

# Sustainable Materials Management

Innovations Across Facilities and Programs

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36<sup>th</sup> Annual MRC Conference and DEQ State of Recycling  
*Wednesday, May 16, 2018*

**Morgan Turner**

Airport Recycling and Waste Planning Service Leader | M&H

**Sara Kaplan**

Sustainability Program Administrator | WCAA

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& Hunt

# Airports Cooperative Research Program Synthesis Project

Summarize  
Current  
Practices



✓ Demonstrate  
alignment  
with waste  
management  
hierarchy

✓ Spark Ideas

36

Survey Responses



9

Panel  
Members

ACRP, ATL, AUS,  
DEN, DTW, FAA,  
PHX, SEA, USA

21

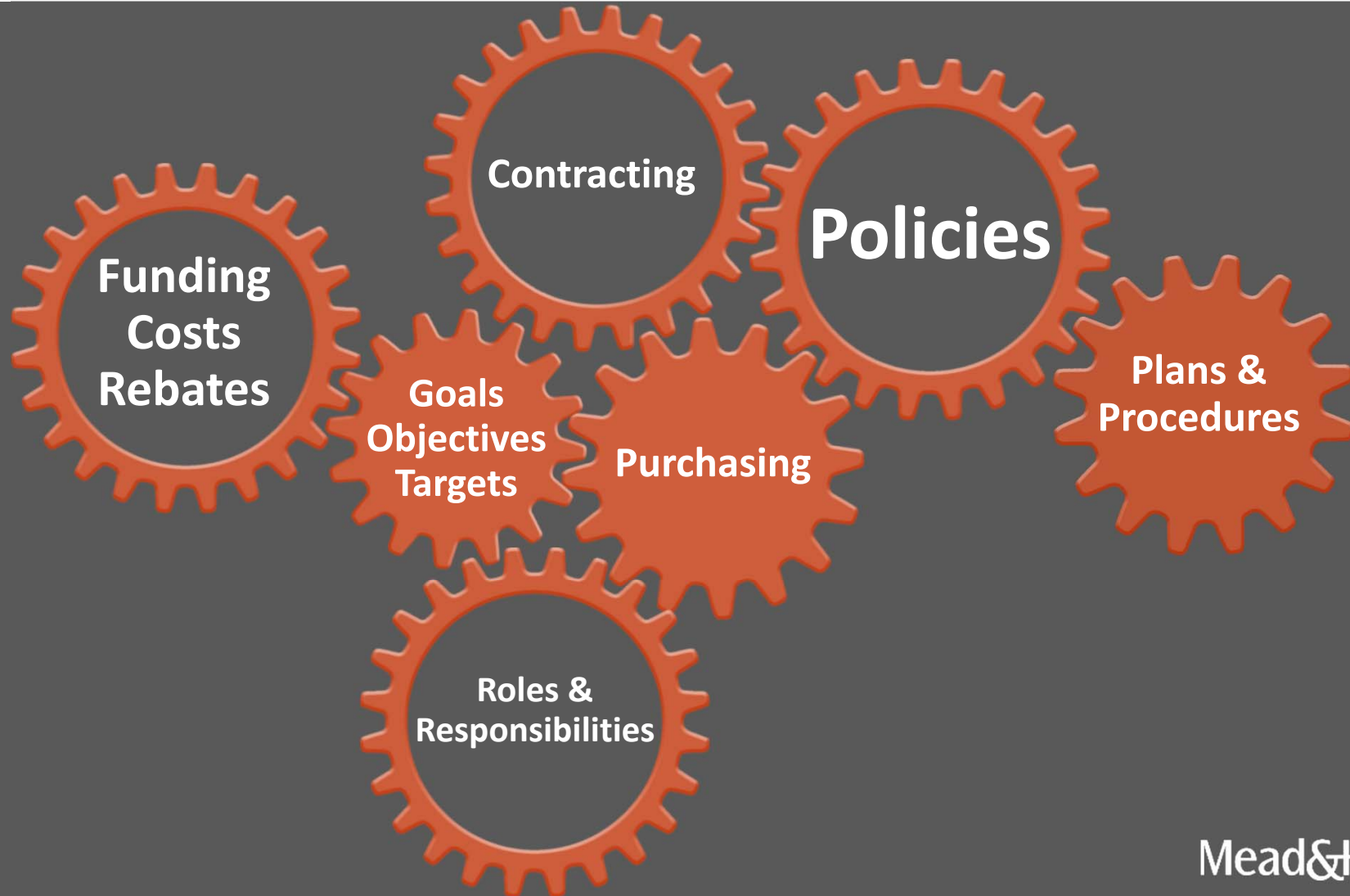
Case Example  
Interviews

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# Drivers and Challenges

