixed dry waste stream each year.

Joel Sherman: For the source separated residential food waste mixed with yard debris stream, the expectation is to see Metro share of the total decline by a few points, from 42% of the total where it is now to about 39% of the total moving forward. And for commercial food waste, Metro currently takes about 64% of the regional tonnage at Metro central transfer station specifically. Moving forward with new players entering the system as available points of transfer, this should decline a bit to about 56% in 2021 and then remain steady thereafter.

Joel Sherman: The distribution of wet waste among facilities is largely determined by regulatory parameters, specifically how much waste Metro will allocate to private facilities, but also how much of those allocations we expect private facilities to use. So when we're thinking about how many regional wet waste tons will end up at Metros' two transfer stations, we ultimately think through both the allocations and the expected utilizations. For example, if we forecast that 100 wet waste tons for the region in a particular year and we knew we'd allocate 60 of those to private facilities, the remaining 40 tons would flow back to Metro transfer stations only if private facilities use all 60 of their allocated tons. If they didn't, Metro would get more than 40 tons back. So I'm going to go through our assumptions behind both the allocations and the utilizations.

Joel Sherman: For the allocations, the forecast simply uses the new methodology developed by Metro. So under this method, Metro allocates 60% of the regional wet waste in two 30% chunks. The first chunk is allocated equally to each of the six private transfer stations in the region after reserving a very small portion for out of region facilities in Vancouver, Cambium Marion County. And that reservation ends up being about four and a half percent 2020, less than subsequent years, but it results in a 2020 equal share if about four and a quarter percent per facility.

Joel Sherman: The second chunk is allocated based on each facility's prior year allocation, which gives more weight to facilities that were allocated more waste than previous year. Now you may be wondering why the second chunk is called the goal-based share. That's because next year it will be allocated based on private facilities meeting certain goals in Metro's 2030 regional waste plan. But since those details have not yet been worked out, but will be over the coming year, for now, this particular piece is allocated based on prior year allocation. Okay.

Joel Sherman: For utilizations, that is the percentage of private facility tonnage allocations that are actually used by those facilities, the forecast typically assume something less than a hundred percent, over the last several years, the average, so across facilities and across years, has been about 92%. for the current year, utilization should follow trend and come in at a hair under 90%. For next year and each year thereafter, so 2020 and beyond, we model utilizations for each facility as a simple function of that facility's allocation. And we say this, we say if the facility ends up being allocated a lower tonnage amount than it has typically used over a handful of previous years, then assume it'll use 100% of that allocation in that

year. If not, assume it'll use their average historical utilization over the last several years.

Joel Sherman: And the result of these methods and assumptions on Metro's distributional share of regional wet waste is presented right here. Last year in 2018, Metro allocated a little under 60% of regional wet ways to private facilities and they used about 92%, leaving Metro transfer stations with about 45%. This year, while utilizations are on trend to decrease by a few points, the allocation should increase enough to cause Metro's distributional share to decrease a bit. However, in 2020 and beyond, with allocations dropping back to 60% each year and expected utilizations in the range of historical values, Metro share should increase to about 43% in 2020 and 46% in 2021. Also, the forecast document has more detail on these by facility if you're interested.

Joel Sherman: I'm going to move from the methods, inputs and assumptions to the results, at least within those focus areas I discussed earlier. First up here, while we're on the topic, is regional wet waste. So this is the in-district portion of tri County wet waste after additional diversion has been removed from the stream. To say it another way, this is the amount of wet waste that Metro can reserve for itself and allocate to private facilities. And that is represented here as the solid red bars.

Joel Sherman: I mentioned earlier that tons grew out of the bottom of the last cycle in 2013 but then went flat in 2018 and 2019. 2019 is looking about the same. In 2020 and beyond, the economic forecast largely see increases in regional wet waste. But what the mildly growing economy gives us here, the expected new food waste programs will essentially take away. As a result what would have been mild growth next year, and in 2021, turns into basically flat tonnage next year and slightly declining tonnage in 2021.

