Solid Waste Forecast FY 2019 - 20

Review of Methods, Process and Results| November 29, 2018

Paul Slyman

Director of Property & Environmental Services

Presenters:

Joel Sherman – Senior Solid Waste Planner
Joel.Sherman@oregonmetro.gov

Dennis Yee – Metro Economist
Dennis.Yee@oregonmetro.gov

Solid Waste Forecast FY 2019-20

www.oregonmetro.gov/solid-waste-forecast

Agenda

1. Purpose and Uses of the Solid Waste Forecast
2. Review Process
3. Methods and Assumptions
4. Results
5. Question & Answer

Objectives

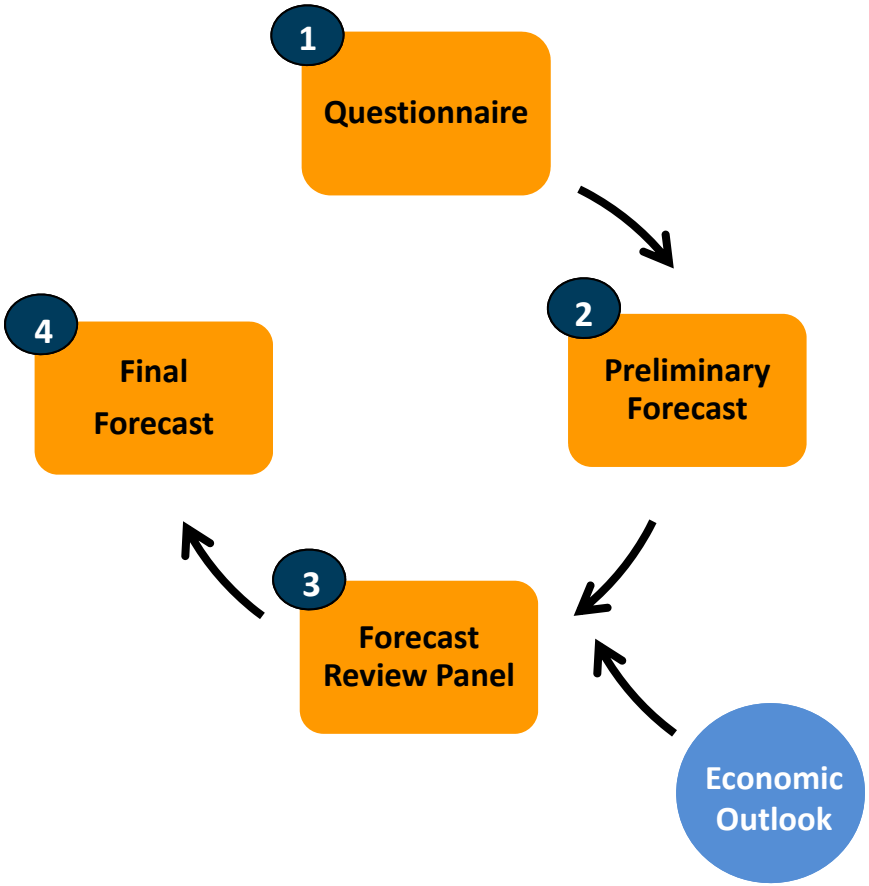
1 **Setting Solid Waste Rates**

2 **Estimating Costs & Revenues**

3 **Establishing Tonnage Allocations**

4 **Other Planning Functions**

Input and Review Process



1 Questionnaire

- Distributed internally and to some local government SW Directors
- Solicits key forecast assumptions
- Forms basis for preliminary forecast

2 Preliminary Forecast

- Based on economic outlook & questionnaire feedback

3 Forecast Review Panel

- Finance/SW directors, Metro Economist
- Meet to review preliminary forecast
- Forms basis for final forecast

4 Final Forecast

- Distributed to all stakeholders via Metro website
- Public Webinar

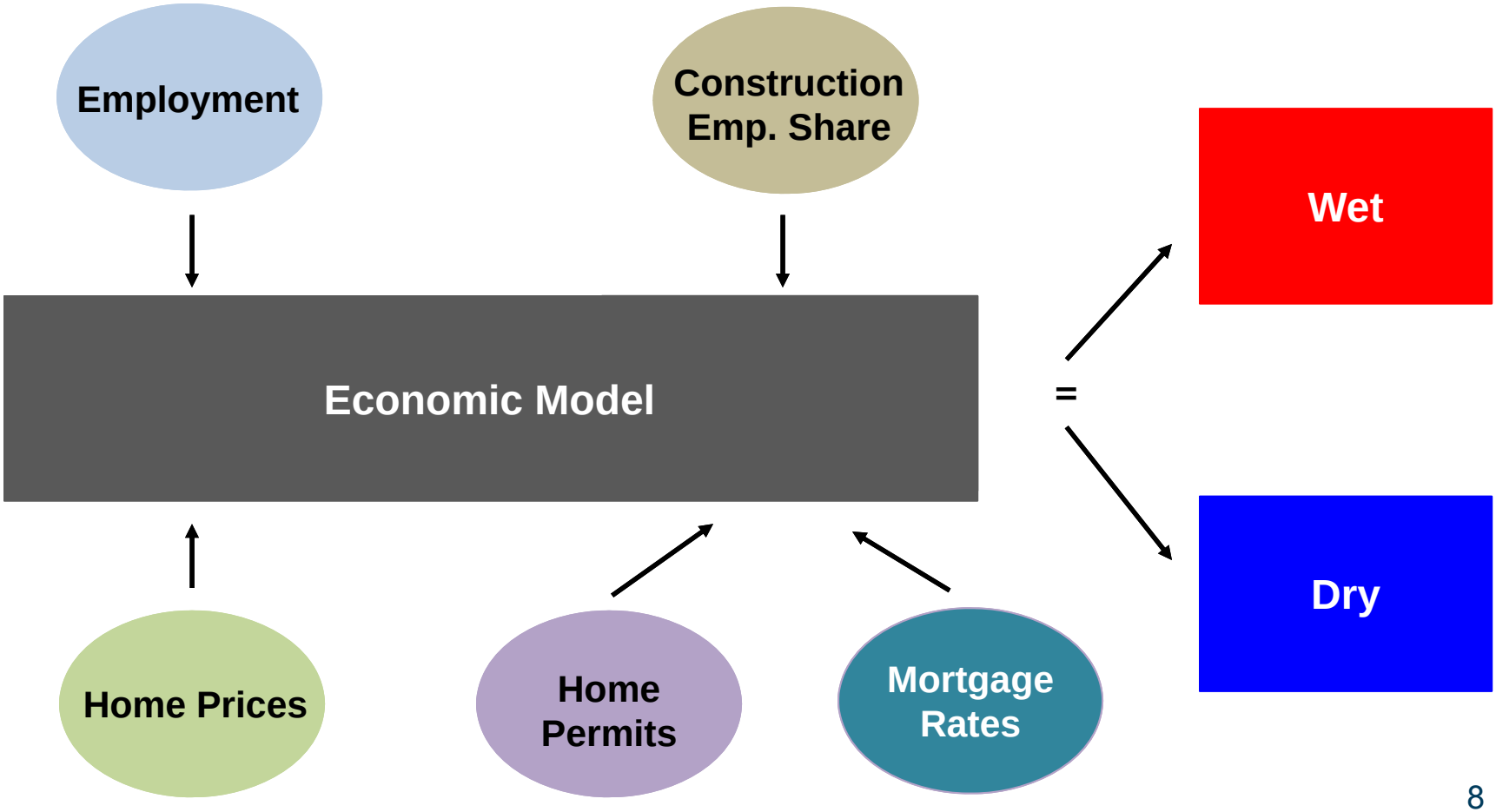
Methods & Assumptions

Main Stages

Generate	Distribute	Divert	Dispose
Garbage • Wet • Dry Source-Separated • Res. Food/YD • Com. Food • Wood • YD	to Facilities	at facilities, of recoverable items from garbage	of garbage from facilities to landfills

Methods & Assumptions

Generate > Distribute > Divert > Dispose



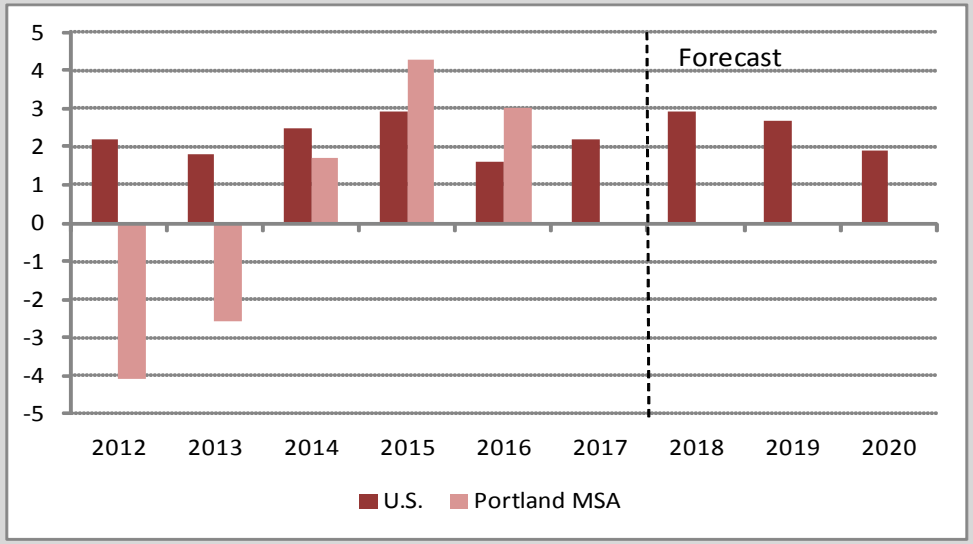
Methods & Assumptions

Generate > Distribute > Divert > Dispose

Economic Outlook

Gross Domestic Product - 2012 through 2020

	Year-over-Year % Change	
	U.S.[1]	MSA
2012	2.2	-4.1
2013	1.8	-2.6
2014	2.5	1.7
2015	2.9	4.3
2016	1.6	3
2017	2.2	
2018	2.9	
2019	2.7	
2020	1.9	



