BURNS McDONNELL

Regional Recycling Acceptable Materials Workshop

January 23, 2019

Scott Pasternak
Eric Weiss

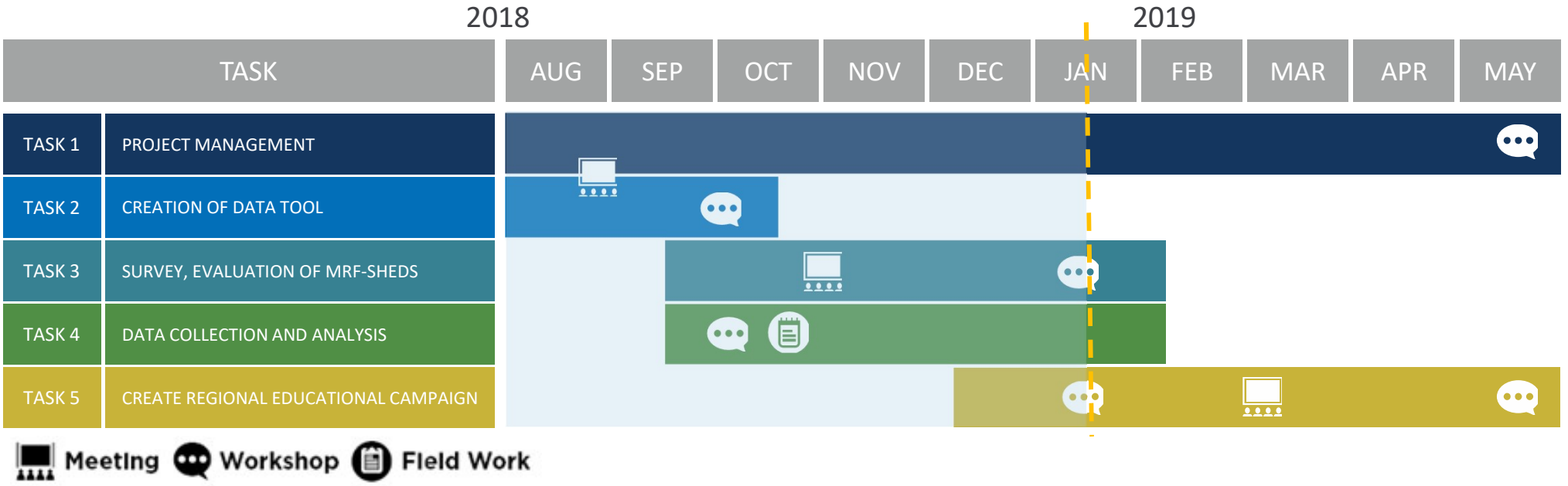
Agenda

Item	Time
Project Status Update	9:00-9:05 AM
Regional Refuse and Recycling Composition	9:05-9:25 AM
Regional Recycling Capture Rate	9:25-9:50 AM
Value of Disposed Materials	9:50-10:10 AM
Break	10:10-10:15 AM
MRF Interviews	10:15-10:35 AM
Acceptable and Prohibitive Materials Discussion	10:35-11:20 AM
Conclusions and Next Steps	11:20-11:30 AM

Project Status Update

BURNS McDONNELL

Project Status Update



COMPLETED TASKS

- Kick-off Meeting; Workshops 1 & 2
- Launch Re-TRAC Survey
- Waste Sorting Event
- MRF Interviews
- Data Analysis

ONGOING TASKS

- Review Completed Re-TRAC Surveys
- MRF-shed Mapping
- Pre-testing Focus Group
- Customize Campaign Assets
- Deployment of Regional Messaging Review
- Final Workshop

Educational Campaign Pretesting Focus Group Workshop

- 1:30pm today, Regional Forum Room, Centerpoint 2
- Workshop highlights
  - Overview of previous campaigns conducted by The Recycling Partnership
  - Review of Communication Tools
  - Review Current Communities Outreach
  - Discuss Regionally-focused Communication Tools