Joel Sherman: So given the expectations for flat regional wet tonnage this year and next, coupled with decreased wet distributions to Metro, the expectation is that the amount of wet and dry waste that Metro stations will receive this year, fiscal year 2019-2020, should fall a bit from last fiscal year. Note here that we have switched to fiscal years, which is when we set rates and do budgeting, and our fiscal year runs from July one to June 30 each year. So we should see a drop this year in MSW to Metro transfer stations, but then next fiscal year tonnage should increase fairly significantly as the dry waste stream sees some growth and as allocations of wet waste to private facilities step down a bit.

Joel Sherman: With respect to source-separated tonnage to Metro stations, clean wood and yard debris, which are the forest and Kelly Green bars in the graph, should roughly hang out at about 3,000 and 17,000 tons respectively this fiscal year and next. Residential food waste, the lime green bar, should increase from about 43,000 tons last fiscal year to almost 46,000 tons this fiscal year and remain pretty steady at that level in fiscal year 2020-2021. In commercial food waste, which is the sky blue bar, should increase a bit this fiscal year but then increase

substantially next year to about 24,000 tons given the additional capture associated with the regional business food waste program.

Joel Sherman: In terms of regional tonnage, which incurs Metro fees and taxes, in general tonnage has been growing since the bottom of the last recession, but at decreasing rates since fiscal year 2016-2017. Tonnage that incurred Metro's regional system fee, which is the dark gray bar, an excise tax, which is the light gray bar, grew to about 1.45 million and 1.47 million tons last fiscal year respectively. But these rates of growth were the slowest they've been over the last seven years since making the turn out of the recession. The forecast for system fee and excise tax tonnage moving forward sees continued slowing through next fiscal year 2020-2021 and then running flat through fiscal year 2022-2023 as new food waste diversion combats a mildly growing economy and its effects on both wet and dry waste. System-feed tonnage should hit about 1.48 million tons and excise tax tonnage should hit about 1.5 million tons in fiscal year 2020-2021. Since a community enhancement fee is assessed on all putrescible waste, regardless of whether it is source separated or not, we should see pretty steady growth in these tons over the entire forecast horizon. Tonnage should hit about 1.11 million tons in fiscal year 2020-2021.

Joel Sherman: So to summarize, the economy continues to grow but at much slower rates moving forward. The chance of a recession weighs on growth even more in the medium term. The regional business food waste program will cause food waste diversion to step up a little next year in 2020 and a lot more in subsequent years, which will cause wet waste to go flat again next year and drop a bit the year after in 2021. The recent declines in dry waste we've been seeing will be temporary and mild growth will resume next year and in 2021. Beyond that, the chance of recession pulls on the forecast and then growth resumes thereafter through the forecast horizon.

Joel Sherman: As with any forecasts, there are uncertainties in either the economic or solid waste assumptions that could affect times, either up or down. With respect to the economic outlook, the biggest short term risks involve triggers such as a US-China trade dispute or US monetary policy missteps that could bring about a recession that is either sooner or deeper or both than the one we've incorporated in the forecast already.

Joel Sherman: One of the biggest factors that affects the outlook of tons to Metro zone transfer stations is the wet waste allocations to private facilities and those facilities use of those allocations. While we can expect a 60% maximum allocation to private facilities and therefore a 40% minimum to Metro stations, utilization's significantly lower or higher than what we forecast could impact the garbage that ultimately gets delivered to Metro stations.

Joel Sherman: We've got a pretty good track record in forecasting waste, although it varies at more disaggregated levels, so forecast by facility for example, but for the major focus areas we tend to do okay. When we look at the last 12 month period from

October, 2018, which is the first period of our last year's forecast, to September, 2019 which is our last actual data point, we forecast that about 758,000 regional wet tons and came in at 740,000 tons, for a difference of about two and a half percent.

Joel Sherman: For wet and dry waste to Metro transfer stations, we forecasted about 548,000 tons and came in at 544,000 tons, for a difference of less than 1%. and for tonnage subject to the full regional system fee. Our last forecast put tons at 1,462,000 and we've come in at 1,450,000, for a difference of less than 1%.

Joel Sherman: And that concludes our presentation. I'd like to thank Eric Crandall for his production assistance here and thank you all for tuning in. As I mentioned earlier, the forecast document is available online and has more detailed information. In addition, please feel free to email either Dennis or myself with any questions you may have about the forecast. We'd love any comments you might have as well, as we strive for continuous improvement in our forecast and forecast products. Thanks again and have a great day.

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