Sources:

history / Bureau of Economic Analysis

1 / IHS Markit, August 2018 U.S. Macroeconomic Outlook

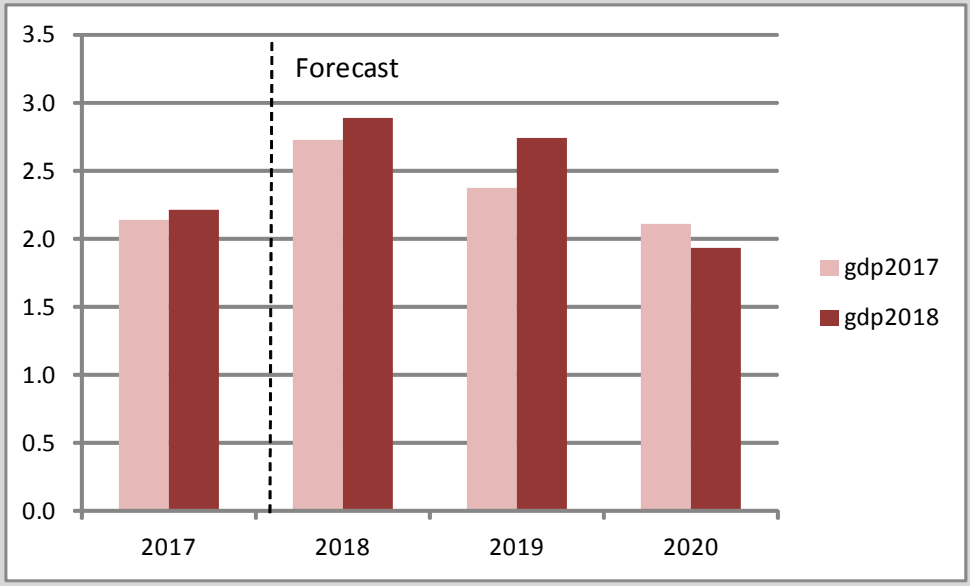
Methods & Assumptions

Generate > Distribute > Divert > Dispose

Economic Outlook

Gross Domestic Product - A comparison of August 2017 v. August 2018 IHS Forecast

	Year-over-Year % Change	
	U.S. Forecast	
	Aug. 2017	Aug. 2018
2016	1.5	1.6
2017	2.1	2.2
2018	2.7	2.9
2019	2.4	2.7
2020	2.1	1.9



Sources:

IHS Markit, August 2017 U.S. Macroeconomic Outlook

IHS Markit, August 2018 U.S. Macroeconomic Outlook

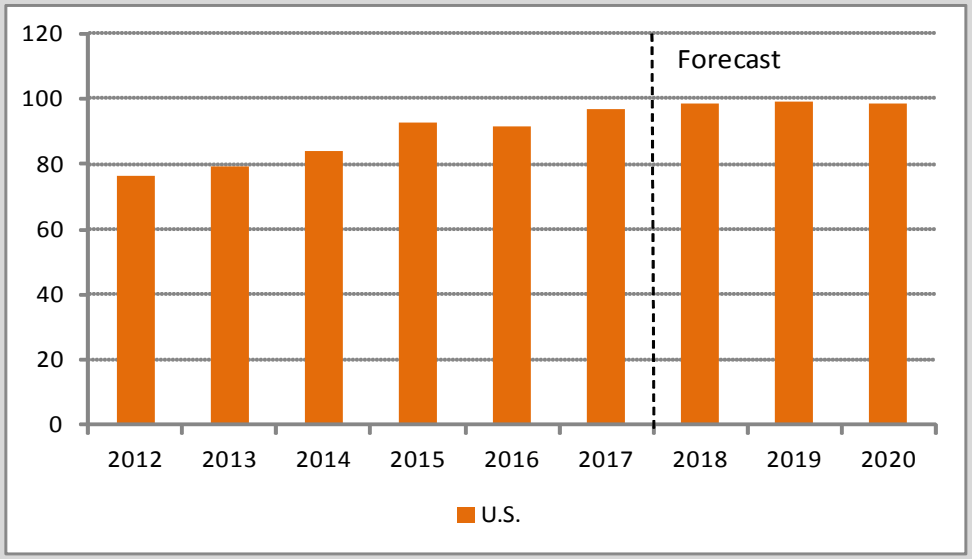
Methods & Assumptions

Generate > Distribute > Divert > Dispose

Economic Outlook

Consumer Sentiment - 2012 through 2020

	Consumer Sentiment Index 1966=100
	U.S.[1]
2012	76.5
2013	79.2
2014	84.1
2015	92.9
2016	91.8
2017	96.8
2018	98.5
2019	99.1
2020	98.3



Sources:

history / University of Michigan and Reuters

1 / IHS Markit, August 2018 U.S. Macroeconomic Outlook

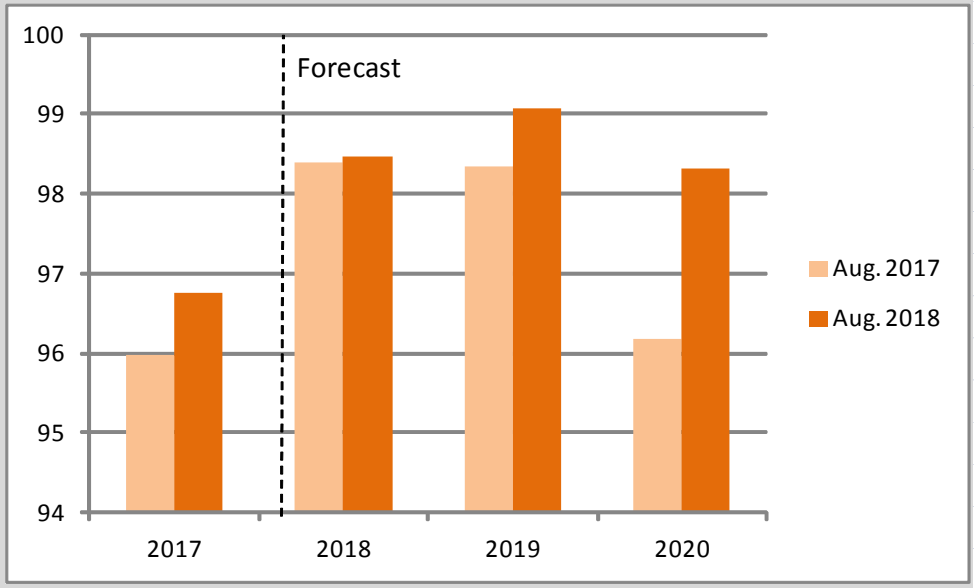
Methods & Assumptions

Generate > Distribute > Divert > Dispose

Economic Outlook

U.S. Consumer Sentiment - A comparison of August 2017 v. August 2018 IHS Forecast

	Year-over-Year % Change	
	U.S. Forecast	
	Aug. 2017	Aug. 2018
2016	-1.2	-1.2
2017	4.5	5.4
2018	2.5	1.8
2019	0.0	0.6
2020	-2.2	-0.8



Sources:

IHS Markit, August 2017 U.S. Macroeconomic Outlook

IHS Markit, August 2018 U.S. Macroeconomic Outlook

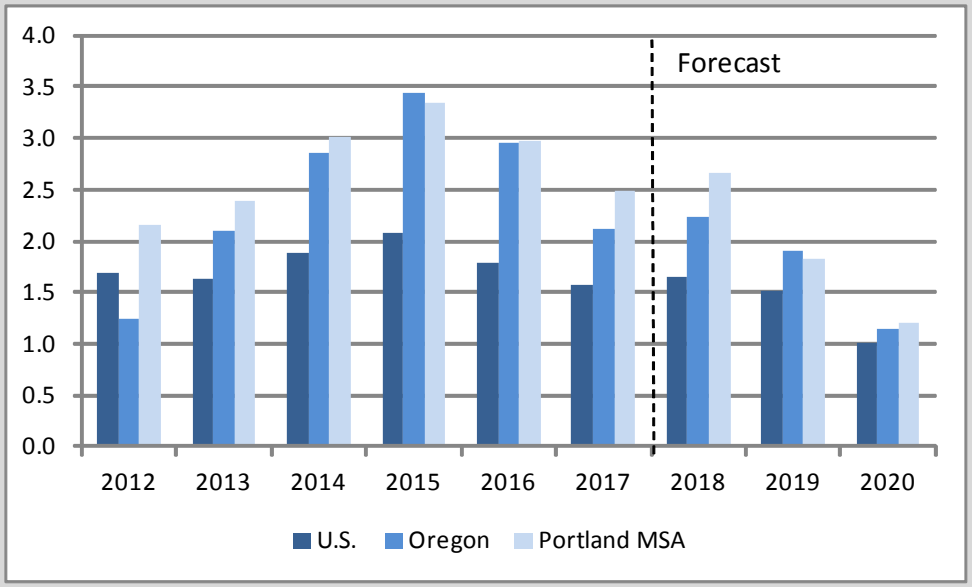
Methods & Assumptions

Generate > Distribute > Divert > Dispose

Economic Outlook

Total Nonfarm Wage & Salary Employment Growth - 2012 through 2020

	Year-over-Year % Change		
	U.S.[1]	Oregon[2]	MSA[3]
2012	1.7	1.2	2.2
2013	1.6	2.1	2.4
2014	1.9	2.9	3.0
2015	2.1	3.4	3.3
2016	1.8	2.9	3.0
2017	1.6	2.1	2.5
2018	1.6	2.2	2.7
2019	1.5	1.9	1.8
2020	1.0	1.1	1.2



Sources:

history /	Bureau of Labor Statistics (BLS)
1 /	IHS Markit, August 2018 U.S. Macroeconomic Outlook
2 /	OEA, OR Economic and Revenue Forecast, Sep. 2018
3 /	NERC, Portland MSA Economic & Population Outlook, Oct. 2018

