

Solid Waste Master Plan Roadmap

Evaluation of a Construction and Demolition Debris Recycling Program



- Debris generated from construction, renovation, or demolition activities.
 - Wood (from buildings)
 - Asphalt (from roads and roofing shingles)
 - Gypsum (the main component of drywall)
 - Metals
 - Bricks
 - Glass
 - Plastics
 - Salvaged building components (doors, windows, and plumbing fixtures)
 - Trees, stumps, earth, and rock from clearing sites

C&D – United States

- 600 million tons of C&D debris were generated in the United States in 2018, which is more than twice the amount of generated municipal solid waste.
- Demolition represents more than 90 percent of total C&D debris generation, while construction represents less than 10 percent.
- Just over 455 million tons of C&D debris were directed to next use and just under 145 million tons were sent to landfills.
- Aggregate was the main next use for the materials in the C&D debris.
- The largest building sector that generated C&D materials was nonresidential demolition followed by the residential renovation.

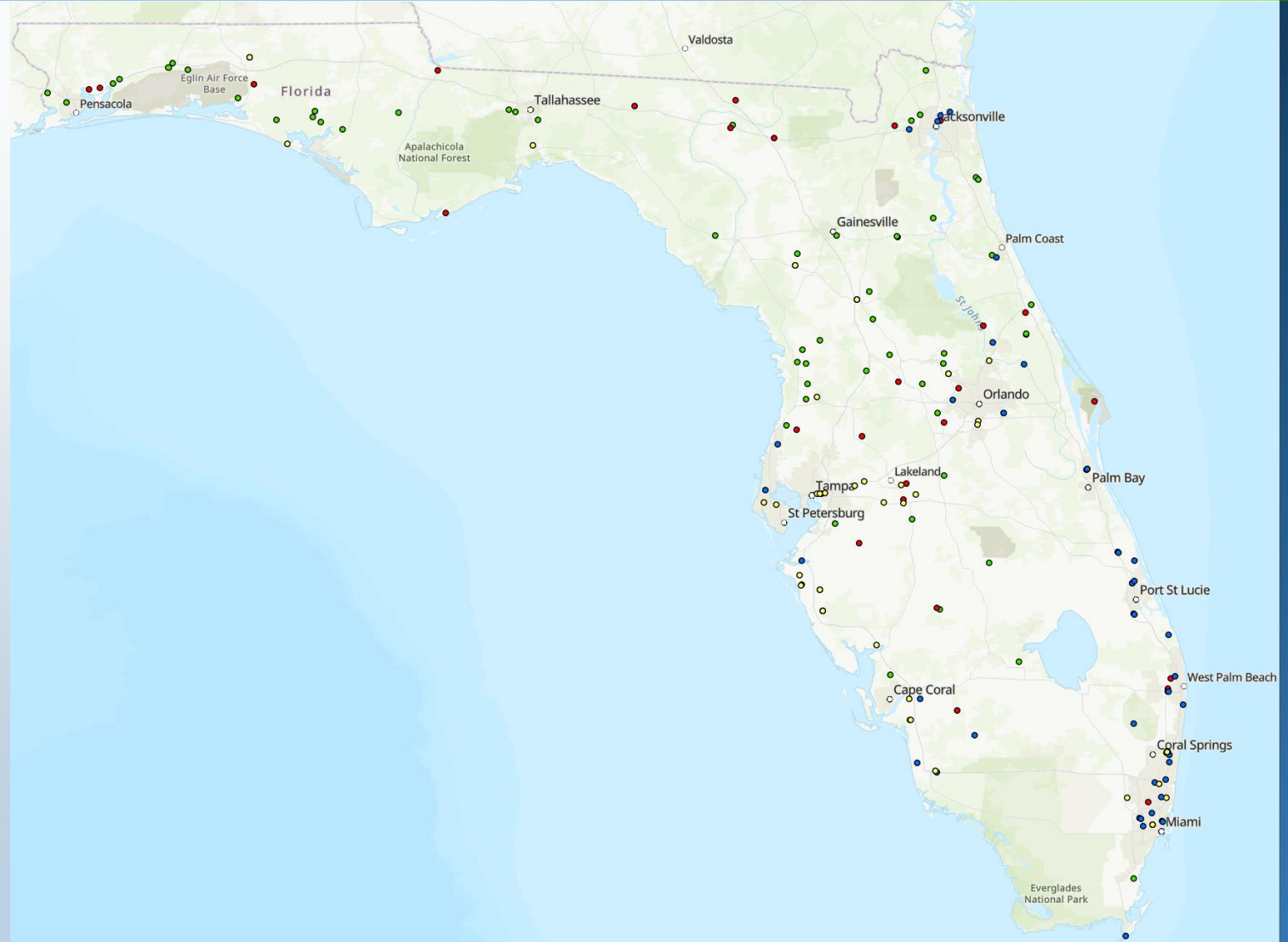
C&D Infrastructure - Florida

● Class III Landfills – 34

● C&D Debris Disposal Facilities – 64

● C&D MRF – 44

● Class I & III MRF - 38



C&D Recycling - Florida



62-701 F.A.C. Solid Waste Management Facilities



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form # 62-701.900(36)
Form Title Certification of Economic Feasibility to
Process C&D Debris Prior to Disposal
Effective Date: March 13, 2016
Incorporated in Rule 62-701.730, F.A.C.

CERTIFICATION OF ECONOMIC FEASIBILITY TO PROCESS C&D DEBRIS PRIOR TO DISPOSAL

GENERAL INSTRUCTIONS: Paragraph 62-701.730(13)(e), F.A.C., requires that an owner or operator of any materials recovery or disposal facility that accepts dedicated loads of C&D debris evaluate the economic feasibility of processing to remove recyclable materials prior to disposal. This form shall be used by owners or operators of such facilities to certify that they have performed an evaluation of the economic feasibility of processing the dedicated loads of C&D debris and document the economic factors and types of recyclable materials that were considered. This certification shall be completed no later than September 9, 2016 for existing facilities, or prior to operating a new facility on or after March 13, 2016. Thereafter, the evaluation and certification shall be completed at least annually.



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road, MS 4555
Tallahassee, Florida 32399-2400

[Reset Form](#)[Print Form](#)

DEP Form #: 62-701.900(7), F.A.C.
Form Title: Annual Report for a Construction and
Demolition Debris Facility
Effective Date: January 6, 2010
Incorporated in Rule: 62-701.710(8)(b), F.A.C.

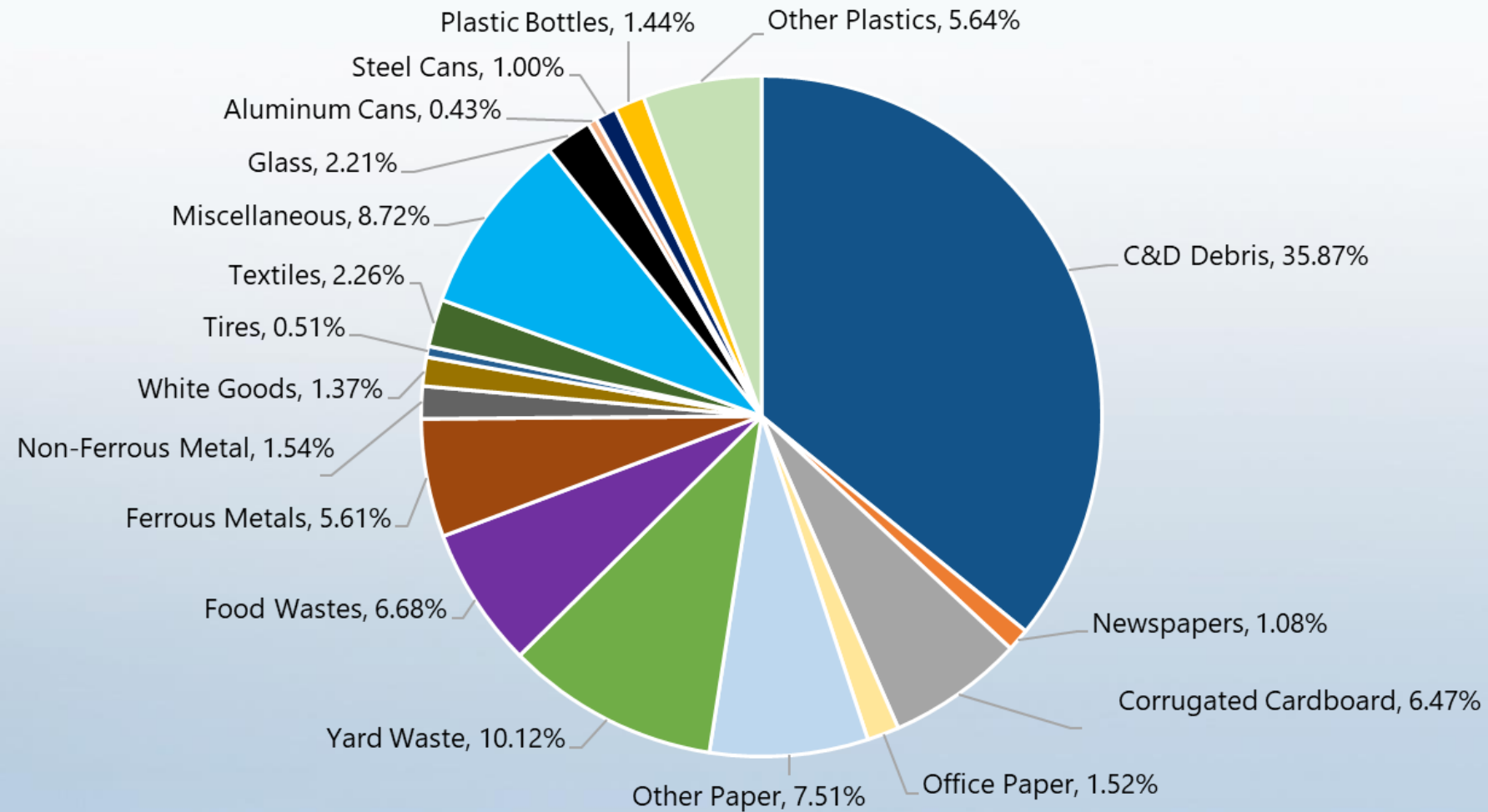
Annual Report for a Construction and Demolition Debris Facility

