The Villages®
Community Development Districts

Update on the Solid Waste Management Plan

Prepared for the North Sumter County Utility Dependent District

November 4, 2019

NSC UDD North Sumter County UTILITY Dependent District

JACOBS®
www.jacobs.com | worldwide

Agenda

- Purpose of Meeting
- How Did We Get Here?
- Solid Waste Management Goals
- Development of Recommendations
- Path Forward

Purpose of Today's Meeting

- This meeting will provide the North Sumter County Utility Dependent District (NSCUDD) Board with recommendations for the long term solid waste and recycling program

The Villages®
Community Development Districts

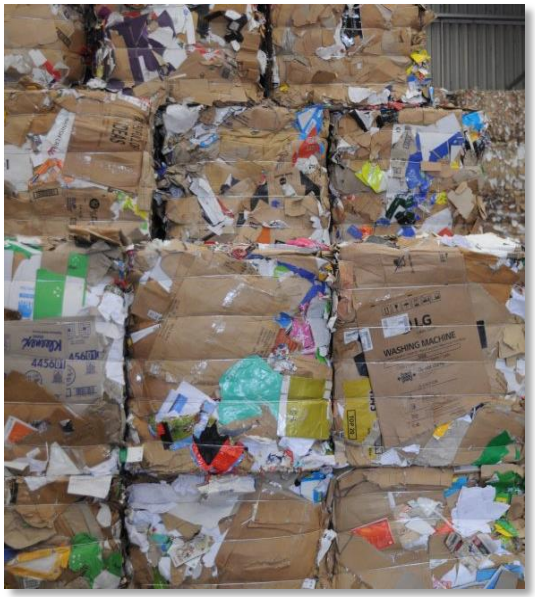
How did we get here?

The Villages®
Community Development Districts

JACOBS®

How did we get here?

- Restrictions that Asian countries have placed on the import of recyclables has impacted recycling in the US, resulting in a requested rate increase for recycling from our vendor (WMI)
- Contract for recycling and solid waste expired
- District's continuous improvement and planning process



Process and Schedule

June - Discussed solid waste and recycling program in The Villages and provided an overview of current trends for solid waste and recycling

August - Workshop with residents and NSCUDD Board to collect information and identify preferences

October - Workshop presentation of options for residents and NSCUDD Board comment

November – Recommendations to the NSCUDD

Topics Discussed at June Meeting

- Discussed existing solid waste and recycling program in The Villages
- Provided an overview of current trends for solid waste and recycling (Globally, Nationally, Florida, and The Villages)
- Discussed the difficulty in marketing recyclables due to policies and restrictions that Asian countries have placed on the import of recyclables

Topics Discussed at August Meeting

- Provided additional information based on questions received at the June meeting
- Provided an opportunity for ≈100 residents to express their desires and preferences related to the program
  - Residents used electronic voters to respond to questions related to solid waste, recycling, yard and bulky waste
- Held four breakout sessions to discuss the program in greater detail

Topics Discussed at October Meeting

Recycling

- Continue current program
- Stop recycling materials that have no market value
- Improve recycling under current program through education
- Increase recycling through education and additional materials

Disposal

- WMI Wildwood Transfer Station
- Waste Connections Landfill
- Covanta (Lake County) Waste to Energy (WtE)

District Solid Waste Management Goals

The Villages®
Community Development Districts

JACOBS®

District Goals for the solid waste and recycling program based on Community input

- Maintain a high level of satisfaction for collection of solid waste, recycling, yard trash and bulk waste while providing a cost-effective program
- Provide an education program to assure that residents are aware of the current program and understand how to optimize the program
- Provide recycling and disposal services, but allow for flexibility to add or remove materials in the future to keep the program cost-effective

Development of Recommendations

The Villages®
Community Development Districts

JACOBS®

We Heard You!

Keep it simple

What would the program look like if started new?

HOW DO WE IMPACT COMMERCIAL FACILITIES?

Source Reduction

What have other communities done?

Consider the cost and the future

PLASTIC BAGS

Sustainable procurement

Do the right thing!

Stop recycling

How will it make The Villages better?