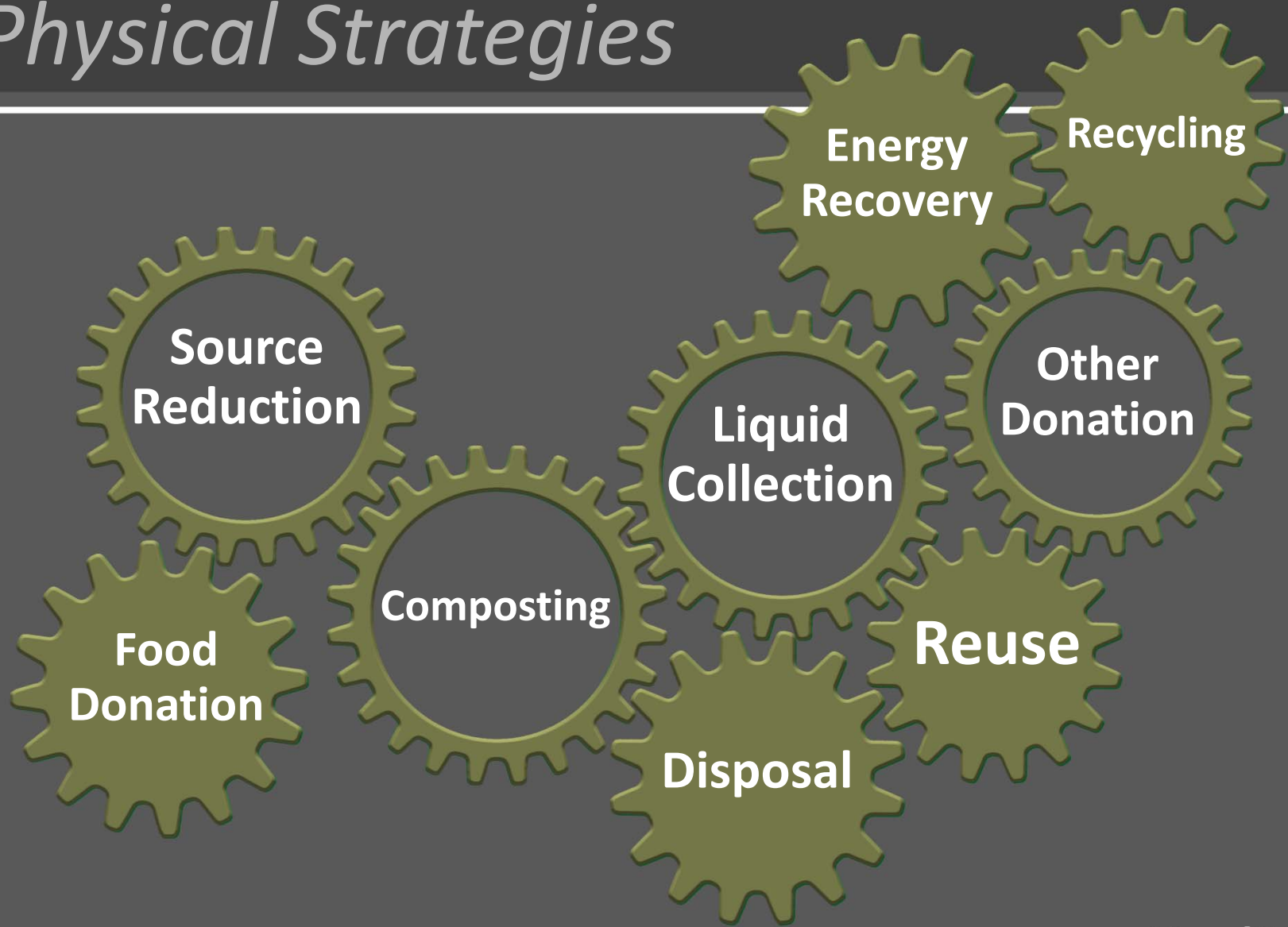


# *Program Management Strategies*





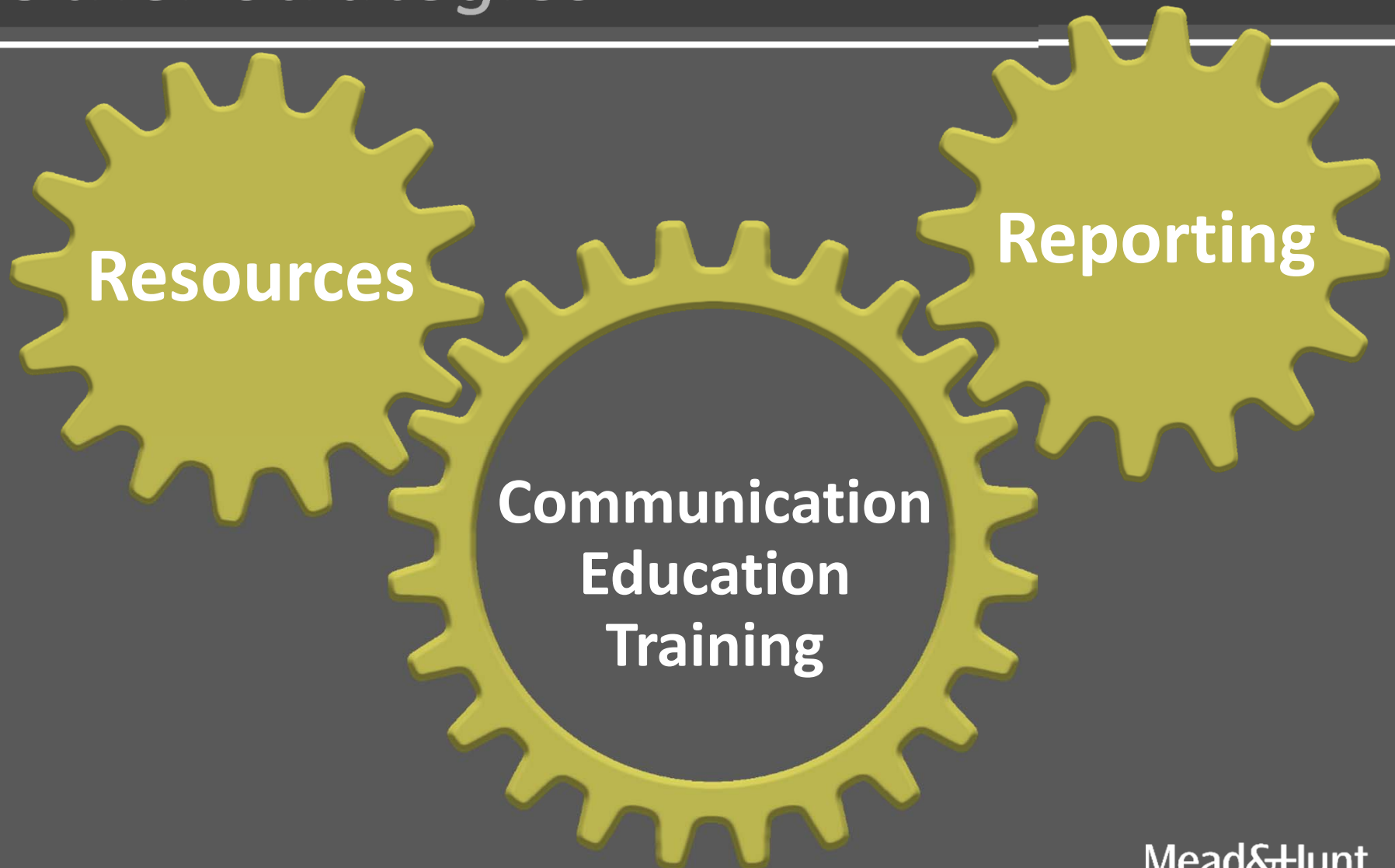
# *Physical Strategies*



*Partner*  
~~Stakeholder~~ Practices



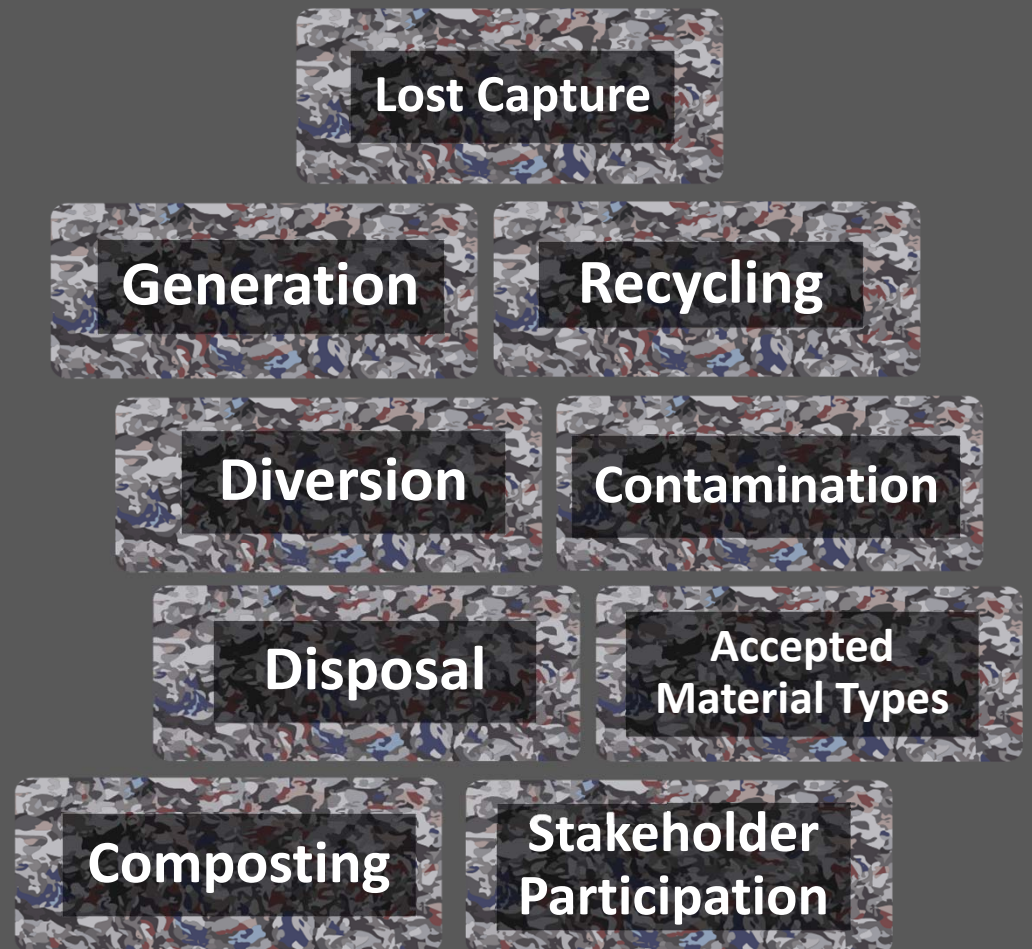
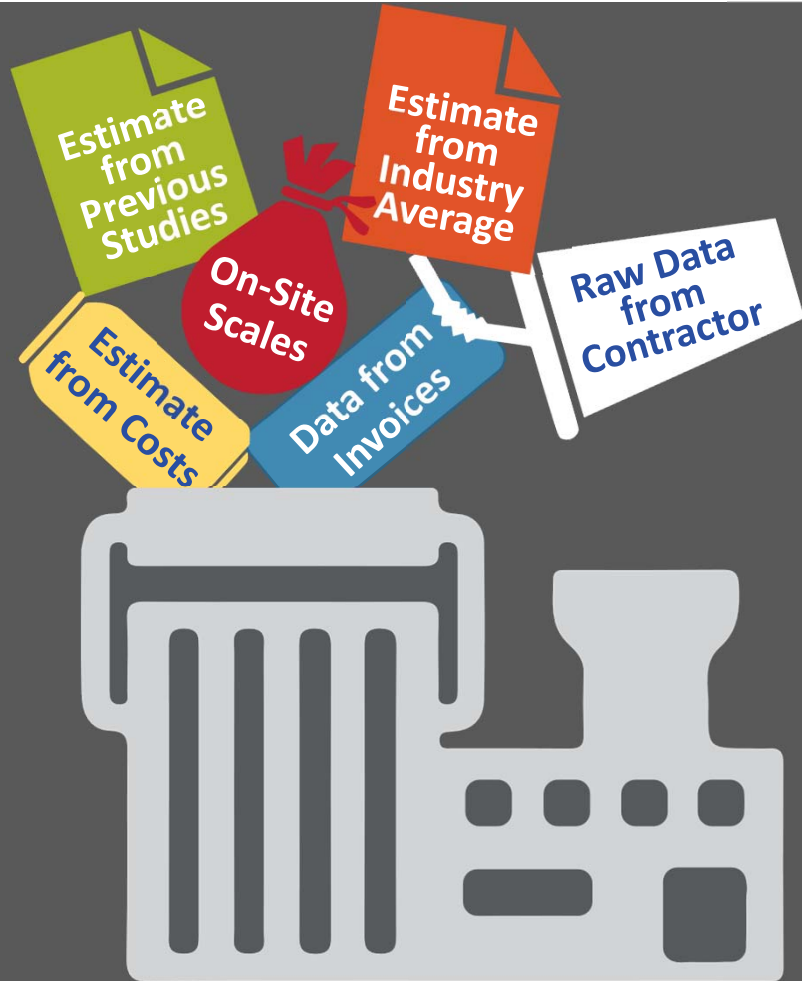
## *Other Strategies*