NOTE: Use one of these forms for each county from which the facility received materials

1. Company Name: _____ Year of data: _____
2. Name of Facility: _____ ☐ Landfill ☐ MRF ☐ TS
3. Physical Address: _____
4. Mailing Address: _____
5. County Location: _____
6. Debris County of Origin: _____
7. Company Contact: _____
8. Phone Number: _____ E-Mail: _____
(the individual responsible for this information)

MATERIAL TYPES	MATERIALS RECOVERED	TOTAL TONS RECYCLED (SHIPPED)
<u>ASPHALT</u>	Used for _____	Subtotal Asphalt _____
<u>CONCRETE</u>	Source: Roads, Bridges, Sidewalks, Curbs _____	_____
	Source: Building Construction/Demolition: _____	_____
	Used for fill (lake or land) _____	_____
	Used for Road base _____	_____

C&D Recycling - Florida

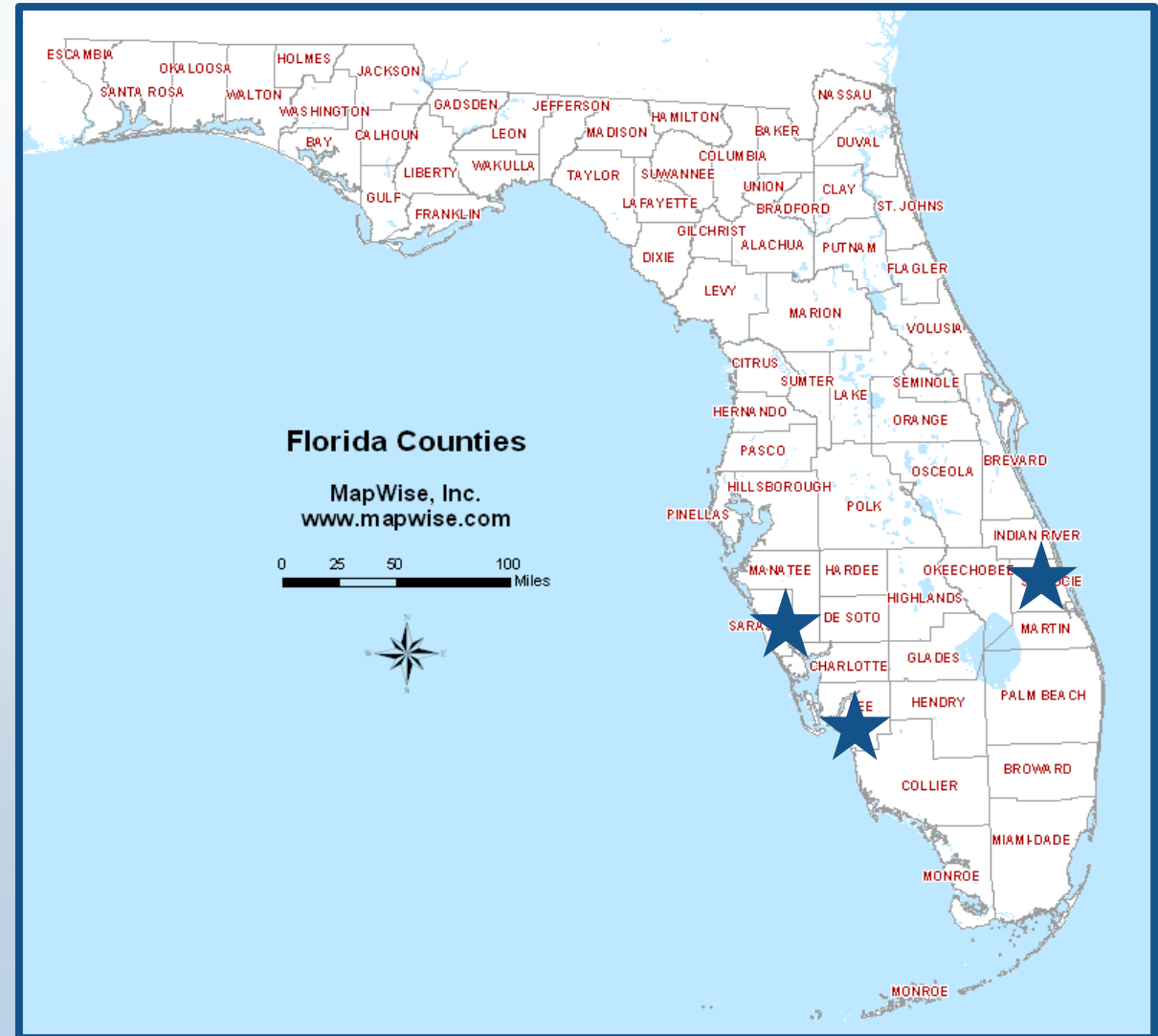


2022 MSW Composition (FDEP)

C&D Recycling - Florida

3 County-operated C&D recycling programs in Florida

- Lee
- Sarasota
- St. Lucie





Sarasota County – C&D Program



DISPOSAL

CONSTRUCTION AND DEMOLITION RECYCLING PROGRAM

BACKGROUND/ANALYSIS:

In 1991, a pilot Construction and Demolition Recycling Program ("C&D Program") was created based on state legislation requiring landfills to reduce the amount of waste buried by 30%. The pilot program continued until 1995. In 1995, the Commission approved the first contract with a private vendor to operate a construction and demolition recycling facility at the Bee Ridge Landfill. The approval of the contract established the C&D Program. Attachment 1 provides a timeline of the program since inception. The initial term of the contract expires May 3, 2026.

This action item includes an evaluation of the effectiveness of the C&D Program to help clarify the program's purpose, goals, and provide recommendations regarding the future of the program. The results of the evaluation will also be included as future objectives in the Roadmap.

RELEVANT PRIOR BOARD ACTION:

1. Dec. 9, 1993 – Solid Waste Ordinance 93-102 amended.
2. Sept. 5, 1995 – Contract 95-367 approved for the operation of a construction and demolition debris recycling facility.
3. July 23, 2003 – Contract 2003-308, approved for the operation of a construction and demolition debris recycling facility.
4. May 2, 2013 – Contract 2013-362, approved for purchase of construction and demolition facility improvements from WCA of Florida, LLC.
5. July 9, 2013 – Contract 2013-441, approved for the operation of a construction and demolition debris recycling facility.
6. May 8, 2019 – Contract 2019-194, approved for the operation of a construction and demolition debris recycling facility.

OUTREACH:

N/A

ACTION(S):

1. August 2021 – Completed an evaluation report for the C&D Program.

FUNDING:

Funding is available within the Solid Waste Management Operations Fund.