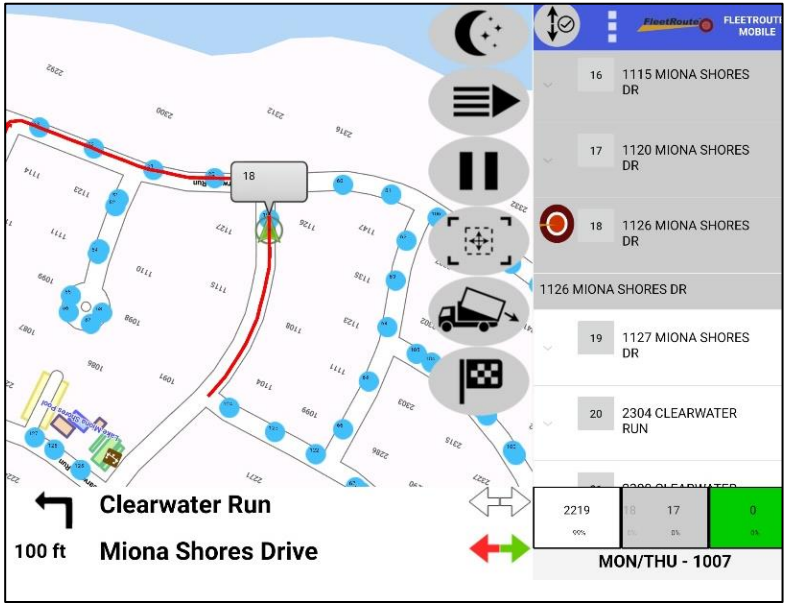
Be bold

Improvements that the District will implement to meet goals

- Prepare a job description for an education specialist for consideration within this year's budget process
- Prepare a phased approach to implement recycling programs at District facilities that generate a significant amount of recyclables
- Develop a long term commitment for management of recyclables and disposal of solid waste with privately-owned facilities
- Consider a fee for bulk waste/white goods pickup

Improvements that Jacobs will implement to meet District goals

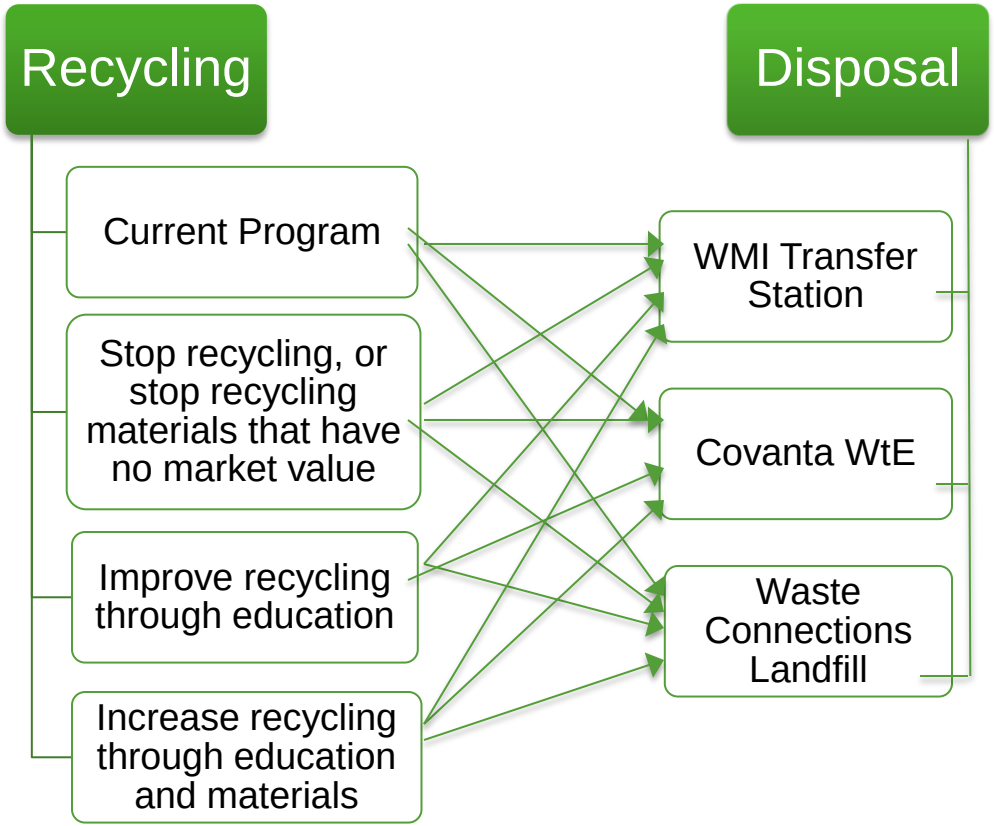
- Continue to optimize routing using a GPS-based system
- Evaluate yard waste collection in winter
- Evaluate truck size to provide a cost effective system
- Continue to improve the bulk waste/white goods program



The Villages® Community Development Districts

JACOBS®

Based on community input the District reevaluated options and how to combine them