# *Effective Practices*



# Data & Metrics





# ***Detroit Metropolitan Airport***

- ❖ DTW is classified as a large hub airport
- ❖ Ranked in top 20 busiest US airports by FAA
- ❖ 34,401,254 passengers passed through the airport in 2016
- ❖ 18,000 employees
- ❖ A lot of people leads to a lot of.....



# ***Waste at DTW***

- ❖ **North Terminal Stats ~ 1150 tons waste/yr**
  - ✓ Did not look at concessions
  - ✓ Food waste 10.35% or approximately 160 tons/yr
  - ✓ Recoverable food and beverages 3% or 46.5 tons/yr
  - ✓ Liquids 19.31% or 299 tons/yr
  
- ❖ **McNamara Terminal Stats ~ 7544 tons waste/year**
  - ✓ Did not look at pre-security, but did look at concessions
  - ✓ Food waste approximately 19.56% or 1476 tons/yr
  - ✓ Liquids 15.85% or 1196 tons/yr
  - ✓ Recycled cooking oil and grease 2100 gallons/yr





# ***Food Waste & Hunger in Detroit***

- 31% of food in the United States is wasted, which equates to roughly 133 billion pounds of food each year, with economic value of \$166 billion (*USDA-ERS*)
- Over 97% of food waste generated ends up in the landfill
- In Macomb, Oakland and Wayne Counties, one in five children live in poverty. In the tri-county area 500,000 people including nearly 200,000 children, live in poverty. Four million households in Michigan live at risk of hunger (*Forgotten Harvest*)



# ***How WCAA Started Tackling its Waste***

## **Step 1: Gather Information**

- ✓ Conduct Audits, Observations, Surveys

## **Step 2: Identify outlets for various streams**

- ✓ Food, Compost, Recycling

## **Step 3: Talk to lawyers**

## **Step 4: Figure out logistics**

## **Step 5: Obtain funding**

## **Step 6: Implement program**

## **Step 7: Review steps 1,2, and 4 and make improvements**



# ***Gather Information***

- ❖ Audits – High confidence estimate of waste quantities and composition
- ❖ Observations – low cost way to approximate quantities and composition
- ❖ Meetings – solicit feedback from partners
- ❖ Surveys – solicit feedback from partners; concessions provided low response rate and indicated minimal waste