Regional Refuse and Recycling Composition

BURNS McDONNELL

Waste Characterization Study Overview

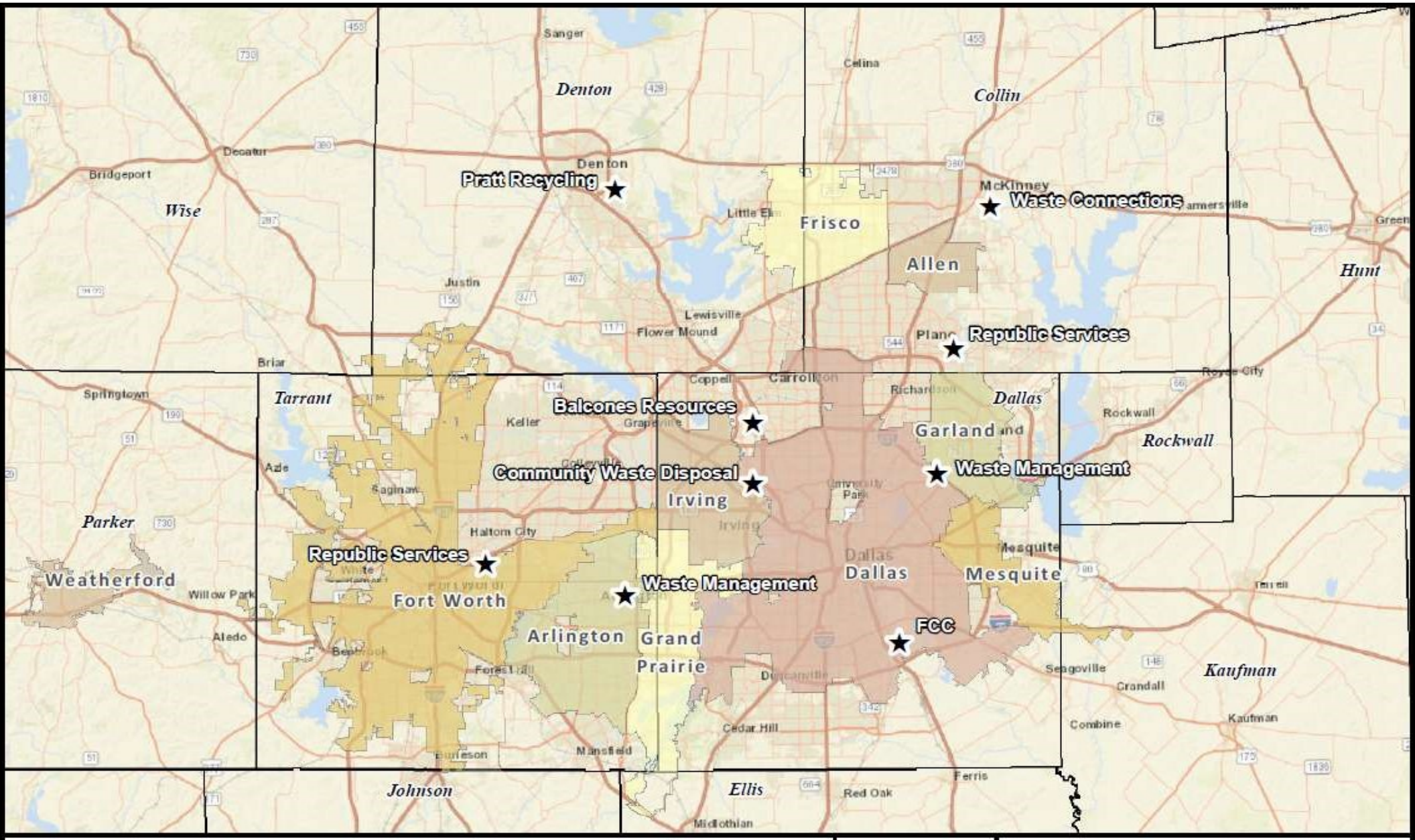
- Coordinated with 10 participating cities to
  - Collect samples and track pickups
  - Transport samples
  - Deliver samples
- Participating cities selected based on population, annual tonnage, service type, and willingness to participate
- Participating cities represent 45 percent of total single family households in North Central Texas region