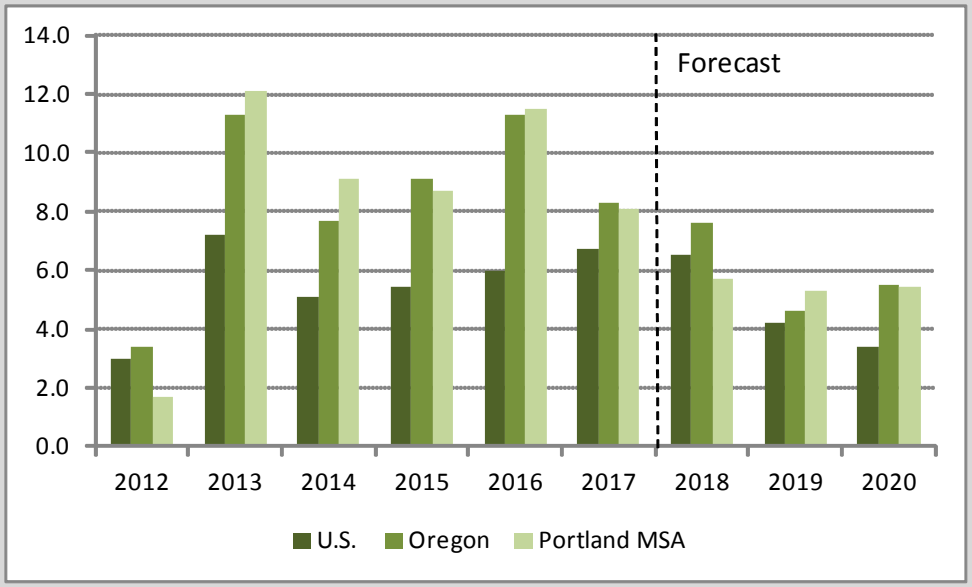
Methods & Assumptions

Generate > Distribute > Divert > Dispose

Economic Outlook

Home Price Growth - 2012 through 2020

	Year-over-Year % Change		
	U.S.[1]	Oregon[2]	MSA[3]
2012	3.0	3.4	1.7
2013	7.2	11.3	12.1
2014	5.1	7.7	9.1
2015	5.4	9.1	8.7
2016	6.0	11.3	11.5
2017	6.7	8.3	8.1
2018	6.5	7.6	5.7
2019	4.2	4.6	5.3
2020	3.4	5.5	5.4



Sources:

history /	Federal Housing Finance Administration (FHFA)
1 /	IHS Markit, August 2018 U.S. Macroeconomic Outlook
2 /	OEA, OR Economic and Revenue Forecast, Sep. 2018
3 /	NERC, Portland MSA Economic & Population Outlook, Mar. 2018

Methods & Assumptions

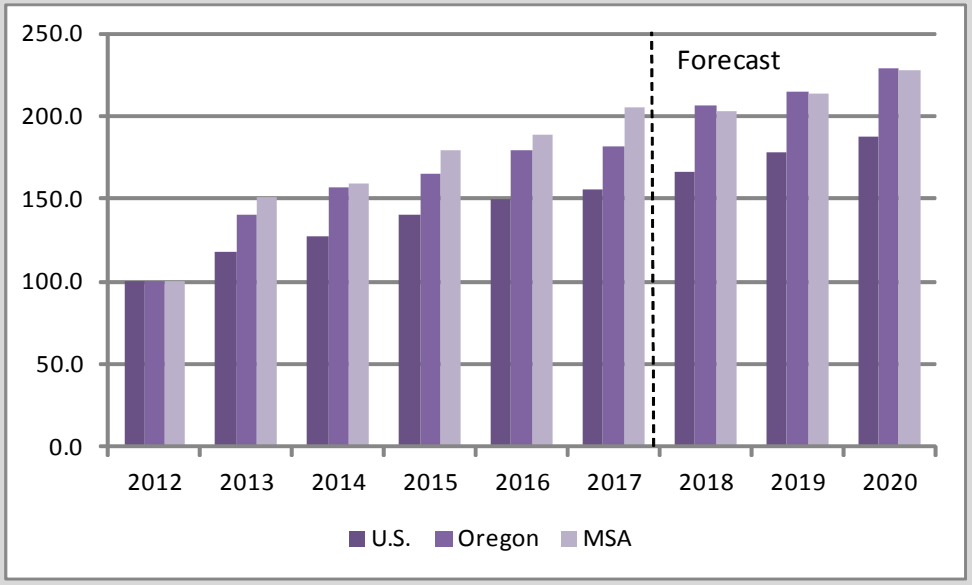
Generate > Distribute > Divert > Dispose

Economic Outlook

Housing Starts (permits issued) - 2012 through 2020

	(millions)	(count)	(count)
	U.S.[1]	Oregon[2]	MSA[3]
2012	0.66	7,663	7,785
2013	0.84	10,608	11,730
2014	0.99	14,843	12,356
2015	1.06	16,645	13,967
2016	1.18	17,510	14,729
2017	1.26	19,000	15,983
2018	1.30	19,300	15,796
2019	1.40	21,900	16,655
2020	1.50	22,800	17,717

Index 2012=100 (note: chart data is an indexed version of the data table to the left)



Sources:

history /	Census (Texas A&M Real Estate Center)
1 /	IHS Markit, August 2018 U.S. Macroeconomic Outlook
2 /	OEA, OR Economic and Revenue Forecast, Sep. 2018
3 /	NERC, Portland MSA Economic & Population Outlook, Mar. 2018 (Note: MSA includes Clark and Skamania counties in WA)

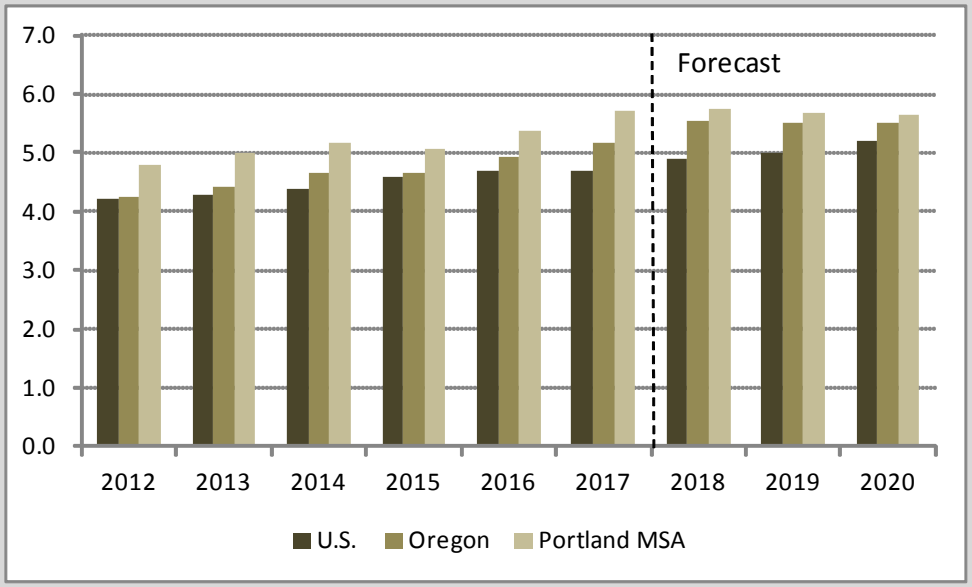
Methods & Assumptions

Generate > Distribute > Divert > Dispose

Economic Outlook

Share of Construction Jobs - 2012 through 2020

	Percentage Values		
	U.S.[1]	Oregon[2]	MSA[3]
2012	4.2	4.3	4.8
2013	4.3	4.4	5.0
2014	4.4	4.6	5.2
2015	4.6	4.7	5.1
2016	4.7	4.9	5.4
2017	4.7	5.2	5.7
2018	4.9	5.5	5.8
2019	5	5.5	5.7
2020	5.2	5.5	5.6



Sources:

history /	Bureau of Labor Statistics (BLS)
1 /	IHS Markit, August 2018 U.S. Macroeconomic Outlook
2 /	OEA, OR Economic and Revenue Forecast, Sep. 2018
3 /	NERC, Portland MSA Economic & Population Outlook, Mar. 2018

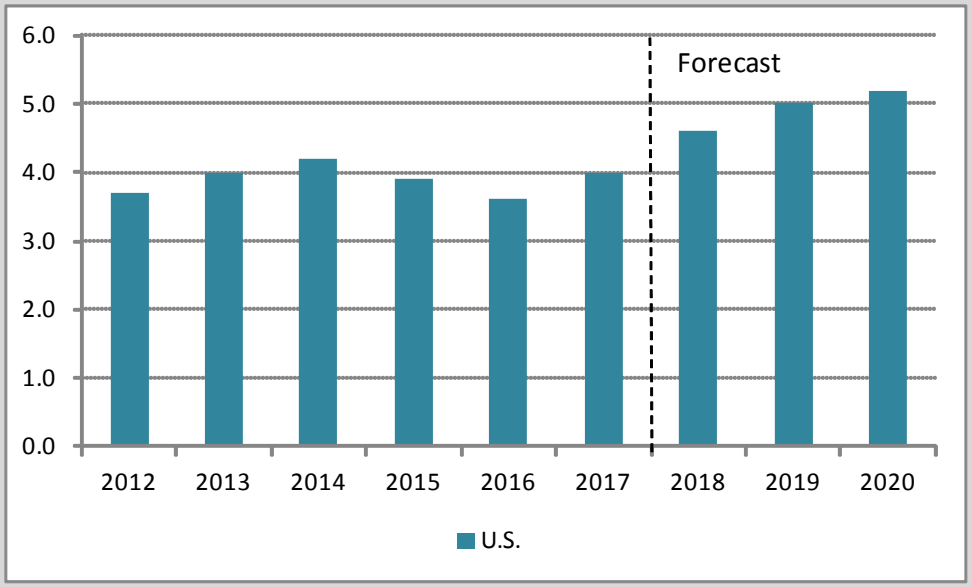
Methods & Assumptions

Generate > Distribute > Divert > Dispose

Economic Outlook

Conventional 30-year mortgage interest rate - 2012 through 2020

	Annual Percentage Rate
	U.S.[1]
2012	3.7
2013	4.0
2014	4.2
2015	3.9
2016	3.6
2017	4.0
2018	4.6
2019	5.0
2020	5.2