# Identify Outlets

## ❖ Food:

- ✓ Initial focus on non-perishable products
- ✓ Unclear would meet Forgotten Harvest min.
- ✓ Gleaners unable to accept prepared foods
- ✓ Contractor to haul donations

## ❖ Compost:

- ✓ Few facilities in Southeast Michigan
- ✓ Contractor to haul compost

## ❖ Recycling:

- ✓ WCAA had contract in place



# ***Talk to Lawyers***

- ❖ **Liability issues**
- ❖ **Protected by Federal and State Law**
- ❖ **Bill Emerson Good Samaritan Food Donation Act of 1996**
- ❖ **Michigan Law Public Act of 1993**
- ❖ **But then you have to worry about compliance with.....**





# *Some of the regulatory and corporate guidelines in operation at DTW*



Transportation  
Security  
Administration



U.S. Customs and  
Border Protection



Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives, Protecting People™



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# Figure out logistics

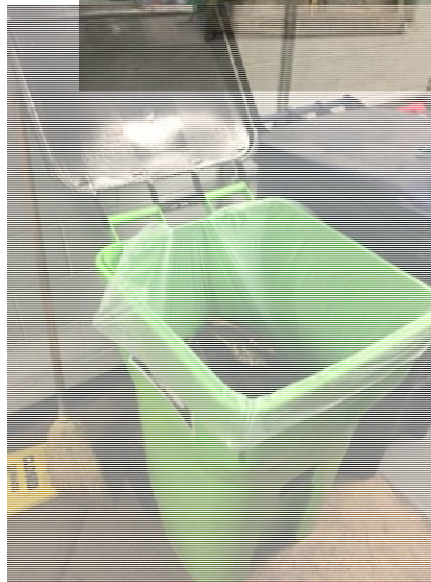
- ❖ Collection
- ❖ Storage
- ❖ Delivery
- ❖ Participants
- ❖ Outreach





# *Figure out logistics*

- ❖ Collection
- ❖ Storage
- ❖ Delivery
- ❖ Participants
- ❖ Outreach



# *Figure out logistics*

- ❖ Collection
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# Figure out logistics

- ❖ Collection
- ❖ Storage
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- ❖ Outreach



GOURMET MARKET & CATERING



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## ***Obtain Funding***

- ❖ **MDEQ Pollution Prevention Grant**
- ❖ **Provides \$45,650 in funding over two years for managing project, collecting and delivering food and coffee grounds, and raising public awareness**
- ❖ **Support from Gleaners/Fish & Loaves, Forgotten Harvest, and Bradford Logistics**

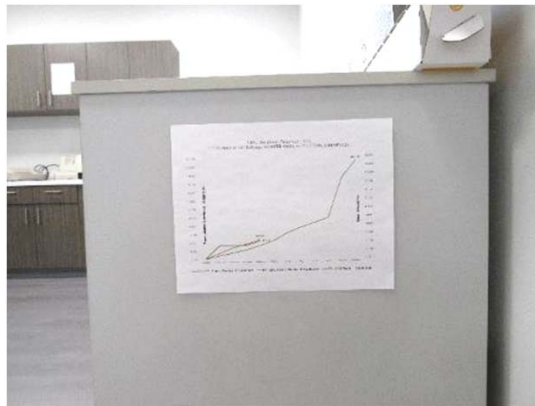


# *Implement Program*



# Figure out logistics

- ❖ Collection
- ❖ Storage
- ❖ Delivery
- ❖ Participants
- ❖ Outreach



## People

### Food Rescue Program

Food waste increases the unnecessary demand for more food production, and releases methane, a potent greenhouse gas.



WCAA is combatting food waste by donating unsold food from participating concessions to Fish and Loaves Community Food Pantry. Each week, approximately 485 pounds of food (equivalent to 421 meals) is collected and donated.

31% of the food supply is wasted every year in the U.S.