COUNTY STRATEGIC PLAN ALIGNMENT:

Goal: Exceptional County Services Aligned with Resources

Objective: Deliver county services in the most cost-effective manner

DISPOSAL

DEPARTMENT MASTER PLAN/ROADMAP ALIGNMENT:

Waste Objective 1.1: Address potential facility deficiencies and provide for future system demands.

Waste Policy 1.1.1: The county shall continue to support municipal and franchise solid waste collection systems by providing for the operation of solid waste disposal facilities to meet the needs of all incorporated and unincorporated areas of the county.

Waste Policy 1.1.2: The county shall process all solid waste for disposal as required under applicable permits, rules, and regulations for all solid waste disposal facilities.

Waste Objective 1.2: Maximize landfill capacity and promote the reuse of resources by continuing to meet or exceed State recycling goals and other mandates related to solid waste reduction.

Waste Policy 1.2.7: The county shall provide a public education and promotion program to inform residents of the opportunity to recycle, encourage source separation of recyclable materials, and promote the benefits of reducing, reusing, recycling, and composting materials.

Waste Policy 1.2.8: The county shall continue to seek grants to achieve the short and long term goals such as education and innovative technology of the Department.

NEXT STEPS:

1. Become active in the Construction and Demolition Recycling Association ("CDRA").
2. Conduct further analysis of the C&D program as needed.
3. Provide program recommendations to Administration.

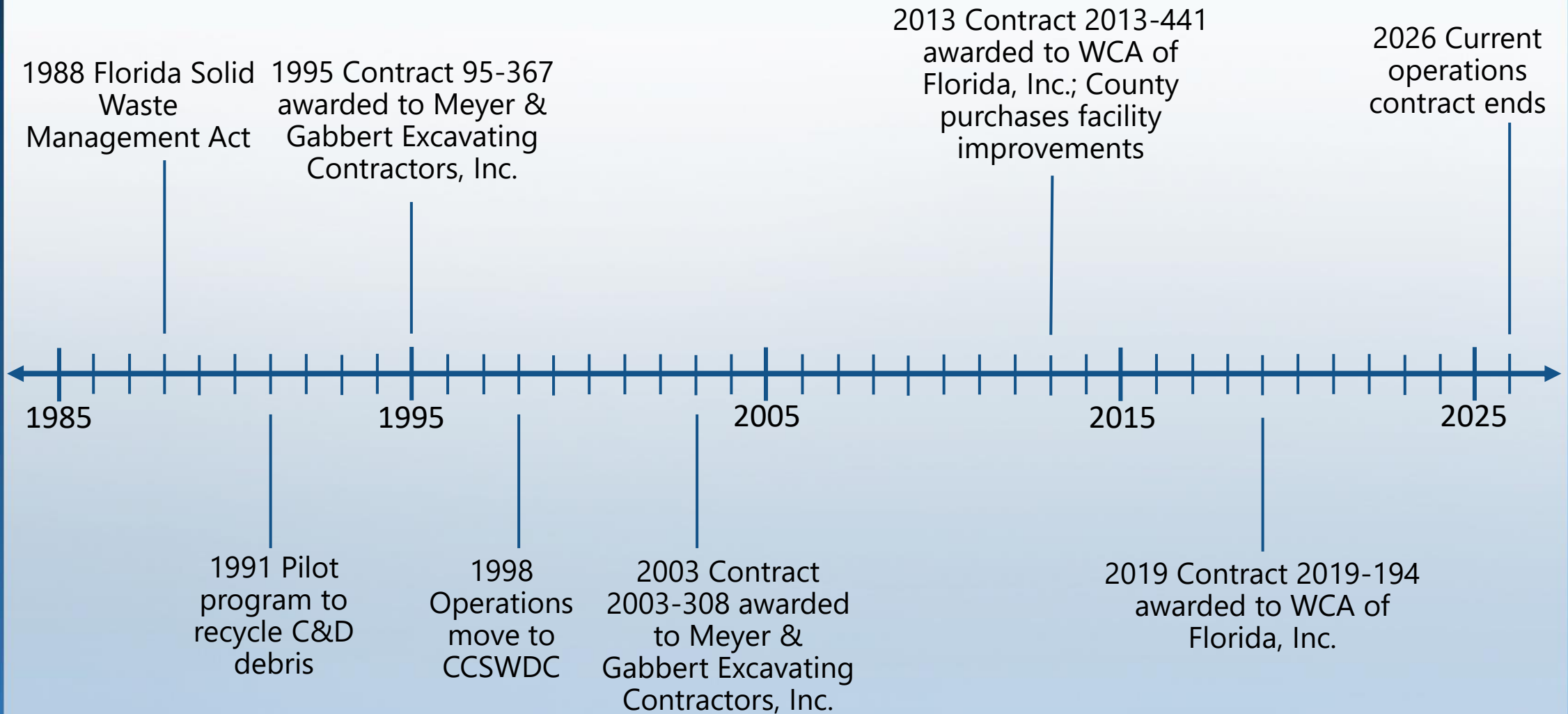
STAFF RECOMMENDATION(S):

Staff recommends conducting an evaluation of the C&D Program and providing recommendations for the program to Administration.

SUPPORTING DOCUMENTS: Appendix C

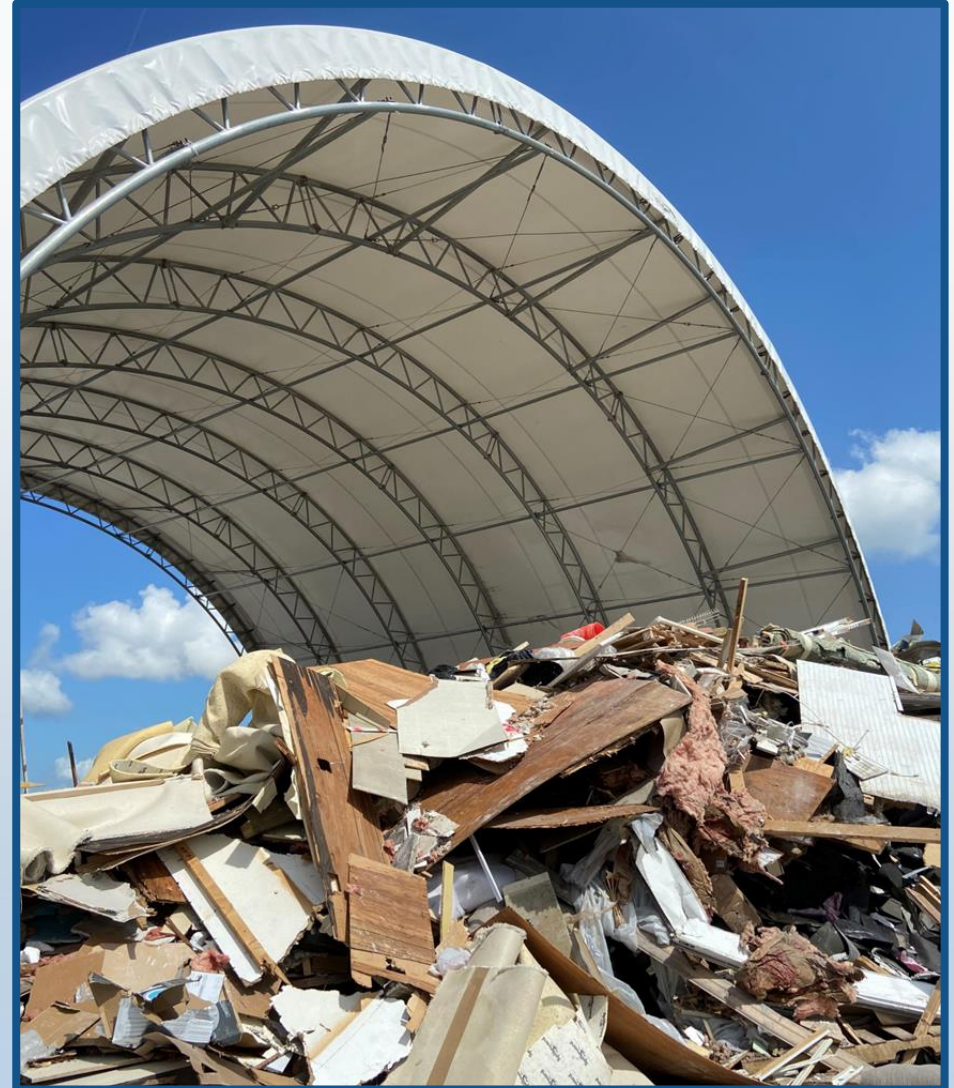
1. History of Construction & Demolition Recycling Program
2. C&D Debris Recycling Program Evaluation Report, August 2021