Solid waste system is inter-related; disposal impacts collection

The Villages®
Community Development Districts

JACOBS®

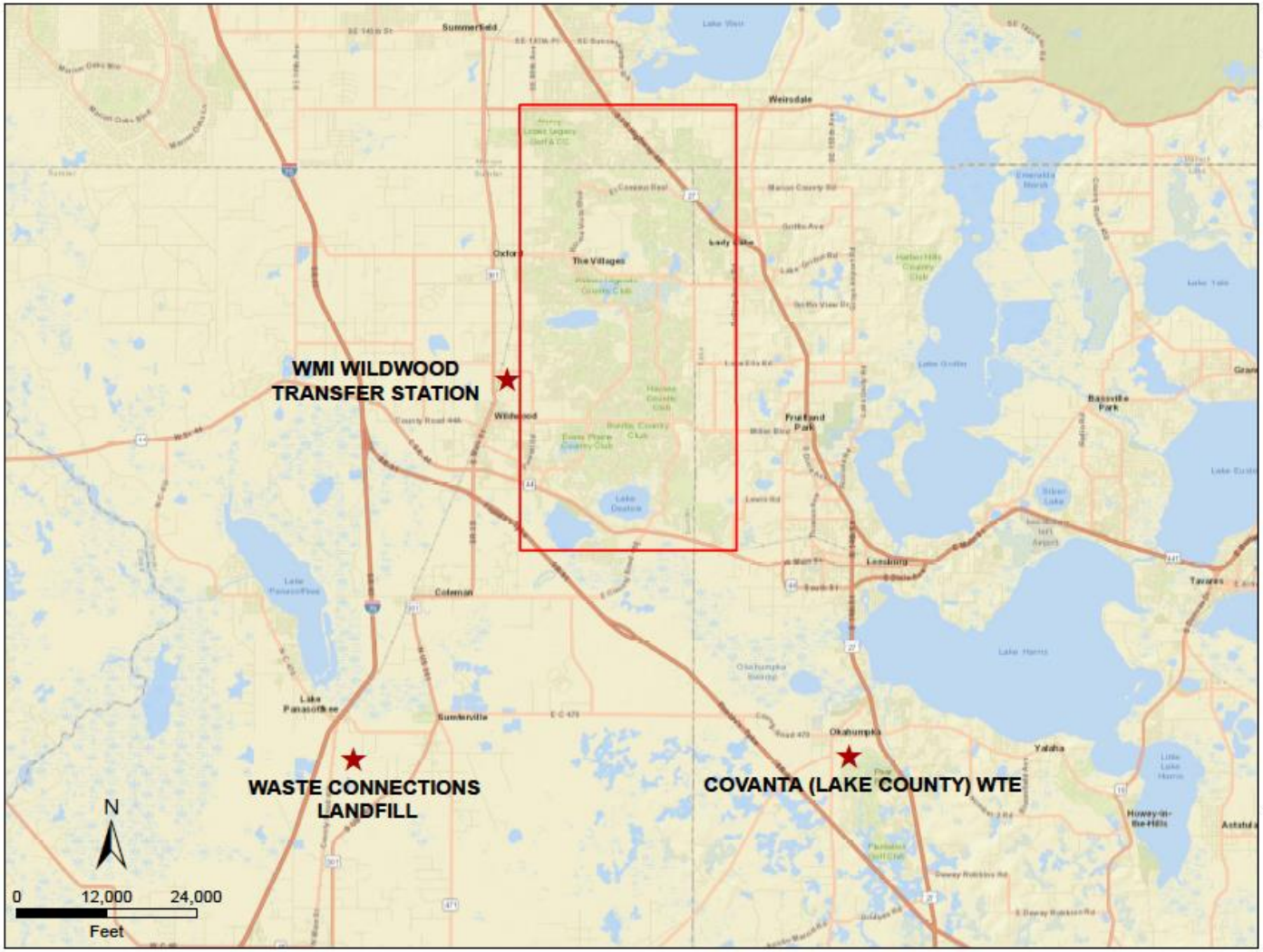


Figure 5

Solid Waste Management Plan
Facilities within 75 mile radius

The Villages
Community Development Districts

JACOBS

Options Considered

	WMI Transfer Station	Covanta WtE	Waste Connections Landfill
No Recycling	Everything to LF	Everything to WtE	Everything to LF
Current Program	MSW to LF Recycle to MRF YW to WtE	MSW and YW to WtE Recycle to MRF	MSW to LF Recycle to MRF YW to Compost
Improve recycling through education			
Increase recycling through education and materials			
Stop recycling materials that have no market value (news, mixed paper, mixed plastic, glass)	MSW to LF Recycle to MRF YW and NP, MP, MPL to WtE	MSW, YW, NP, MP, MPL to WtE Recycle (inc. glass) to MRF	MSW to LF Recycle to MRF YW to Compost

How are they similar?