Sources:

history / Freddie Mac

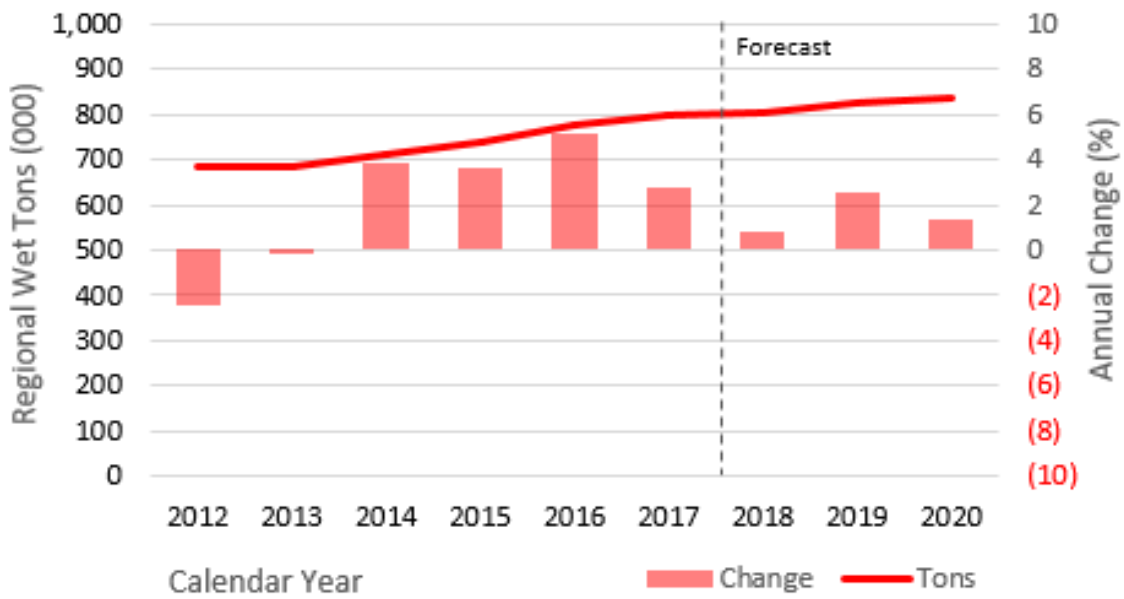
1 / IHS Markit, August 2018 U.S. Macroeconomic Outlook

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Wet waste generation

CY	Tons thousands	Change YOY %
2012	686	-2.5
2013	685	-0.2
2014	711	3.8
2015	738	3.7
2016	776	5.2
2017	797	2.7
2018	804	0.9
2019	824	2.6
2020	835	1.3



Sources:

o history: Metro Solid Waste Information System (SWIS)

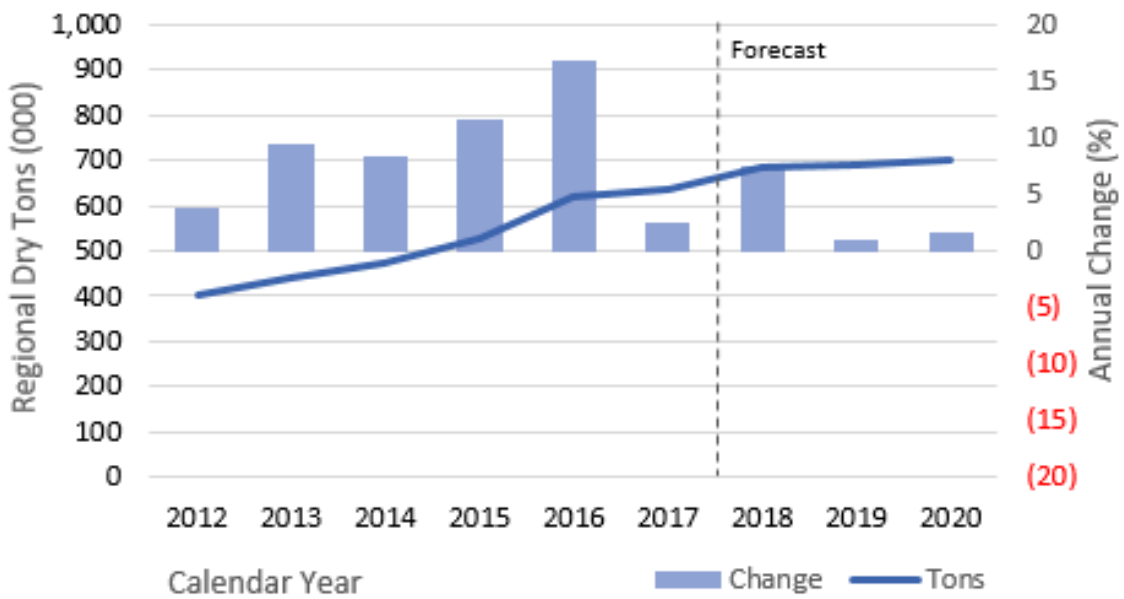
o forecast: Econometric model results, intercept-shifted based on stakeholder expectations

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Dry waste generation

CY	Tons thousands	Change %
2012	400	3.8
2013	438	9.5
2014	474	8.3
2015	530	11.6
2016	618	16.7
2017	634	2.6
2018	682	7.6
2019	689	0.9
2020	700	1.6



Sources:

o history: Metro Solid Waste Information System (SWIS)

o forecast: Econometric model results, intercept-shifted based on stakeholder expectations

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Basic Model

=

Source-Separated Streams

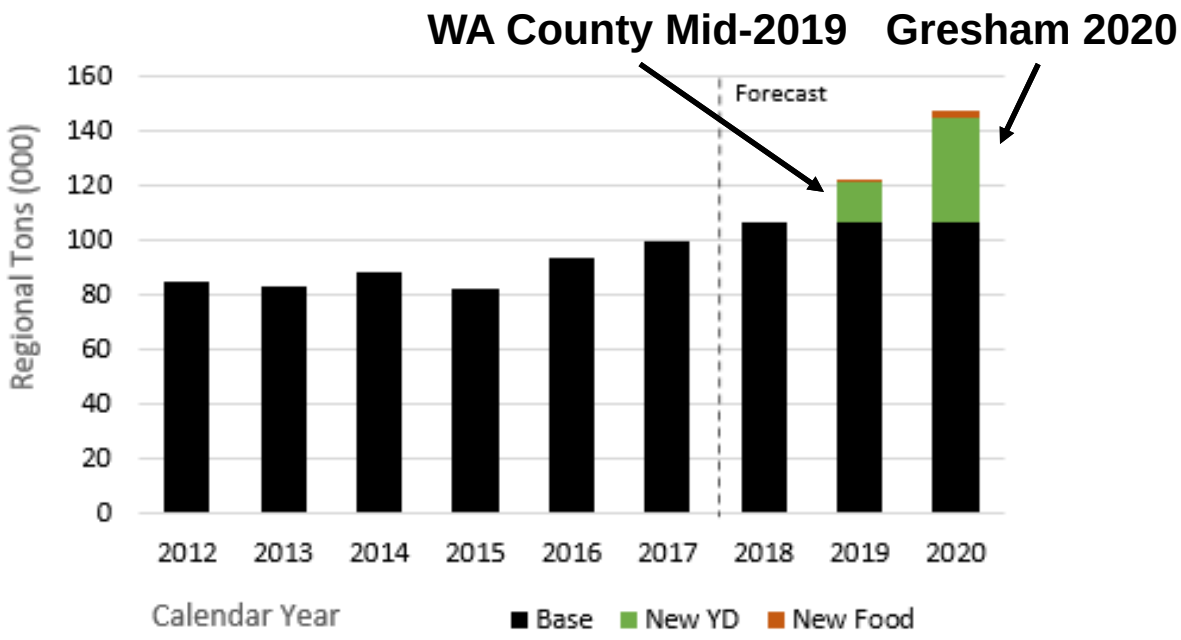
- Res. Food/YD
- Com Food
- Wood (Metro TS)
- YD (Metro TS)

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Residential food/yard debris generation

	Tons (000)		
	Existing	New Programs	
CY	Base	Yd Debris	Food
2012	84	---	---
2013	83	---	---
2014	88	---	---
2015	82	---	---
2016	93	---	---
2017	99	---	---
2018	106	---	---
2019	106	15	1
2020	106	38	3



Sources:

o history: Metro Solid Waste Information System (SWIS)

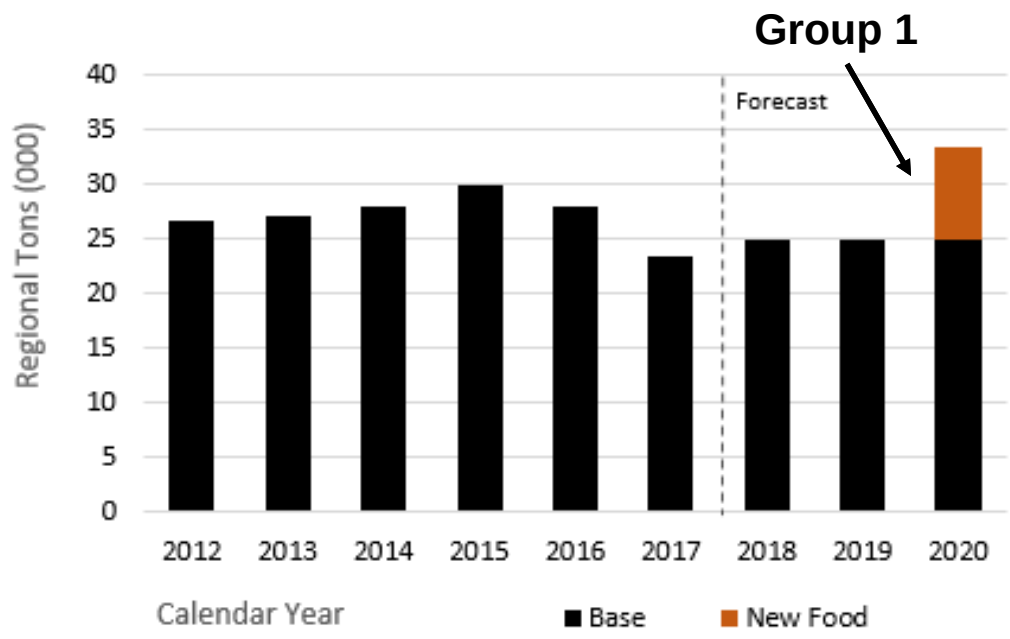
o forecast: Based on estimated new program tonnage, timing, and 6.5% food composition.