13% of the U.S. population is food insecure

Partial funding for P3 Food Rescue Program provided by:



Thank you to our Partners and Generous Contributors:



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# *Success Stories*

## ❖ P3 Food Rescue Program

- ✓ Year 1: 22,987 lbs donated between July 1 2016 – June 30, 2018
- ✓ Year 2: 23,773 lbs donated between July 1, 2017- March 31, 2018
- ✓ Average 525 lbs/week
- ✓ Over 40,000 meals

## ❖ The inception of the program provided Fish & Loaves extra food needed to keep up with increased summer demands of food insecure families





# *Success Stories*

## ❖ **Compost:**

- ✓ Started coffee compost at North Terminal in November 2017
- ✓ Expanded to Administration Building and Public Safety & Security Building in February/April
- ✓ Collected 3776 gallons over first 5 months of program

## ❖ **Recycling:**

- ✓ Expanded cardboard collection to multiple buildings
- ✓ Weight of recyclables has increased every year from 2015-present
- ✓ FY2016 – 53,298 lbs plastic, paper, and cardboard
- ✓ FY 2017 – 118,450 lbs plastic, paper, and cardboard



# *Challenges*

## ❖ **Food Program:**

- ✓ High turn over rate of concessionaire workers
- ✓ Insuring the pick up of food by Bradford is consistent
- ✓ Lack of short term storage space for food waiting for pick up
- ✓ Continuing participation
- ✓ Staff and vehicle availability

## ❖ **Compost Program:**

- ✓ High turn over rate of concessionaire workers
- ✓ Fruit flies
- ✓ Working with and educating employees and janitorial staff

## ❖ **Recycling:**

- ✓ Ensuring trash doesn't end up in recycling and recycling doesn't end up in trash
- ✓ Working with and educating employees and janitorial staff



# ***Review and Improve***

## ❖ **Food Program**

- ✓ Expanded to mostly perishable products
- ✓ Work with Bradford and Forgotten Harvest to make pick-ups
- ✓ Purchased refrigerator for storage
- ✓ Reinforcement with concessions

## ❖ **Compost Program**

- ✓ Signage
- ✓ Buckets with lids

## ❖ **Recycling**

- ✓ Revise Procedures
- ✓ Add cardboard collection points
- ✓ Signage



## ***Next Steps***

- ❖ **Promote programs among concessionaires and provide recognition for participants**
- ❖ **Increase participation**
- ❖ **Raise public awareness of programs**
- ❖ **Explore feasibility of expanding coffee ground composting and other food scrap composting**
- ❖ **Explore participation in EPA's Food Recovery Challenge**
- ❖ **Evaluate costs and benefits of food rescue program using EPA tools for assessing financial and environmental impacts of reducing food waste**



# *WCAA's Efforts to Reduce Waste*



# ***WCAA's Efforts to Reuse***

- ❖ Runway 4L/22R Reconstruction (2015-2016)
- ❖ Set target of 85% and diverted 99.8% of potentially recyclable construction, demolition and land-clearing materials
- ❖ 3.3 million tons of material was recycled/reused offsite, and 3.5 million tons onsite.
- ❖ Approximately 75% of the water used (nearly 11 million gallons) was drawn from collected stormwater. Saved over \$100,000 on water fees
- ❖ Runway 3R/21L Reconstruction (2018-2019)
- ❖ Surplus Furniture Auction