	WMI Transfer Station	Covanta WtE	Waste Connections Landfill
Large National Firm	*X*	*X*	*X*
Permitted facility and ability to accept materials	*X*	*X*	*Need to permit facility to transfer recyclables*
Safety Program	*X*	*X*	*X*
Community involvement program	*X*	*X*	*X*

How are they different?

	WMI Transfer Station	Covanta WtE	Waste Connections Landfill
Disposal Method	Primarily Landfill	Primarily WtE	Primarily Landfill
Miles traveled to facility/year	2,600	214,400	198,800
Transportation cost/year	16,000	1,340,000	1,242,000
Recycling Rate	0 to 34%	50% to 63%	0 to 43%
Amount Landfilled (tons)	23,200 to 40,700	7,500 to 10,200	23,200 to 40,700
Energy Generation	No	Yes	No
Tip fee (blended)	≈ $42.50	≈ $53.00	≈ $59.00

Consideration of Options based on Goals and Community feedback

- Do not consider current recycling program option as there is a strong desire to improve through education, or eliminate as a cost saving measure
- Do not consider adding additional materials to recycling program due to the current difficulty and cost in marketing recycled materials
- Compare WMI and Waste Connections, as they are similar

Market Value of Recyclables

Material	Market Value ($/Ton)	Material (% of Recycle)	Average Market Value ($/Mixed Ton)
Newspaper (NP)	$0.00	21.0%	$0.00
Corrugated Cardboard	$35.00	15.1%	$5.27
Mixed Paper (MP)	$0.00	16.9%	$0.00
Aluminum cans	$1,040.00	1.1%	$11.13
Steel cans	$20.00	2.0%	$0.41
PET	$290.00	4.9%	$14.07
HDPE Natural	$430.00	0.8%	$3.57
HDPE Colored	$220.00	1.4%	$3.01
Mixed Plastics (MPL)	$0.00	2.7%	$0.00
Glass (GL)	($2.08)	21.1%	($0.44)
Residue	($37.16)	13.1%	($4.86)

Comparison of WMI and Waste Connections

- WMI and Waste Connections options are similar (primarily landfill disposal), however:
  - Cost of Waste Connections is higher due to higher tipping fee and cost to transport material to facility
  - Waste Connections currently does not handle recyclables
- Recommend deferring Waste Connections and further investigate WMI as a landfill based alternative

Options Considered based on Goals and Community feedback

	WMI Transfer Station	Covanta WtE	Waste Connections Landfill
No Recycling	✔	✔	✗
Current Program	✗	✗	✗
Improve recycling through education	✔	✔	✗
Stop recycling materials that have no market value	✔	✔	✗
Increase recycling through education and materials	✗	✗	✗

Detail of Options

Option	WMI			Covanta		
	MSW	*Recycling*	*Yard Waste*	*MSW*	*Recycling*	*Yard Waste*
No Recycling	All material to WMI transfer station for transport to landfill			All material to Covanta WtE		
Improve recycling through education	Landfill	Recycle 10 materials and send to MRF	WtE	WtE	Recycle 10 materials and send to MRF	Collected with MSW
Stop recycling materials that have no market value	Landfill	Recycle 6 materials and send to MRF	Add NP, MP, MPL to YW, send to WtE	WtE	Recycle 6 materials and send to MRF	Collected with MSW

Factors considered for evaluation of options

- Number of Collections
- Miles Traveled
- Recycling Rate
- Amount Landfilled
- Energy Consumed
- Carbon Emissions Generated
- Cost per household

Definitions of Factors considered for evaluation

- Number of Collections - Number of collections a household per week, less is better
- Miles traveled - Miles traveled by collection trucks to facility, or miles traveled by transfer trailers to facility, less is better
- Recycling Rate – amount of material beneficially reused, more is better
- Amount Landfilled Tons of waste placed in a landfill, less is better
- Cost per household - $/household per month, less is better

Definitions of Factors considered for evaluation

- Energy Consumed (less is better), Million BTU (MBTU)
- CO2 Generated (less is better), Metric Tons CO2 equivalent (MTCO2e)
  - The materials in MSW represent what is left over after extraction and processing of raw materials, manufacturing the product, transportation to markets, use, and waste management (collection, recycling, disposal). Each step impacts the overall life cycle emissions and energy consumption.
  - Recycling reduces emissions and energy consumption
  - WTE is about 8 times more efficient at recovering energy from wastes than landfills