C&D Recycling Program History – Sarasota County

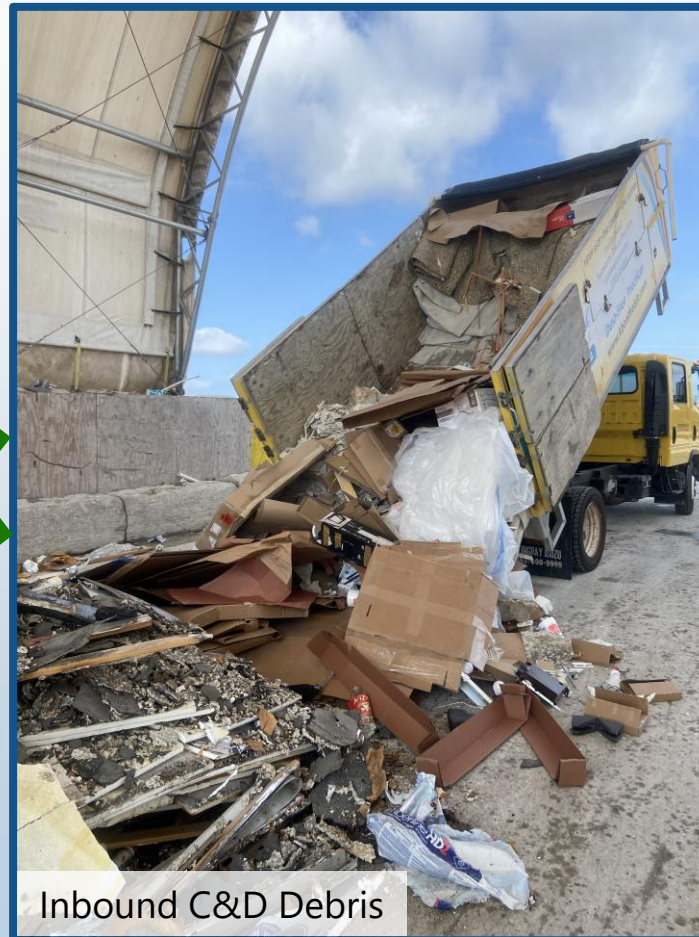
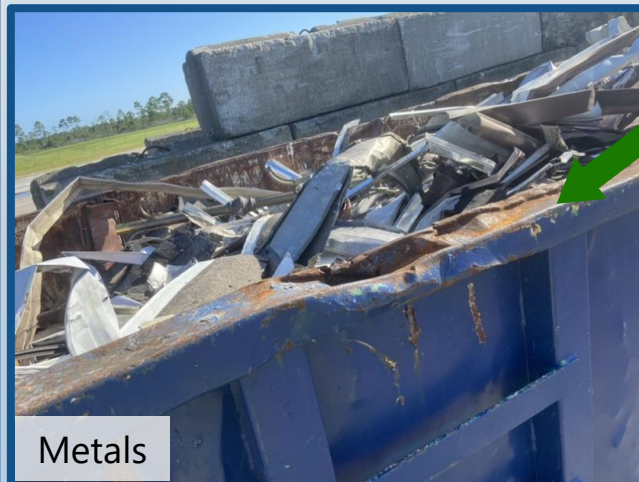


C&D Recycling Program Evaluation-2021

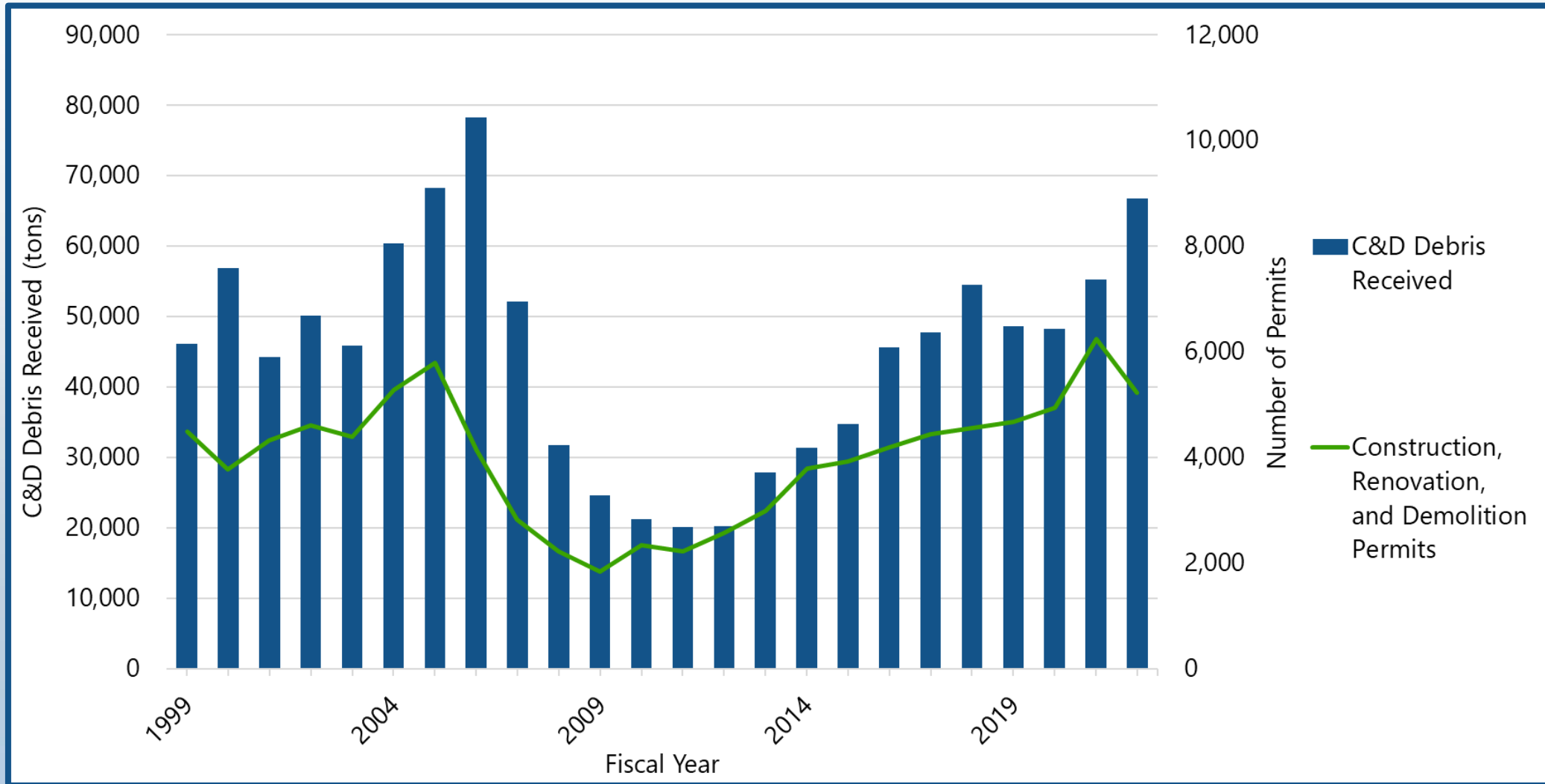
- Overview of Operations
- Operational Benefits to the County
- Environmental Impacts
- Services Provided to County Residents
- Economic Feasibility
- Cost-Benefit Analysis