Waste Characterization Study Methodology

- Cities represent variety of different service offerings and collection frequencies to generate a valid data set
  - Curbside cart collection
  - Curbside bag collection
  - Private subscription
- Sort team physically segregated and weighed 50 samples; 200 pounds each
- Refuse samples collected included diverse range of households, programs, and set-out types
- Developed estimates of total tonnage of each material category generated annually in North Central Texas

Participating Cities Program Information

Cities	Criteria						
	Single Family Households	Recycling Collection frequency	Refuse Collection Frequency	Refuse Program Type	Set Out Type	Refuse Service Provider	Existing Data
Dallas	265,524	1x/wk	1x/wk	Automatic Enrollment	Carts	City	WC and Audit
Fort Worth	214,440	1x/wk	1x/wk	Automatic Enrollment and PAYT	Carts	Waste Management	WC and Audit
Arlington	91,379	1x/wk	2x/wk	Automatic Enrollment	Carts	Republic	Audit
Garland	61,968	Every Other Week	1x/wk	Auto Enrollment	Carts	City of Garland	Audit
Grand Prairie	46,084	1x/wk	2x/wk	Auto Enrollment	Bags	Grand Prairie Disposal	None
Irving	41,403	1x/wk	2x/wk	Auto Enrollment	Bags	City	None
Frisco	46,639	1x/wk	1x/wk	Auto Enrollment	Carts	Waste Connections	None
Mesquite	37,352	1x/wk	2x/wk	Auto Enrollment	Carts	City	Audit
Allen	26,623	Every Other Week	1x/wk	Auto Enrollment	Carts	Community Waste Disposal	None
Weatherford	8,363	1x/wk	2x/wk	Subscription	Carts	City	None



BURNS McDONNELL

North Central Texas Council of Governments Recycling Survey and Campaign: Regional MRFs and Waste Characterization Study Participants

Refuse Delivery Schedule

Prior to sorting, participating cities met to develop schedule and logistics

City	M	T	W	Th	F	Total
Dallas	3	3	3		3	12
Fort Worth	4		4	1		9
Arlington	2		2	2		6
Garland				4		4
Grand Prairie	1	1	1	1		4
Irving	1	2		1		4
Frisco		2		2		4
Mesquite	1	1	1	1		4
Weatherford	2					2
Allen				1		1
Total	**14**	**10**	**11**	**13**	**3**	**50**

The table above shows number of samples delivered by each city daily during the week of sorting.

Waste Characterization Data Analysis

- Data compiled to estimate the regional waste profile
- Participating cities were provided individual composition and capture rate (as available)
- Individual cities waste and recycling composition profiles represent a snapshot
  - i.e. not valid to use one city's data to estimate annual tonnage of individual material generated by that city
- To maintain confidentiality of individual city's data all waste composition information presented has been aggregated
- A ***big thanks*** to the City of Dallas for hosting the study and all of the participating Cities for supporting the effort to collect this valuable data!

Results from Sorting Event

- Sorted 50 samples, or approximately 10,800 lbs (5.4 tons) of refuse, generated from single family homes
  - Five days of sorting at the McCommas Bluff Landfill
  - About one ton of recyclables were pulled from waste were processed at the FCC MRF
- Visual observations from the sort include
  - The largest portion of the waste stream is organic material
  - There are is a clear opportunity to divert traditional paper, plastic and metal recyclables generated by single family residences