Comparison of WMI and Covanta

	WMI Transfer Station			Covanta WtE		
	All to LF, no recycling	Improve current recycling	Reduce materials recycled	All to WtE, no recycling	Improve current recycling	Reduce materials recycled
No. of Collections	2	4		2	3	
Collection truck miles	2,600	2,600	2,600	214,400	214,400	214,400
Transfer trailers miles	594,800	403,200	402,000	-	91,000	45,700
Recycling Rate	0%	34%	17%	50%	63%	54%
Amount Landfilled (tons)	40,700	23,300	30,300	10,100	7,500	9,300
Energy Consumed (MBTU)	13,100	(185,500)	(125,800)	(226,800)	(242,800)	(288,800)
CO2 Generated	2,815	(18,800)	(6,251)	(6,968)	(27,100)	(15,300)
Cost per household/month	$1.80	$2.80	$2.40	$5.40	$5.60	$5.60

Draft Information

Comparison of WMI and Covanta - (Rank Order 1 to 6)

	WMI Transfer Station			Covanta WtE		
	All to LF, no recycling	Improve current recycling	Reduce materials recycled	All to WtE, no recycling	Improve current recycling	Reduce materials recycled
No. of Collections	1	5	5	1	3	3
Collection truck miles	1	1	1	4	4	4
Transfer trailers miles	6	5	4	1	3	2
Recycling Rate	6	4	5	3	1	2
Amount Landfilled (tons)	6	4	5	3	1	2
Energy Consumed (MBTU)	6	4	5	3	1	2
CO2 Generated	6	4	5	3	1	2
Cost per household/month	1	3	2	4	5	5

Draft Information

Comparison of WMI and Covanta - 0 to 10 scale

	WMI Transfer Station			Covanta WtE		
	All to LF, no recycling	Improve current recycling	Reduce materials recycled	All to WtE, no recycling	Improve current recycling	Reduce materials recycled
No. of Collections	[illegible]	0	0	10.0	6.7	6.7
Collection truck miles	10.0	[illegible]	10.0	0	0	0
Transfer trailers miles	0	3.2	[illegible]	10.0	8.5	9.2
Recycling Rate	0	5.4	[illegible]	[illegible]	10.0	8.6
Amount Landfilled (tons)	0	6.1	4.4	[illegible]	10.0	9.6
Energy Consumed (MBTU)	0	5.6	3.9	6.7	10.0	8.5
CO2 Generated	0	7.2	3.0	3.3	10.0	6.1
Cost per household/month	10.0	7.4	8.4	0.5	0	0

Draft Information

Bulk Waste and White Goods Collection

- Current system is an on-call service, operating 5 days per week
- In 2018, made 10,220 pick-ups of material
  - Bulk items include furniture, large household trash, pallets, remodeling debris, bicycles, lawn mowers, mattresses, toilets, carpeting, fencing, lumber, computers, and other electronic equipment
- Potential fees to recover some or all of the costs

Path Forward

The Villages®
Community Development Districts

JACOBS®

Recommended Path Forward

- Approve, in 2019-2020 budget, hiring an education specialist
- Prepare an implementation plan to recycle at District facilities that generate significant amount of recyclables, and report back to the Board identifying requirements, improvements and costs
- Direct Jacobs to continue to optimize truck routing based on proposed changes and evaluate truck size to provide a cost effective system
- Consider a fee for bulky waste pickup
- Enter into negotiations for long term of management of recyclables and disposal of solid waste with privately-owned facilities, and report back to the Board

Thank you for attending!

The Villages®
Community Development Districts

JACOBS®

Comparison of WMI and Covanta (H/M/L scale)

	WMI Transfer Station			Covanta WtE		
	All to LF, no recycling	Improve current recycling	Reduce materials recycled	All to WtE, no recycling	Improve current recycling	Reduce materials recycled
No. of Collections	↑	↓	↓	↑	-	-
Collection truck miles	↑	↑	↑	-	-	-
Transfer trailers miles	↓	↓	-	↑	-	↑
Recycling Rate	↓	-	↓	-	↑	↑
Amount Landfilled (tons)	↓	-	↓	-	↑	↑
Energy Consumed (MBTU)	↓	-	↓	-	↑	↑
CO2 Generated	↓	-	↓	-	↑	↑
Cost per						