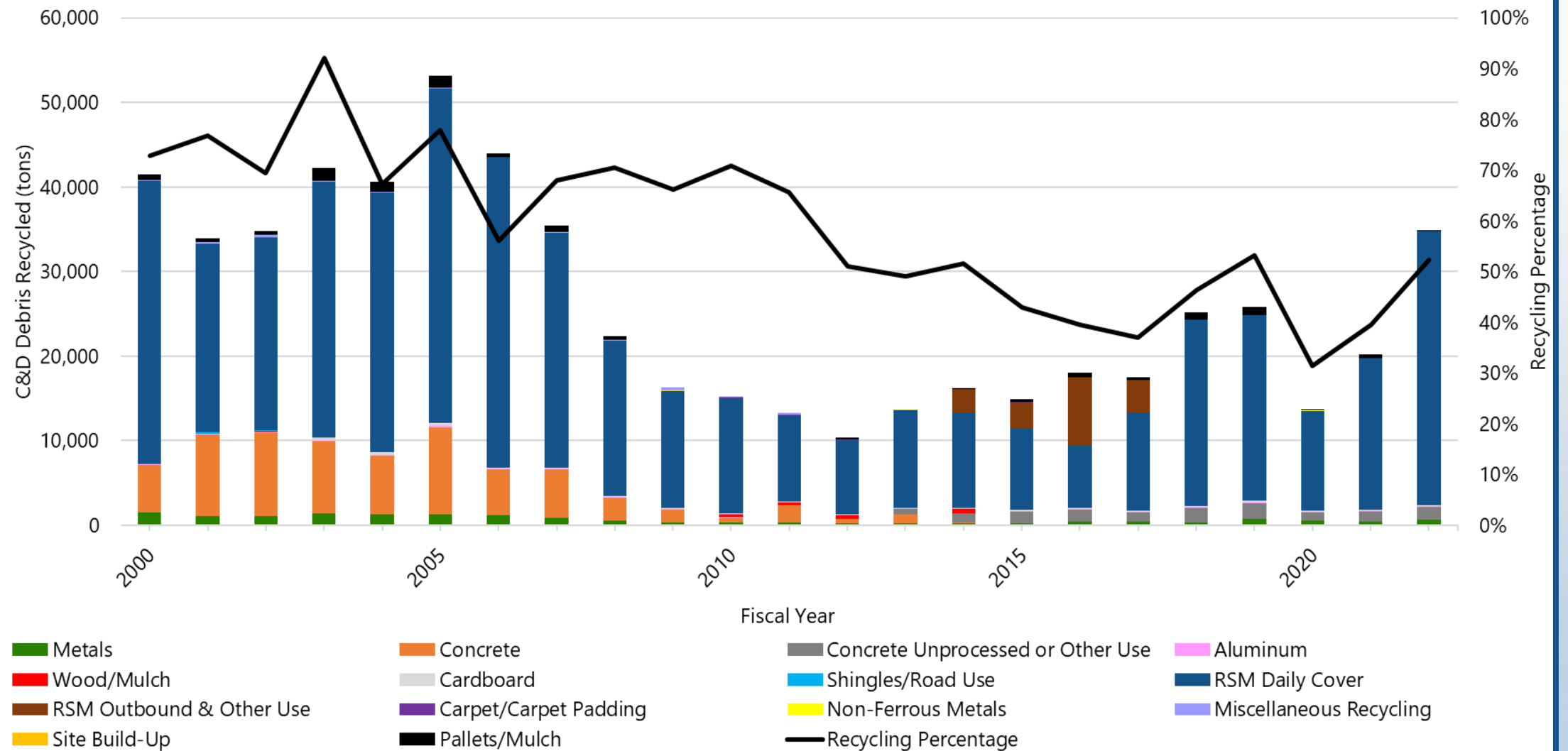
Overview of Operations



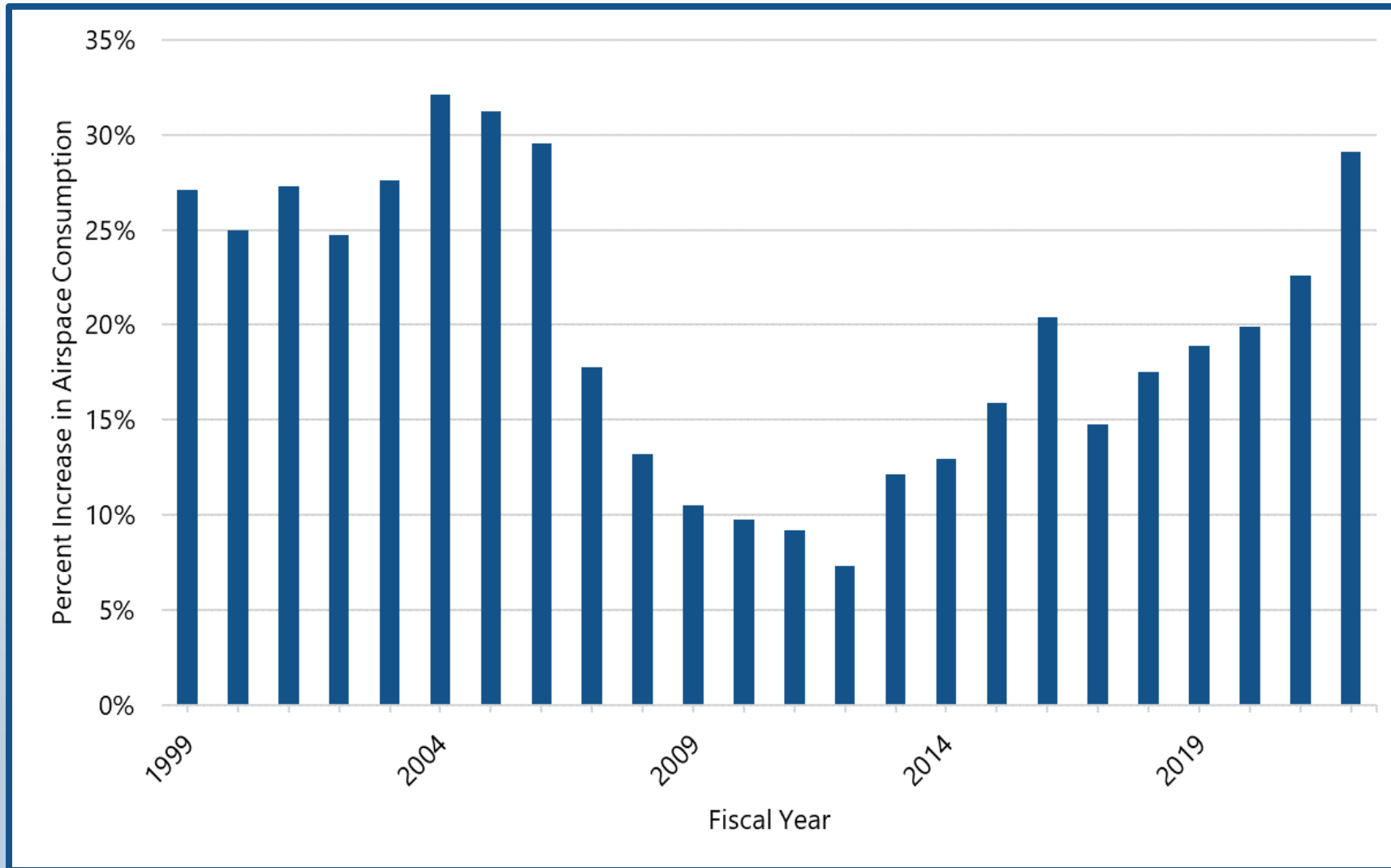
Overview of Operations



Overview of Operations



Operational Benefits - Airspace



Operational Benefits – Gas Quality

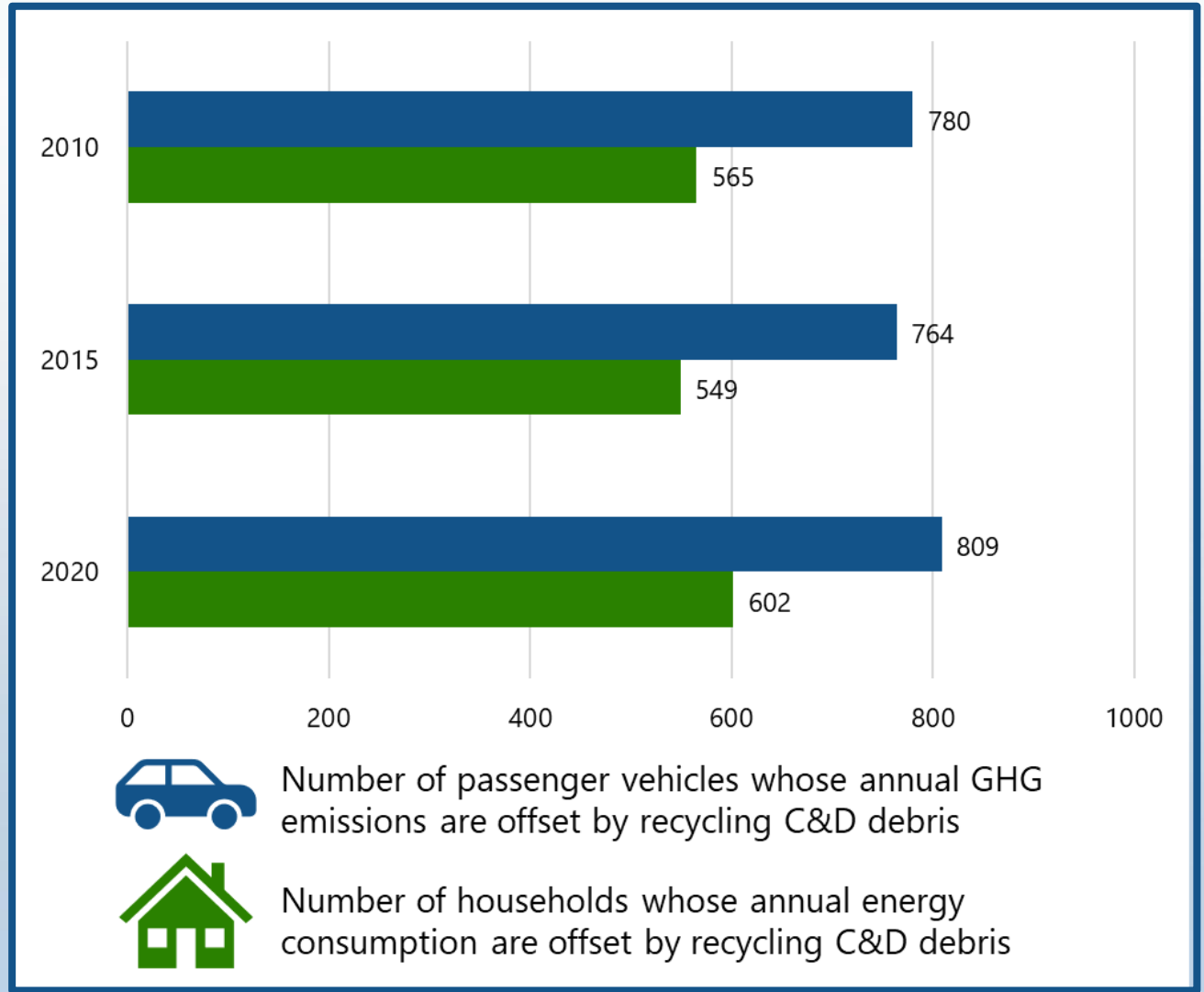
- Prevents H₂S formation
 - Average annual concentration of 69 ppmv in landfill gas
- Improves quality of landfill gas