Waste Delivery

Sorting Bins

Fines Screens

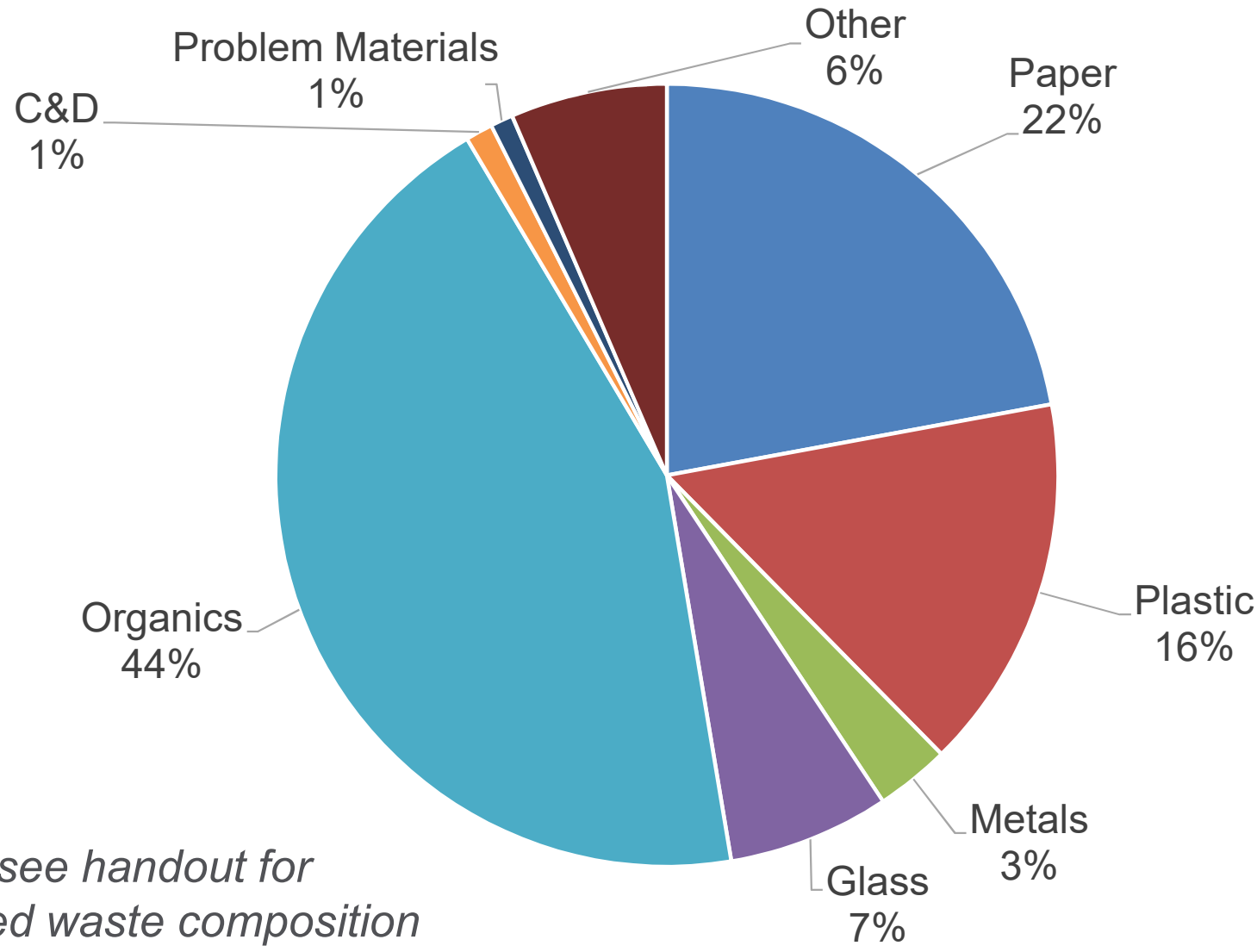
Weight Data Collection

Sorting Bins From Participating Cities

Estimated Single Family Refuse Tonnage Disposed in Region

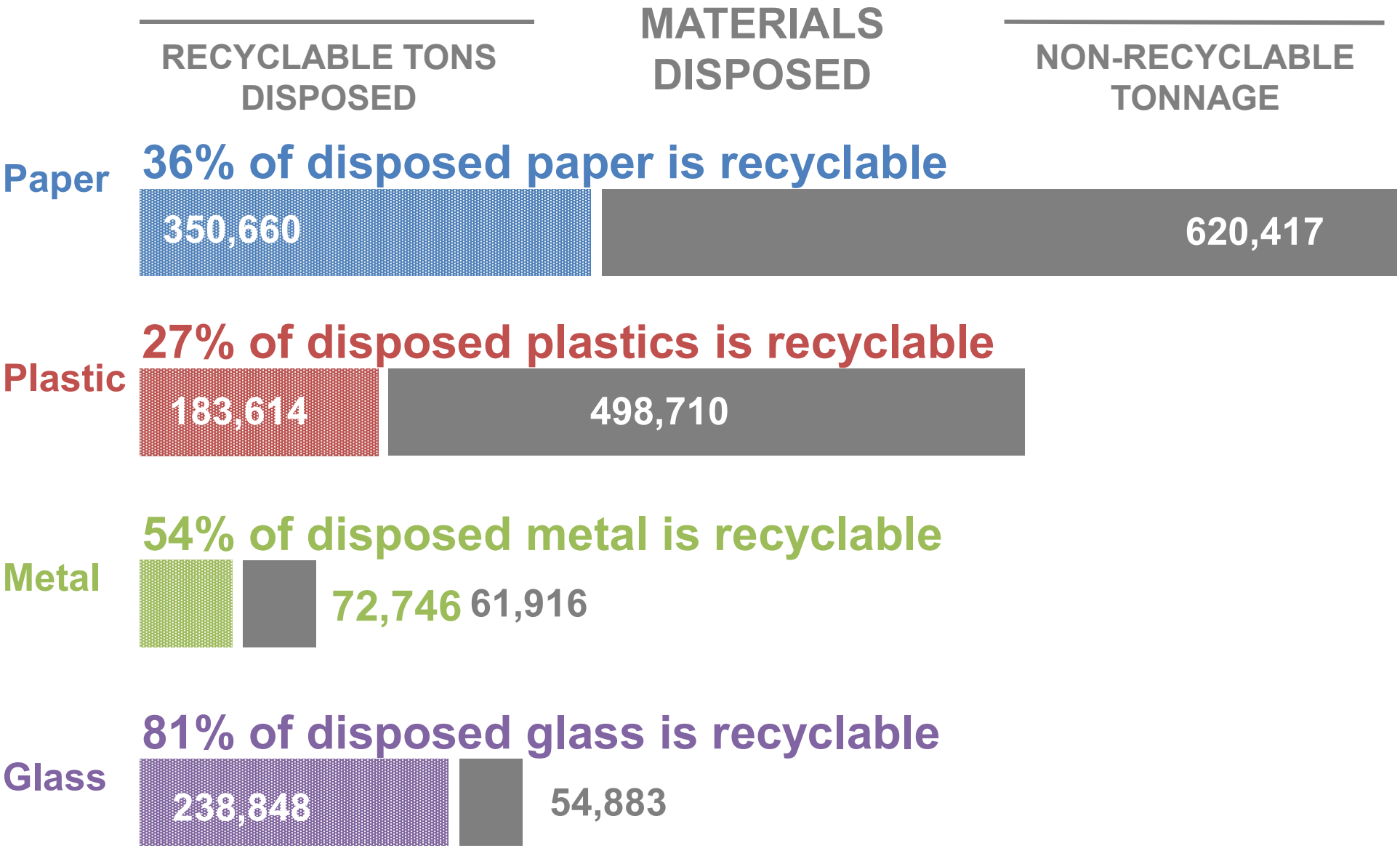
Category	Disposal Estimate	Source
Total Annual MSW Disposed in North Central Texas Region	10.7 million tons	Municipal Solid Waste in Texas: 2017 Data Summary and Analysis
Percentage of Single Family Residential Refuse	41%	2003 Metroplex Area Sub-Regional Solid Waste Study
Total Annual Single Family Residential MSW Disposed in North Central Texas Region	4.3 million tons	Calculated

Regional Waste Composition



Note: see handout for detailed waste composition profile.

Breakdown of Recyclable Materials Disposed



Regional Recycling Composition Overview

- Tonnage of recycled material compiled from reports provided by MRFs in region
- Analyzed materials sold to market (i.e. post-processed tons, excluding residue)
- Approximately 450,000 tons are sold to market annually from MRFs in the region

MRF Audit Data Analysis

- MRF audits gather data to generate a composition profile of a city's recycling stream
  - MRF audits may be required contractually to determine revenue sharing agreements
- Data provided by five cities that participated in the waste sorting study

A ***big thanks*** to the cities of Arlington, Dallas, Fort Worth, Garland, and Mesquite for providing this information

- Calculated weighted average of composition profile based on total recycling tons collected

The Recycling Partnership Benchmarking

- Pounds per household per year is a key performance metric of curbside recycling programs
- According to The Recycling Partnership, single-family households generate an avg 800 lbs/yr recyclables
- The composition profile of each city in this study varied based on
  - Households
  - Recycling tonnage generated
  - Material categories