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Commercial food generation

	Tons (000)	
	Existing	New
CY	Base	Food
2012	27	---
2013	27	---
2014	28	---
2015	30	---
2016	28	---
2017	23	---
2018	25	---
2019	25	---
2020	25	9



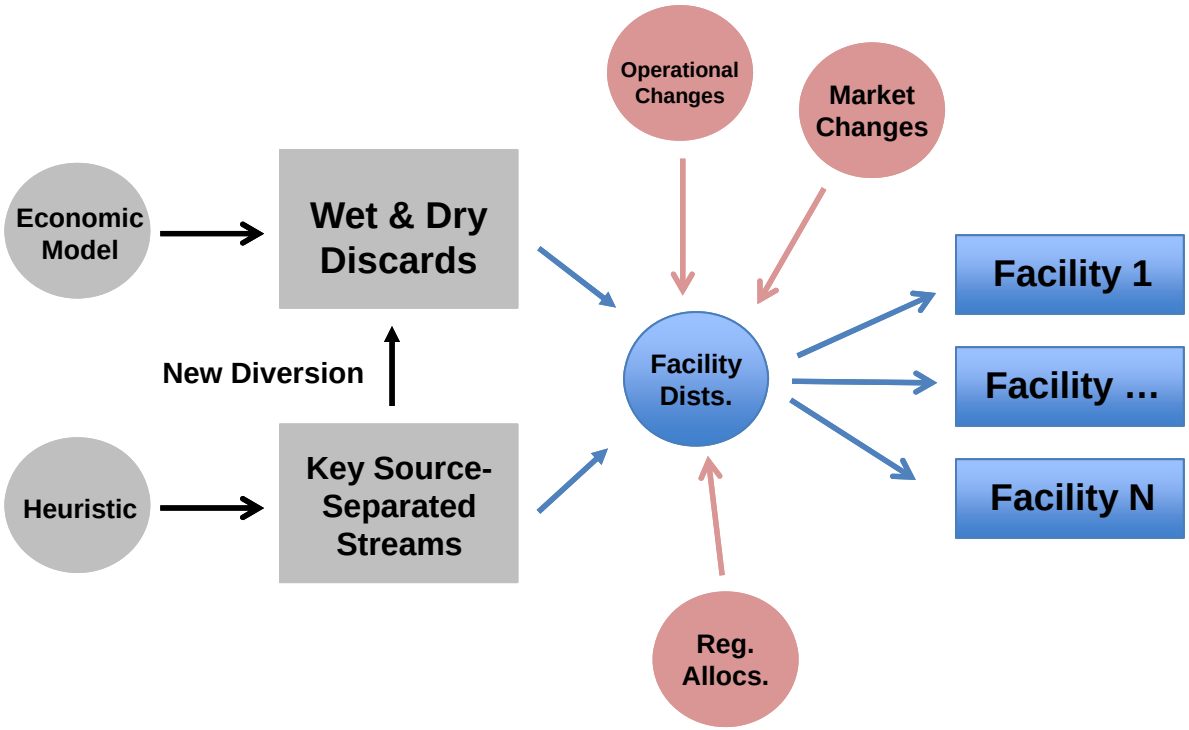
Sources:

o history: Metro Solid Waste Information System (SWIS)

o forecast: Based on estimated new program tonnage and timing

Methods & Assumptions

Generate > Distribute > Divert > Dispose



Methods & Assumptions

Generate > Distribute > Divert > Dispose

Wet (in-district) waste distribution

Allocation$_f$ (tons) X Utilization$_f$ (%) = Private Distribution$_f$

Regional Tons - ∑ Private Distributions = Public Distribution

	CY 2019 Allocation			CY 2020 Allocation						CY 2021
Franchisee or	CY 2018	Method	CY 2019	Method (Mixed)					CY 2020	to 2025
Licensee	Allocation	Fixed Tons	Allocation	%	*Tms*	Avail.	*Eq*		Allocation	% Based
Gresham Sanitary Service	23,687	---Increase-->	44,919	----------Increase--------->					49,000	6.4%
Pride	79,880	----Steady--->	79,880	10.1%	X	768,228	=		77,437	10.1%
Troutdale	79,880	----Steady--->	79,880	16.0%	X	768,228	=		122,532	16.0%
Willamette Resources, Inc.	79,880	----Steady--->	79,880	10.1%	X	768,228	=		77,437	10.1%
Forest Grove	125,000	----Steady--->	125,000	9.8%	X	768,228	=		75,210	9.8%
Canby	16,600	----Steady--->	16,600	----------Decrease--------->					13,000	1.7%
Vancouver	25,601	----Steady--->	25,601	----------Decrease--------->					23,000	3.0%
Covanta Marion	3,980	----Steady--->	3,980	----------Steady---------->					3,980	0.5%
		Tons to Private:	455,740			Tons to Private:			441,597	
		Regionally Available Tons:	759,567			Regionally Available Tons:			768,228	
		% Allocated:	60.0%			% Allocated:			57.5%	

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Wet (in-district) waste distribution

Allocation$_f$ (tons) X Utilization$_f$ (%) = Private Distribution$_f$

Regional Tons - ∑ Private Distributions = Public Distribution

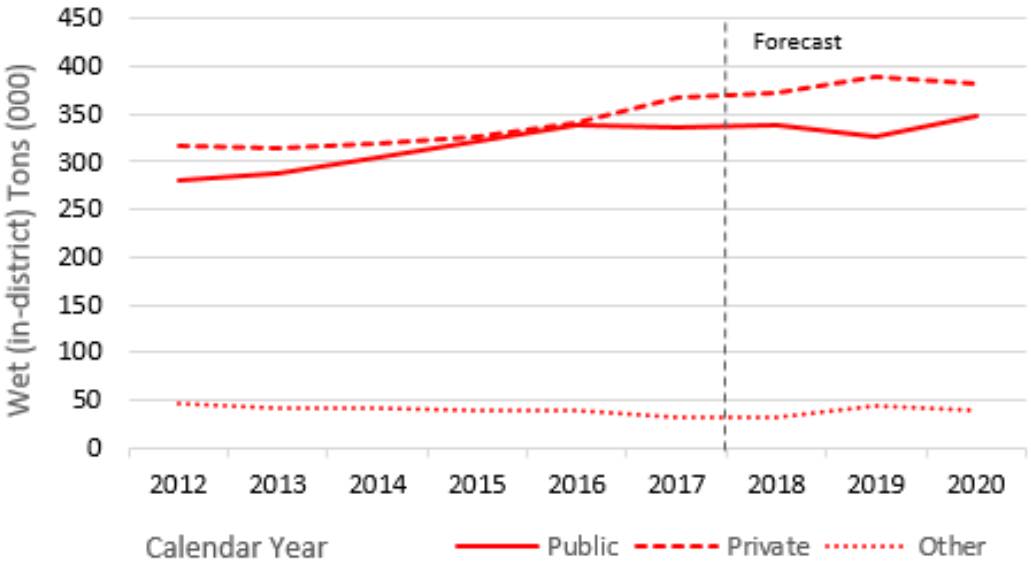
	Actuals			Anticipated		
Franchisee or	CY 2015	CY 2016	CY 2017	CY 2018	CY 2019	----------> CY 2025
Licensee	% Used	% Used	% Used	Expected	Assumed Fixed @ 95%	
Gresham Sanitary Service	---	36.2%	98.7%	97.7%	95.0%	---------->
Pride	93.4%	95.7%	98.0%	99.7%	95.0%	---------->
Troutdale	99.8%	99.2%	92.7%	100.0%	95.0%	---------->
Willamette Resources, Inc.	96.6%	99.6%	97.0%	87.4%	95.0%	---------->
Forest Grove	91.8%	95.6%	96.8%	95.9%	95.0%	---------->
Canby	78.8%	81.6%	66.7%	69.7%	95.0%	---------->
Vancouver	79.1%	76.4%	74.7%	66.9%	95.0%	---------->
Covanta Marion	36.6%	43.2%	38.7%	57.5%	95.0%	---------->
All Entities	**92.8%**	**94.3%**	**93.4%**	**93.5%**	**95.0%**	---------->

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Wet (in-district) waste distribution

	Tons (thousands)		
	To Regional		To
CY	Public	Private	Other*
2012	280	316	45
2013	287	313	40
2014	305	318	42
2015	322	328	38
2016	339	341	38
2017	337	367	32
2018	338	373	31
2019	327	389	44
2020	349	382	38



Notes:

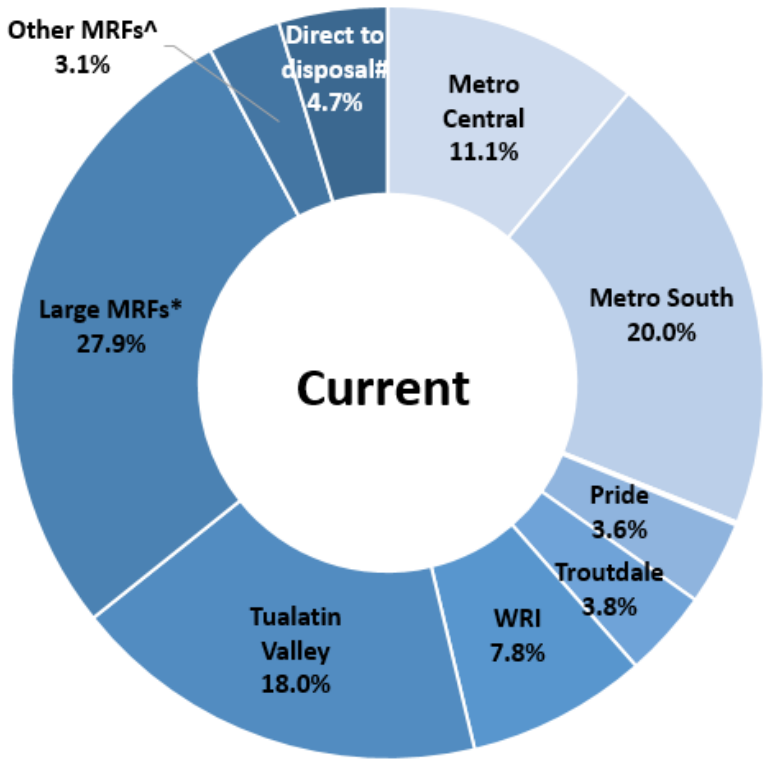
o source: Metro Solid Waste Information System (SWIS)

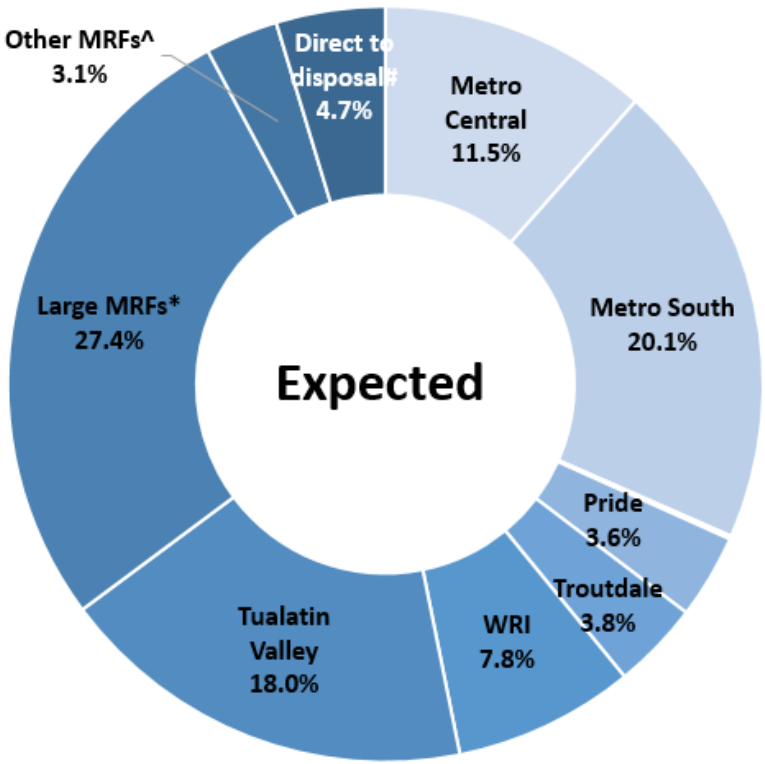
* Other are licensees authorized to deliver waste directly to Canby and Vancouver facilties, and to Covanta Marion

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Dry waste distribution





Notes:

o source: Metro Solid Waste Information System (SWIS)

* Large MRFs = Environmentally Conscious Recycling, Greenway Recycling, and Recology Suttle Road

^ Other MRFs = KB Recycling, Aloha Garbage and City of Roses

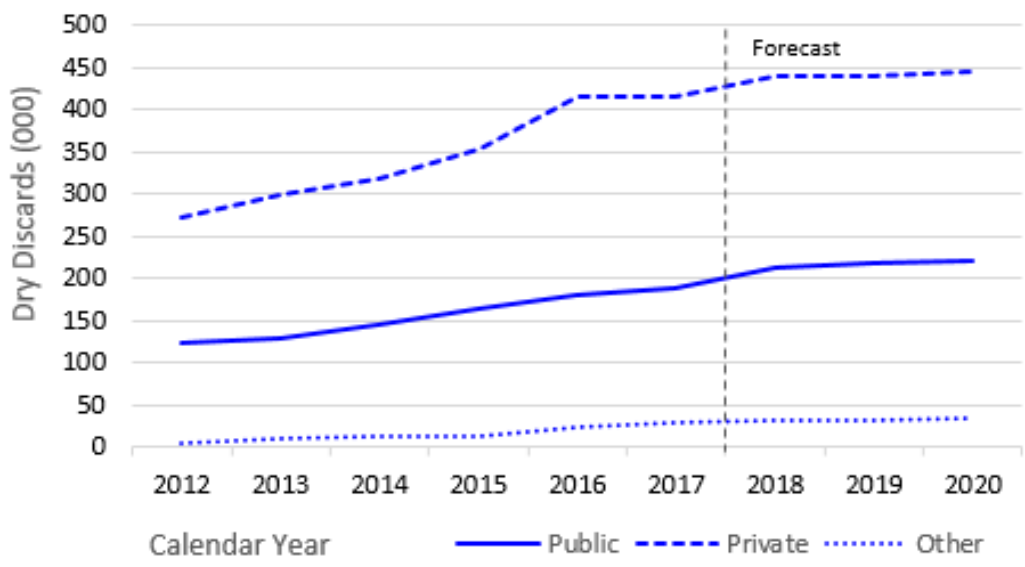
Direct to disposal = In-district or out-of-district dry waste delivered directly to landfill or burner

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Dry waste distribution

	Tons (thousands)		
	To Regional		To
CY	Public	Private	Other*
2012	123	272	5
2013	128	300	10
2014	144	318	13
2015	164	352	13
2016	180	415	23
2017	188	417	29
2018	212	439	32
2019	218	439	32
2020	221	446	33



Notes:

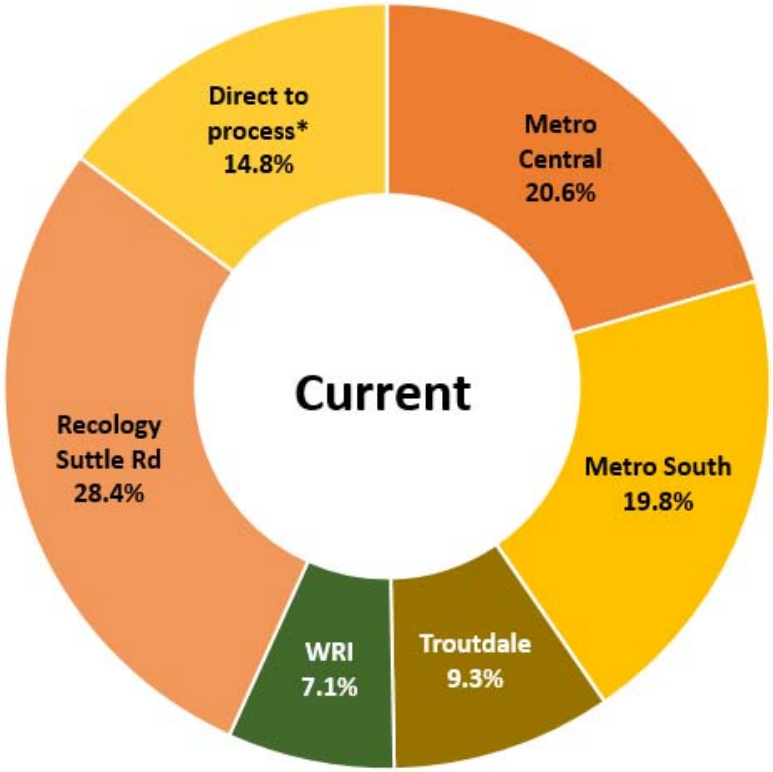
o source: Metro Solid Waste Information System (SWIS)

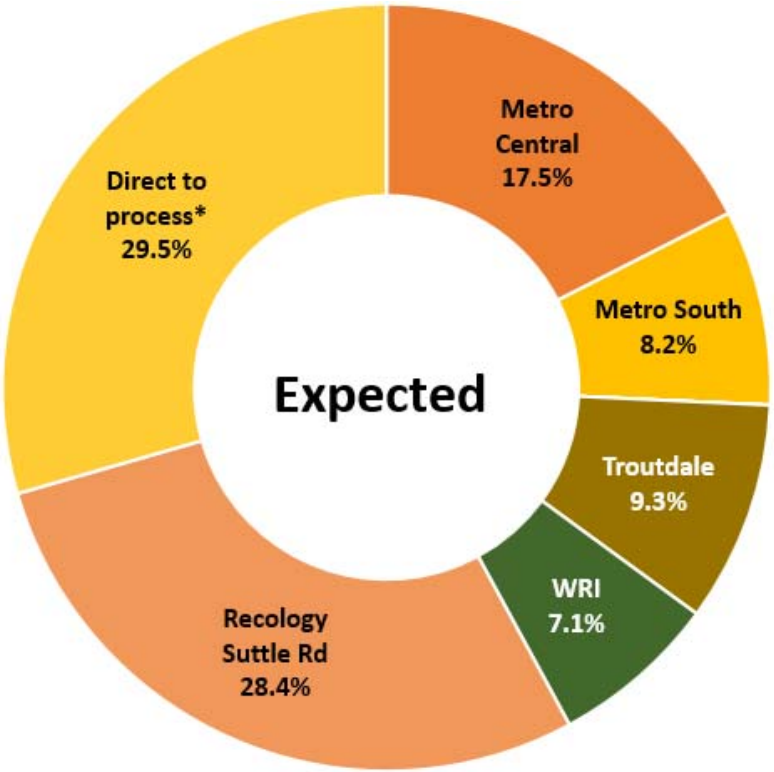
* Other are tons delivered directly to a disposal site, including Covanta Marion

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Residential food/yard debris distribution





Notes:

o source: Metro Solid Waste Information System (SWIS)