Sample Date	Sulfur Content as H ₂ S (ppmv)
March-23	1.07
October-22	1.5
August-21	103
November-20	159.3
September-19	99.4
November-18	4.4
October-17	69.5
November-16	63.4
December-15	119.4

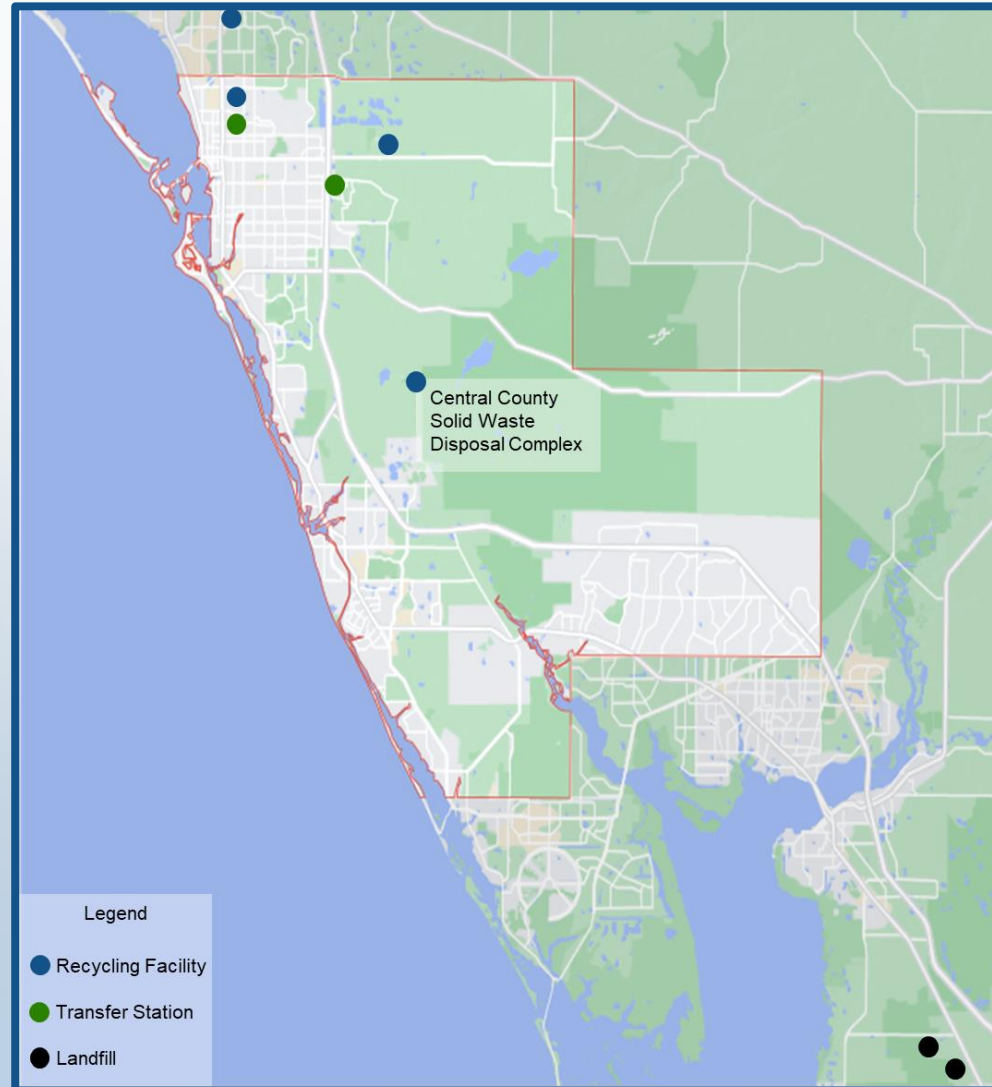
Environmental Impacts

WARM model

- GHG emissions
- Energy savings



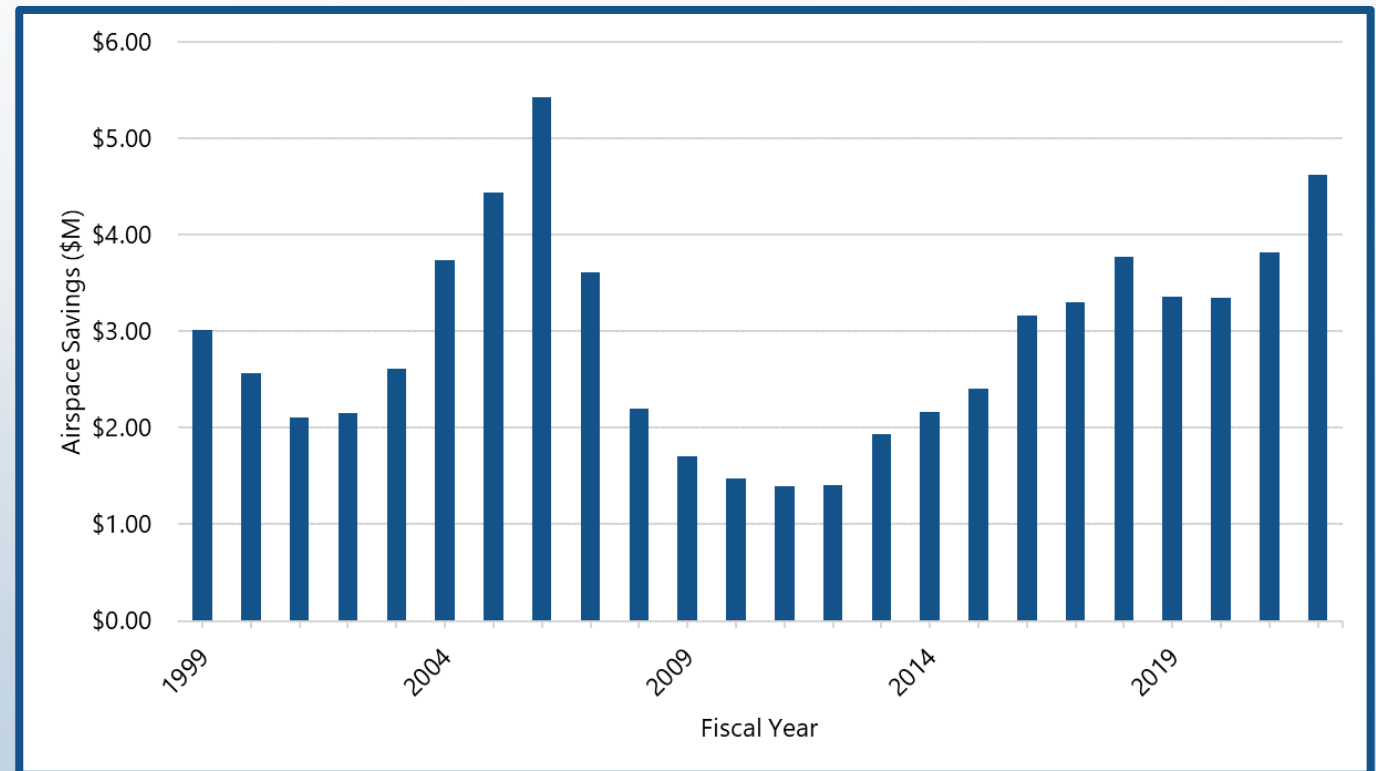
C&D Facilities – Sarasota County



Economic Feasibility - Airspace

Airspace savings based on
MSW tipping fee

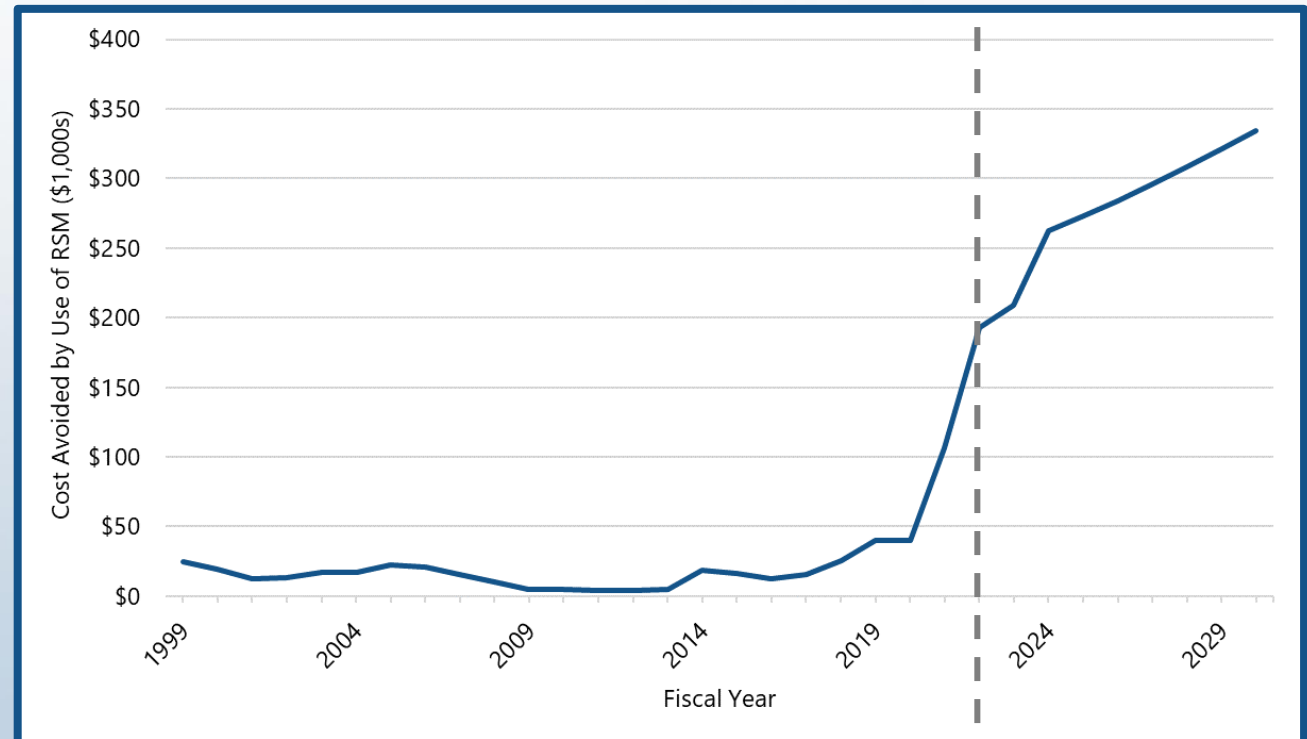
- Current rate is
\$57.56/ton



Economic Feasibility – Recycled Products

RSM as ADC

- RSM provided to County at no additional cost
- Excavation cost and land price of soil borrow areas to increase
- Offsets \$7.15/cy current soil cost



Cost-Benefit Analysis

Costs		Benefits	
Operational Costs	\$3,569,920	Value of Airspace Avoided Through the Diversion of C&D Debris	\$4,620,288