THE OPPORTUNITY

800 pounds
of recyclables
available in HH

No Curbside
800 lbs lost

Curbside Opt-In
800 lbs lost
in most homes

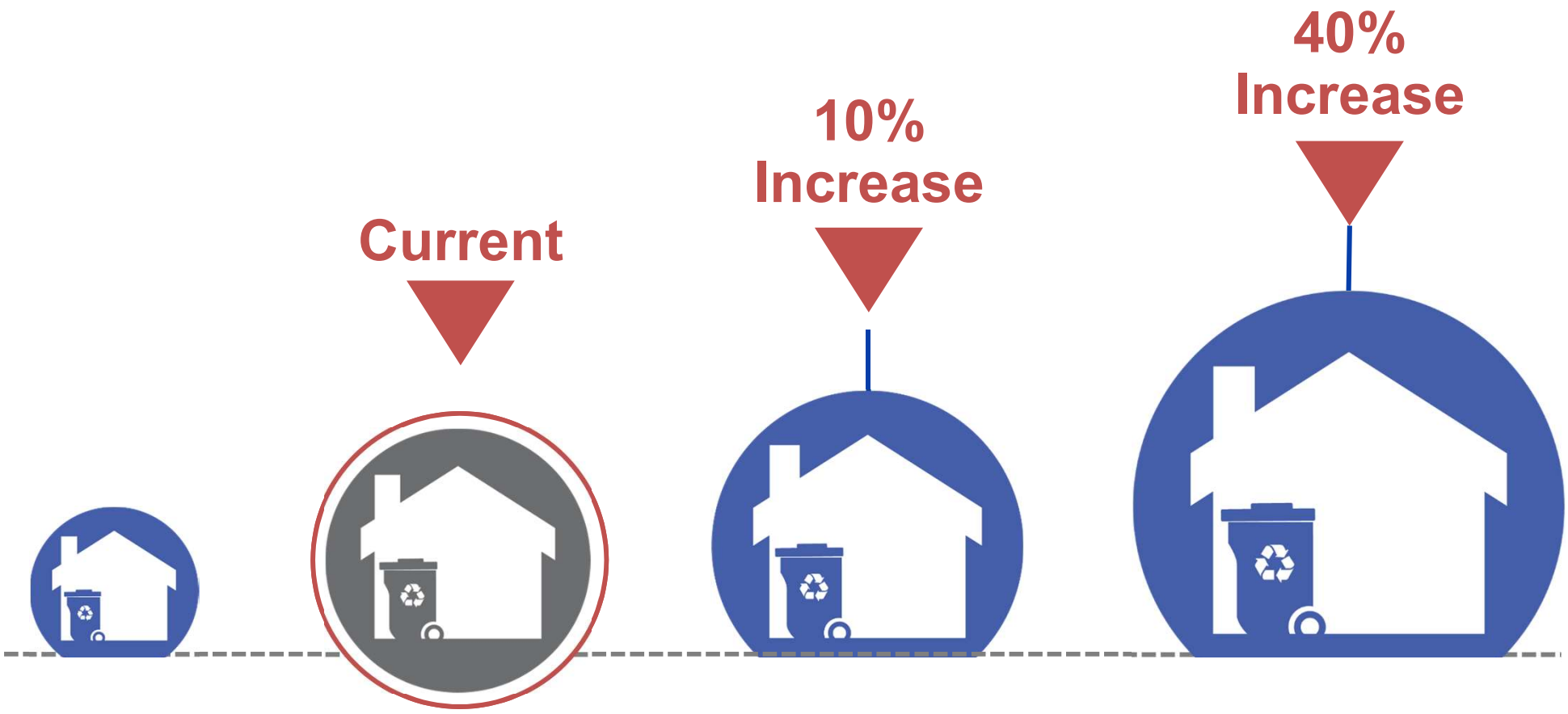
Curbside in Bins
600 lbs lost

Curbside in Carts, No Education
400 lbs lost

Curbside in Carts, Good Education