AUS



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COS



hunt

DEN



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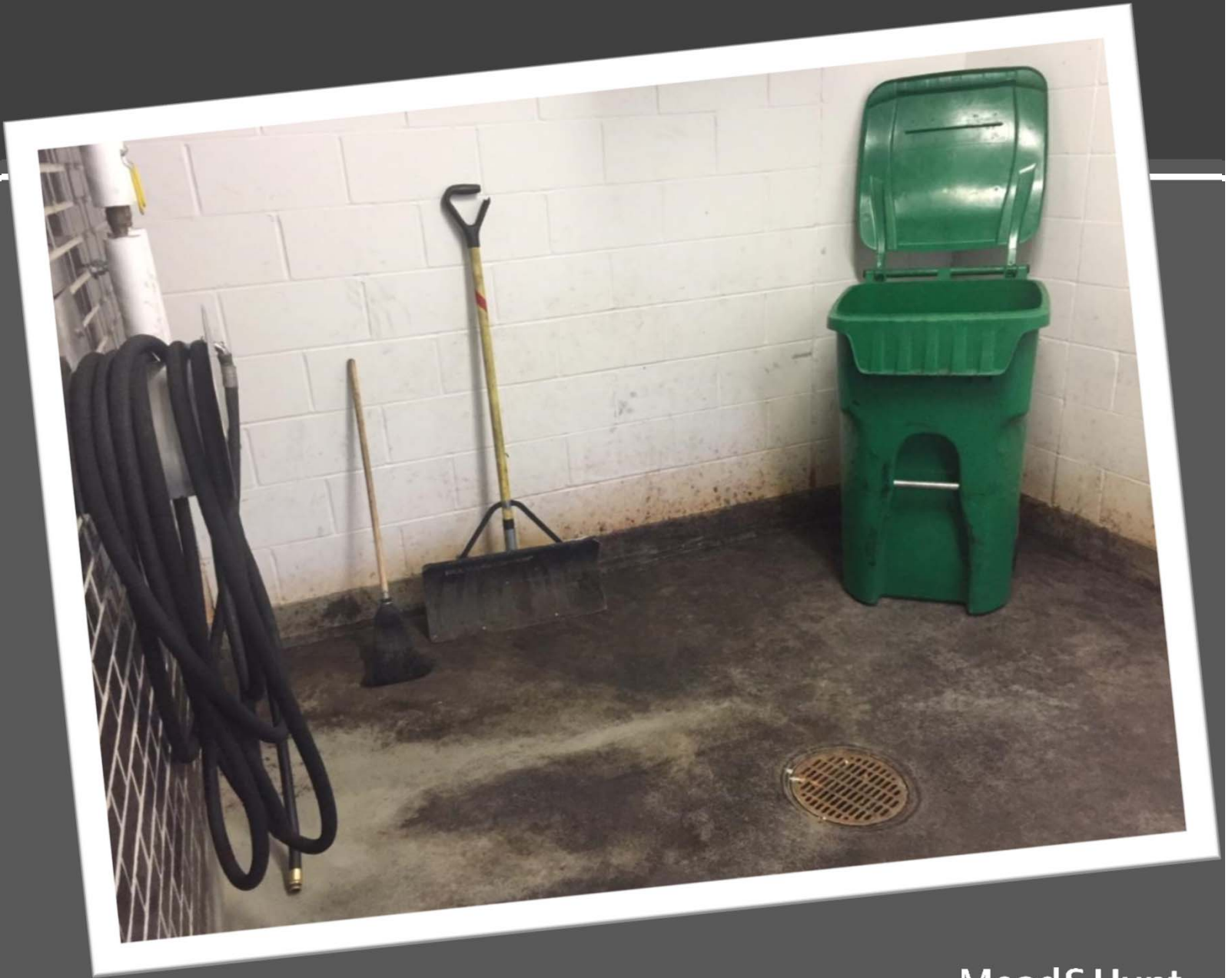


LAS



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SLC



Mead&Hunt

SMF



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# Other Strategies from Case Examples

## ABQ

- Sole source procurement process
- Stakeholder survey

## ATL

- Coreless toilet paper rolls
- Eliminated cardboard toilet paper packaging
- Requiring compostable serviceware & carryout containers

## EWR

- Recycling Across America © container labels

## MKE

- Airside recycling facility

## PHL

- Dedicated recycling coordinator

## RNO

- Self-haul of recyclables

## SAN

- Plastic film recycling

## SEA

- “Pay As You Throw” waste charges/usage monitoring

## TUL

- Transitioning to recycling from Energy-from-Waste

# *Future Research*

Influence of economic factors (tipping fees)

Cost benefit analysis of practices

Waste reduction strategies

Evaluation of airline and concessionaire practices

Analysis of passenger behaviors and terminal signage

Evaluation of metrics and identification of standard

Strategies for coordination with waste haulers and custodial staff

# Thank You!

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**Morgan Turner**

morgan.turner@meadhunt.com

**Sara Kaplan**

sara.kaplan@wcaa.us

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**Mead  
& Hunt**