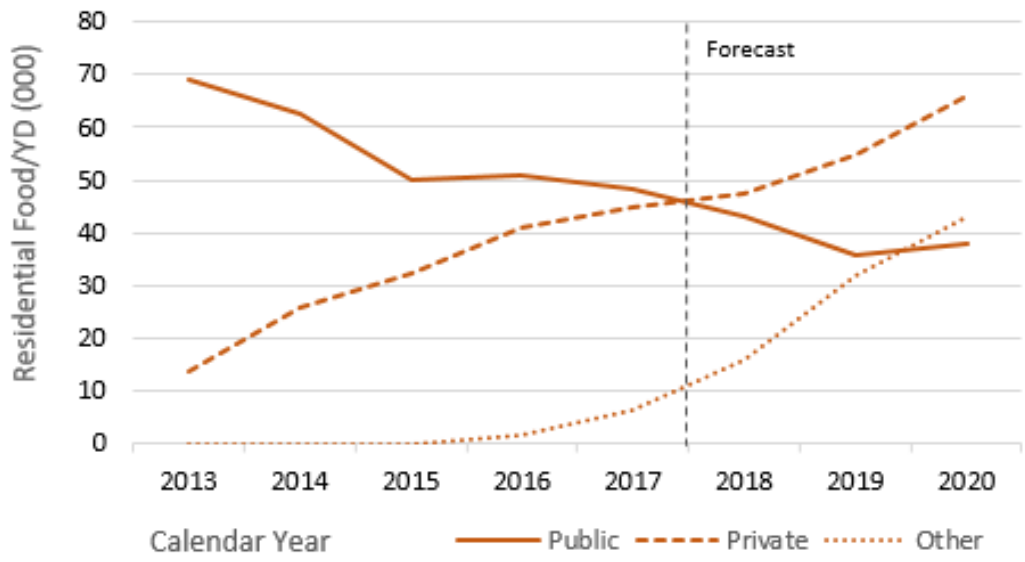
* Direct to process = compost facilities or farms outside the Metro region

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Residential food/yard debris distribution

	Tons (thousands)		
	To Regional		To
CY	Public	Private	Other*
2013	69	14	0
2014	63	26	0
2015	50	32	0
2016	51	41	1
2017	48	45	6
2018	43	48	16
2019	36	55	32
2020	38	66	43



Notes:

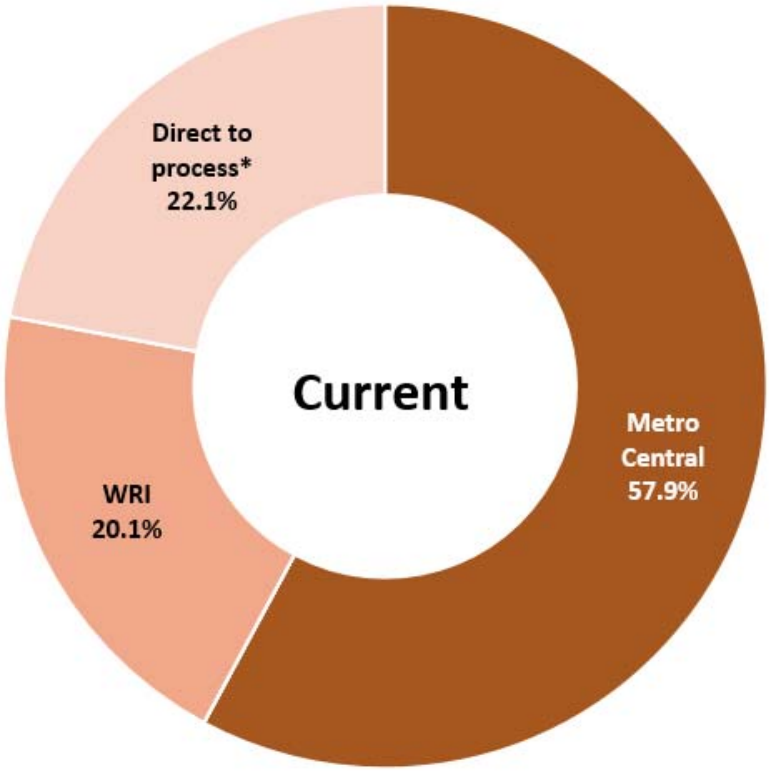
o source: Metro Solid Waste Information System (SWIS)

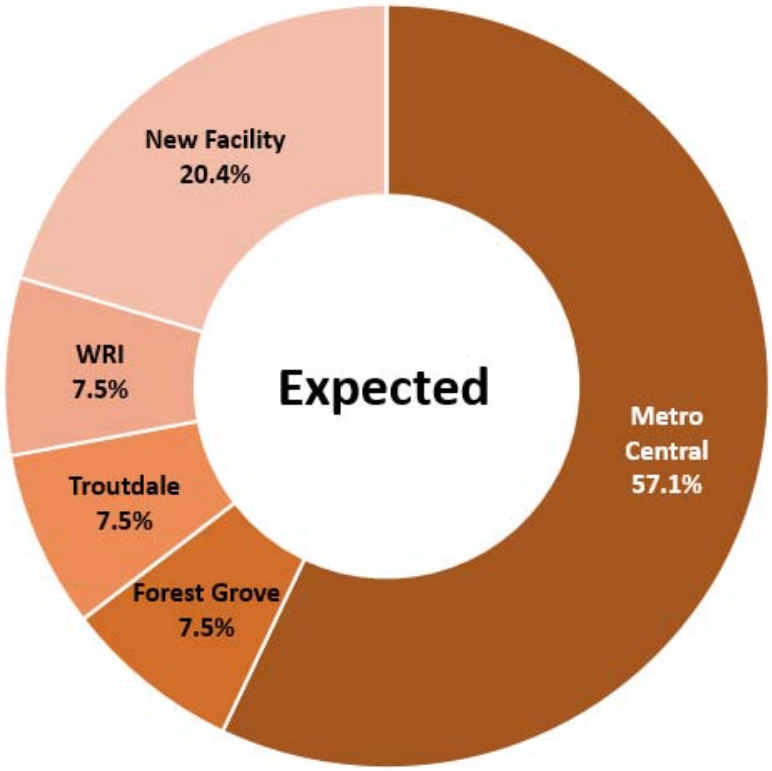
* Other are licensees authorized to deliver waste directly to processors outside the region

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Commercial food distribution





Notes:

o source: Metro Solid Waste Information System (SWIS)

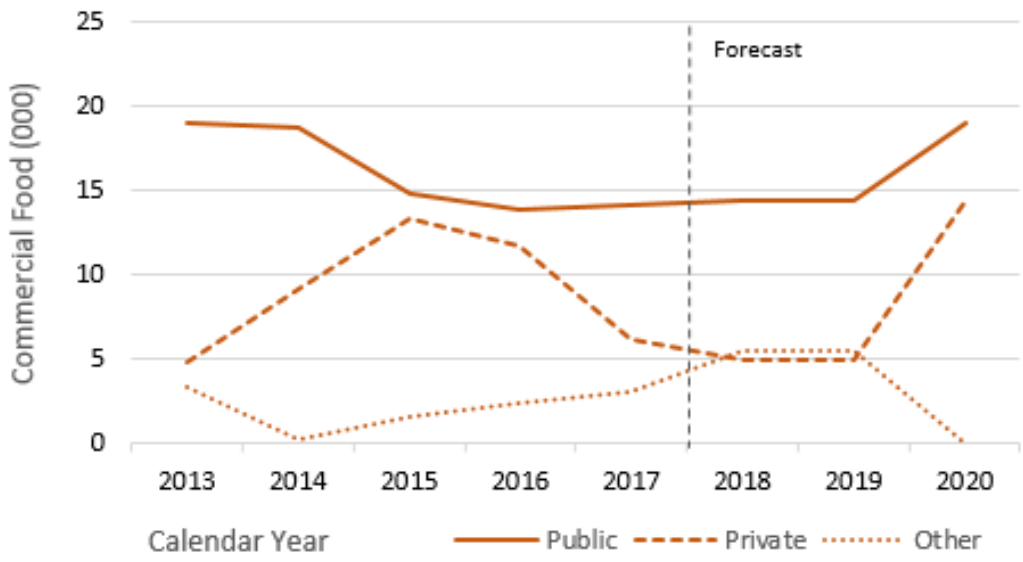
* Direct to process = compost facilities or farms outside the Metro region

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Commercial food distribution

	Tons (thousands)		
	To Regional		To
CY	Public	Private	Other*
2013	19	5	3
2014	19	9	0
2015	15	13	2
2016	14	12	2
2017	14	6	3
2018	14	5	5
2019	14	5	5
2020	19	14	0



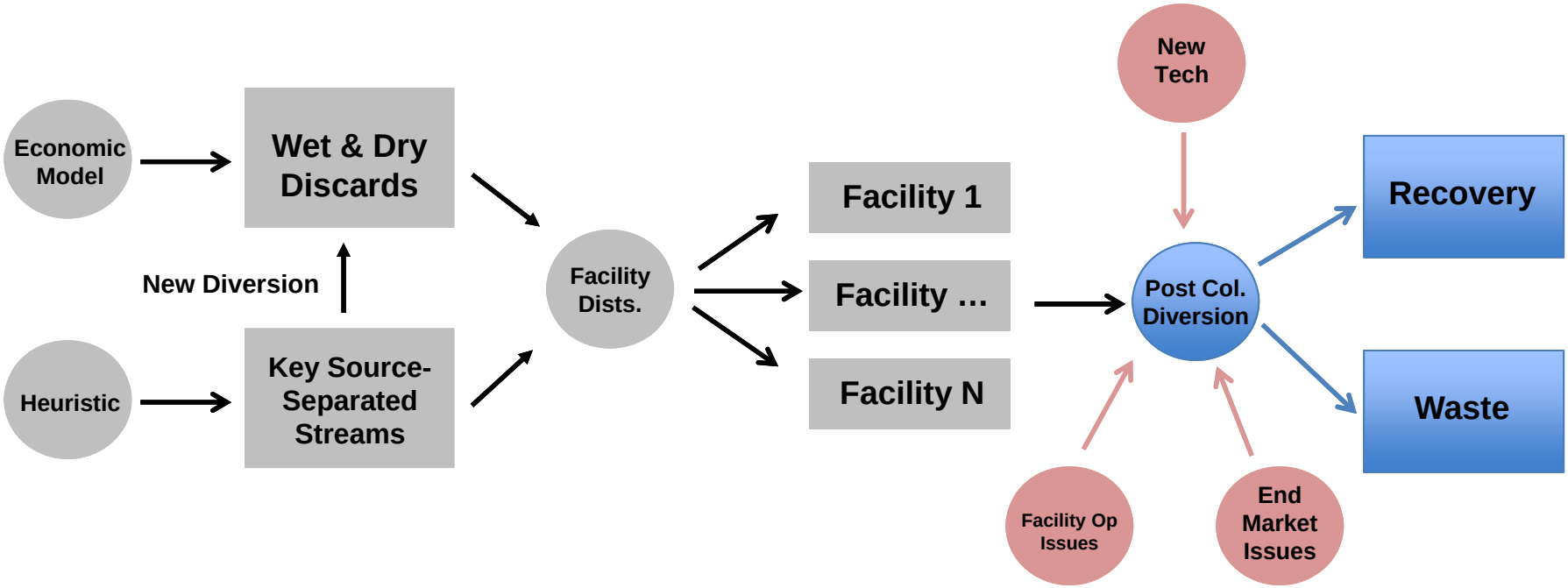
Notes:

o source: Metro Solid Waste Information System

* Other are licensees authorized to deliver waste directly to processors, including Divert, outside the region