Amortized Annual Capital Cost	\$100,055	Value of Soils Avoided Through the Generation of RSM for Alternative Daily Cover	\$192,954
Administrative Costs	\$271		
Total	\$3,670,246	Total	\$4,813,242

Total Savings in Fiscal Year 2022: \$1,142,995

Cost-Benefit Analysis

Pros

- Contributes to recycling rate
- Reduces GHG emissions and saves energy
- Extends landfill life
- Improves gas quality
- Serves as only C&D disposal facility in South County
- Contributes to green building certifications and creates jobs
- Recovers costs from airspace savings and RSM use



Cost-Benefit Analysis

Cons

- Uses County time and resources
- Represents relatively small portion of overall recycling rate
- Represents relatively small portion of overall GHG emissions reductions and energy savings
- Serves County with few green building projects



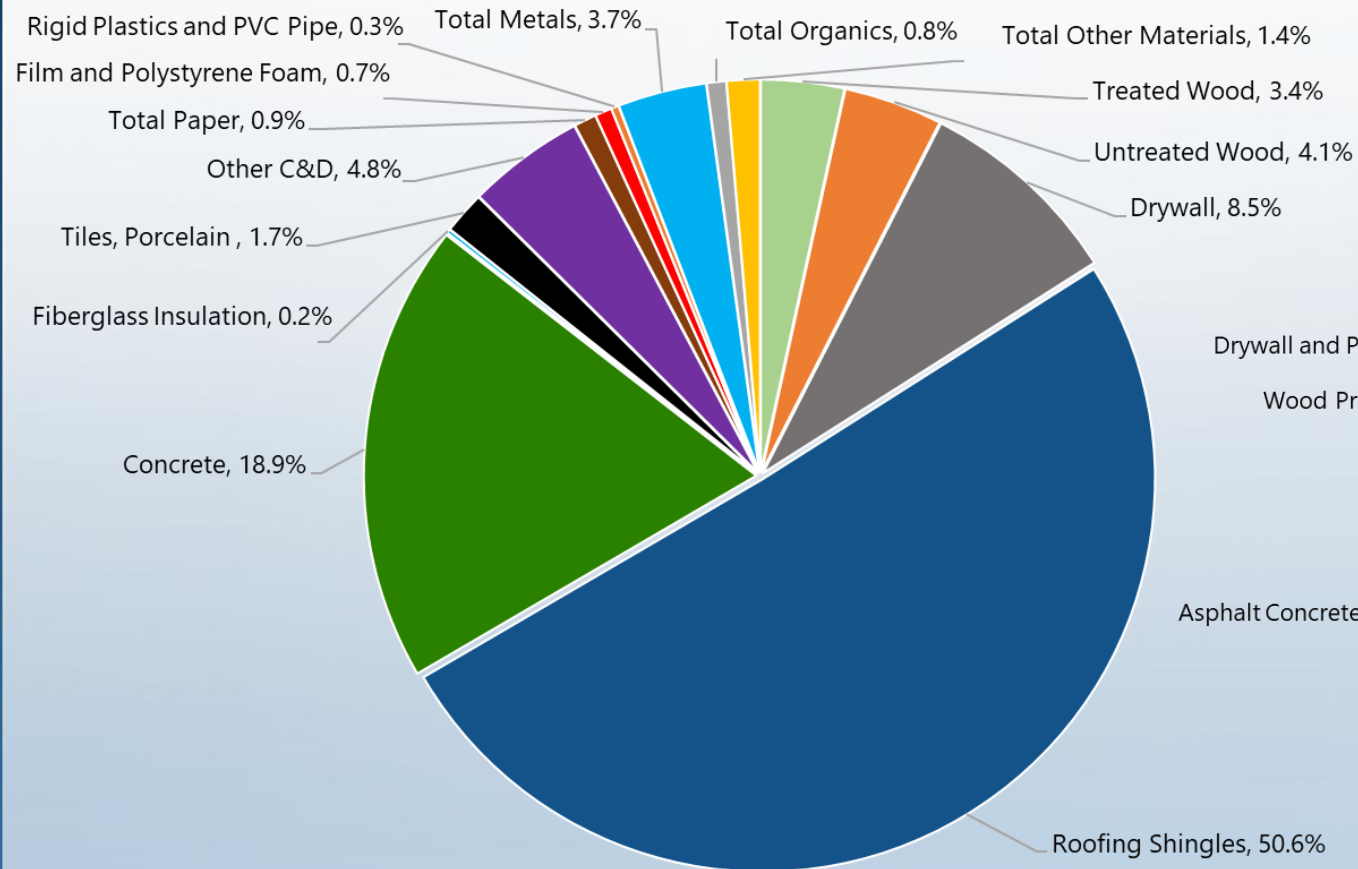
C&D Recycling Program Evaluation – Part II