Methods & Assumptions

Generate > Distribute > Divert > Dispose

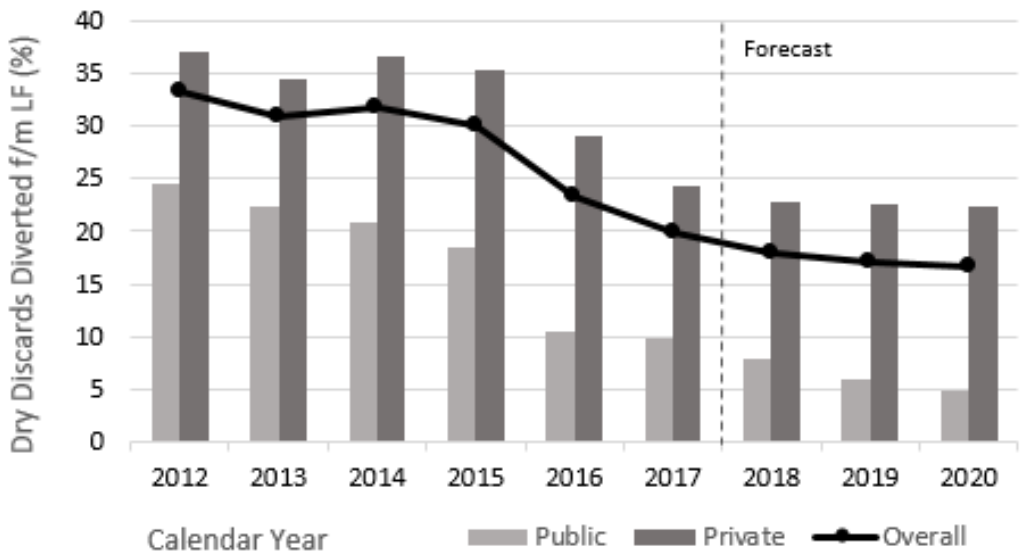


Methods & Assumptions

Generate > Distribute > Divert > Dispose

Facility post-collection diversion

	% Dry Discards Recovered		
CY	Public	Private	Overall
2012	24.6	37.1	33.2
2013	22.5	34.5	30.9
2014	20.9	36.6	31.7
2015	18.5	35.3	30.0
2016	10.4	29.1	23.4
2017	9.7	24.4	19.8
2018	7.9	22.9	18.0
2019	5.9	22.6	17.1
2020	4.9	22.4	16.6



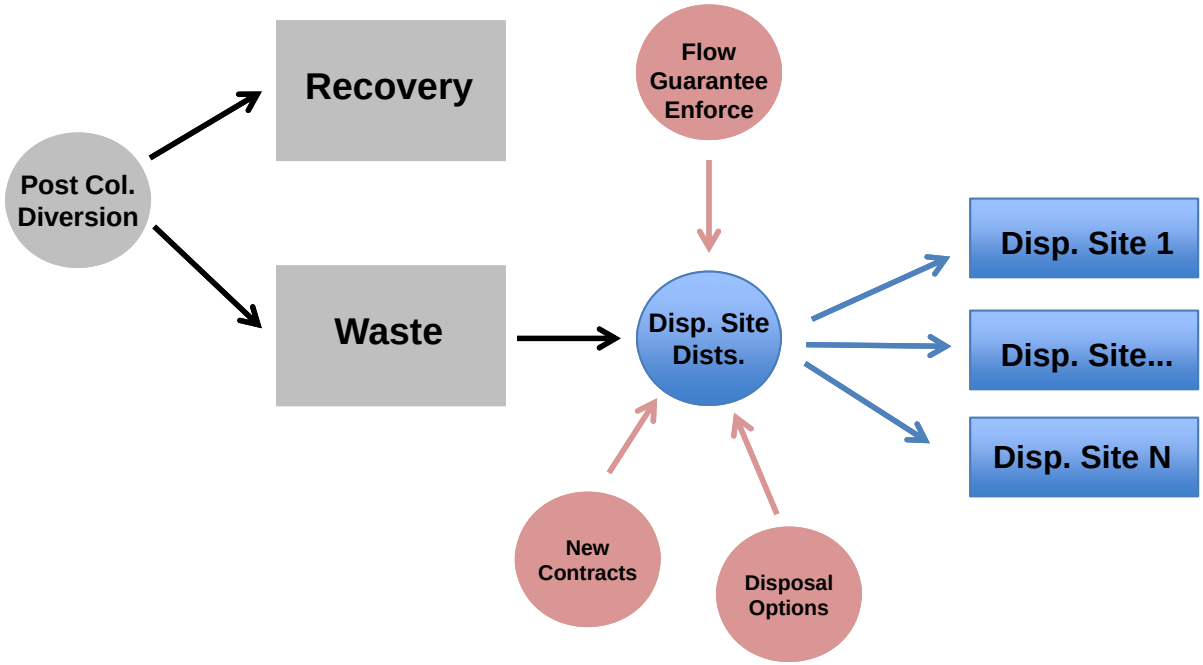
Notes:

o source: Metro Solid Waste Information System (SWIS)

Methods & Assumptions

Generate > Distribute > Divert > Dispose

Continued…



Methods & Assumptions

Generate > Distribute > Divert > Dispose

Facility disposal

Dry:

- Current flow patterns persist
- (Some specific flows renegotiated under contract amendment)

Wet:

Through 2019

- 87% of Metro region waste to Waste Management-owned landfills
- Most waste diverted from Riverbend to Coffin Butte counts toward 87%

2020 and beyond

- No declining block rate
- No flow guarantee – other than from Metro's own stations

Results
Focus Areas

Fees and Taxes

Regional System Fee, Solid Waste Excise Tax, Community Enhancement Fee

Regulatory

Tons available for wet waste allocations

Metro's Disposal Utility

Tonnage charges

Results
Fees and Taxes

Regional Tonnage…

	Fiscal Year-Ending (Jul 1 - Jun 30)			
	2017	**2018**	**2019**	**2020**
	actuals	*actuals*	*forecast*	*forecast*
Subject to System Fee				
Tons	1,323,040	1,399,702	1,458,706	1,477,270
Change (%)	*3.4*	*5.8*	*4.2*	*1.3*
Subject to Excise Tax				
Tons	1,339,477	1,420,161	1,483,219	1,502,310
Change (%)	*3.6*	*6.0*	*4.4*	*1.3*
Subject to CEF				
Tons	1,027,204	1,049,378	1,080,945	1,105,442
Change (%)	*4.5*	*2.2*	*3.0*	*2.3*

Results
Regulatory

Regional Tonnage…

	Calendar Year				
	2016	**2017**	**2018**	**2019**	**2020**
	actuals	*actuals*	*forecast*	*forecast*	*forecast*
Avail. For Allocation					
Tons	**718,993**	**734,742**	**741,829**	**759,567**	**768,228**
Change (%)	*4.5*	*2.2*	*1.0*	*2.4*	*1.1*

Results
Metro's Disposal Utility

Tonnage to Metro Facilities…

	Fiscal Year-Ending (Jul 1 - Jun 30)			
	2017	**2018**	**2019**	**2020**
	actuals	*actuals*	*forecast*	*forecast*
MSW				
Tons	**523,199**	**532,333**	**550,843**	**556,780**
Change (%)	*2.7*	*1.7*	*3.5*	*1.1*
Clean Wood				
Tons	**1,404**	**2,291**	**1,827**	**1,844**
Change (%)	*55.5*	*63.2*	*(20.2)*	*0.9*
Yard Debris				
Tons	**12,402**	**13,955**	**13,405**	**13,389**
Change (%)	*(8.4)*	*12.5*	*(3.9)*	*(0.1)*
Residential Org.				
Tons	**51,439**	**44,658**	**38,292**	**36,471**
Change (%)	*6.2*	*(13.2)*	*(14.3)*	*(4.8)*
Commercial Org.				
Tons	**14,287**	**13,621**	**14,690**	**16,585**
Change (%)	*1.5*	*(4.7)*	*7.8*	*12.9*

Summary

Forecast in Brief:

- Economic growth continues to slow – wet and dry waste follow suit
- Additional food waste recycling diverts some waste from wet
- Post-collection recovery rates continue to decline
- Discards continue to grow

Summary

Risks:

- Economy
- Allocations, and Use
- Post-collection Recovery

Questions?

Use “Chat” box in WebEx screen Now, or

Email us later

Joel Sherman
Joel.Sherman@oregonmetro.gov

Dennis Yee
Dennis.Yee@oregonmetro.gov

oregonmetro.gov

Metro

Arts and conference centers
Garbage and recycling
Land and transportation
Oregon Zoo
Parks and nature

oregonmetro.gov