- C&D Waste Composition Study
- Challenges to C&D Recycling
- Opportunities in Partnership, Research, and Market Development

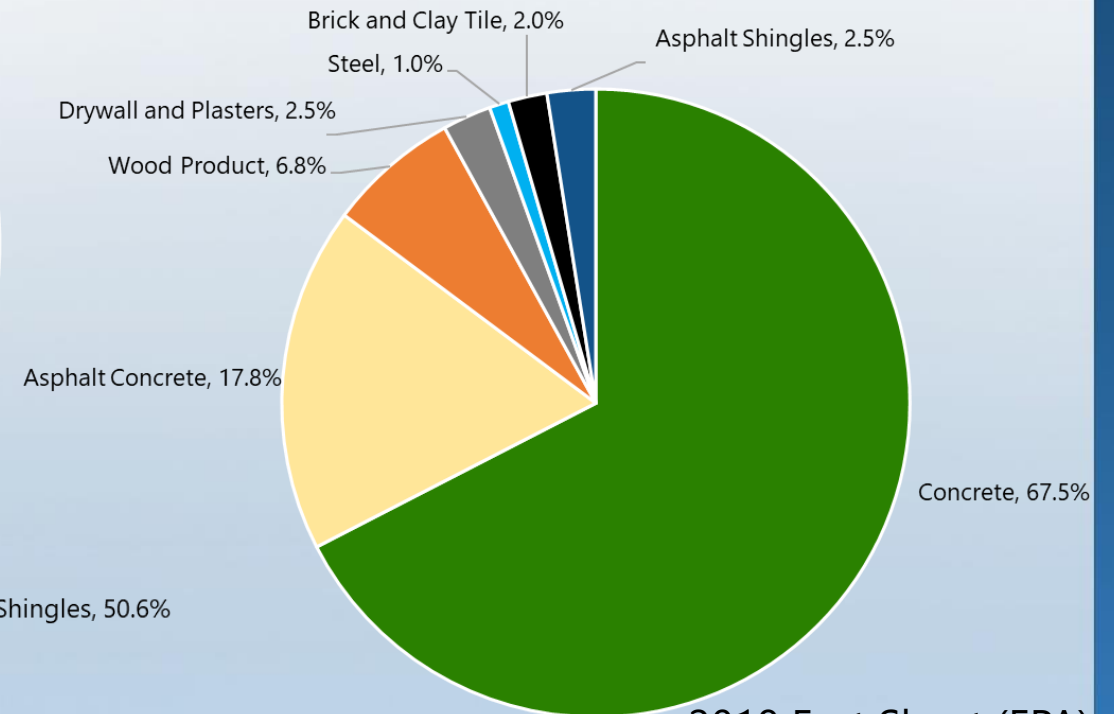


C&D Waste Composition Study

Sarasota County C&D Debris Composition



National C&D Debris Composition

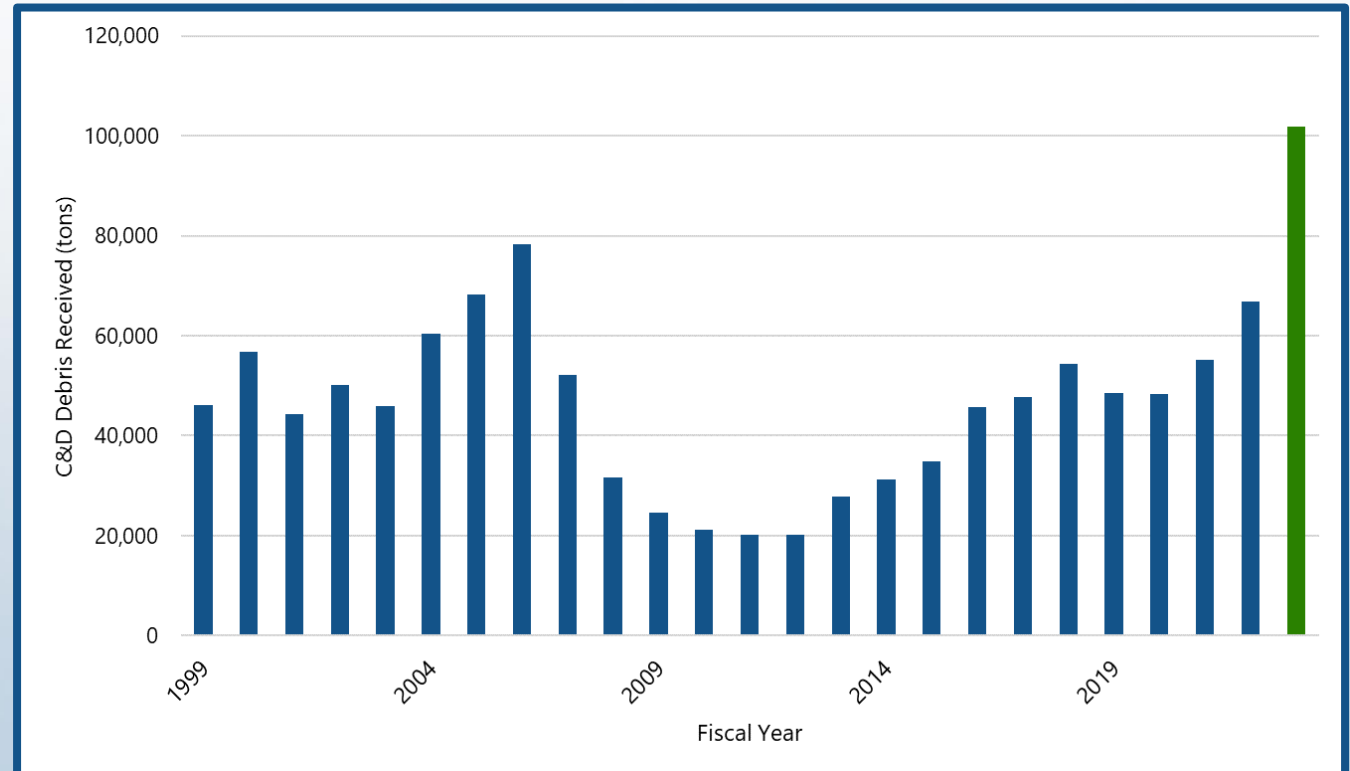


2018 Fact Sheet (EPA)

Challenges to Recycling C&D Debris

C&D - Storm Related

- Temporarily waived contractor 50% recycling requirement
- Significant increase in waste coming from out-of-County
- Unseparated loads of waste
- Customers mixing loads of C&D with MSW
- Semi-tractors, claw trucks, etc.



Challenges to Recycling C&D Debris

Procurement of C&D Recycling Services

- 2008 Economic Recession
- Lack of Interest
- Constant change in ownership and in some cases closure of infrastructure



Opportunities - Resources



**C&D World 2024 will be held
from Jan. 31 - Feb. 2 at the Hyatt
Coconut Point Resort and
Spa in Bonita Springs, FL.**

- Advocates for C&D recycling in legislative and rule-making venues to benefit members.
- Facilitates member-to-member interactions and introduces members to beneficial equipment, financing, insurance, and other specialized third-party resources.
- Provides assistance in finding end markets through research and member collaboration.
- Recognizes companies that have achieved a high level of safety management through the Best Practices in Safety Awards.
- Holds monthly that allow members to connect on a deeper level, while lending ideas and expertise that will help the association achieve its goals and objectives.

<https://www.cdrecycling.org/>

Opportunities - Market Development - Florida



<https://www.asrsystems.net/><https://www.cdrecycling.org/>

Opportunities - Market Development - Florida



<https://gypsum2gypsum.com/>

Opportunities – Changes

- Approaches to C&D Recycling
 - Processes – manual, automated
 - Facility ownership or lack thereof
 - Contractor interests versus County interests
- County Process - change how C&D recycling services are obtained
- Develop a network in Florida with organizations and people that share a similar goal of recycling C&D debris.



Questions?