200 lbs lost

THE RECYCLING PARTNERSHIP

Single Family Pounds per Household per Year



200
lb/hh/yr
Bins

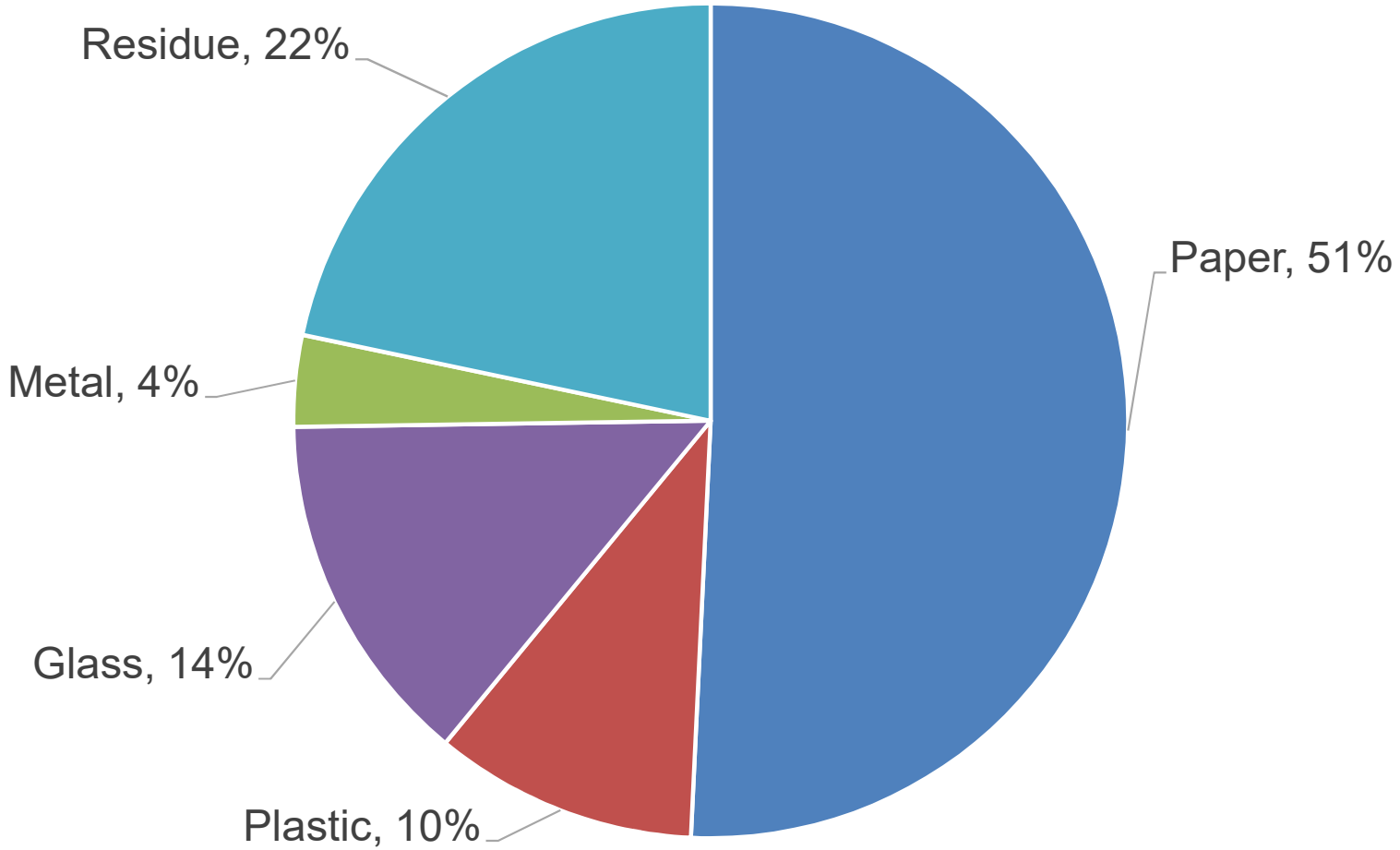
322
lb/hh/yr
NCTCOG Region

357
lb/hh/yr
Natl Avg Curbside

450
lb/hh/yr
Natl Avg Carts, accept glass

Source: Recycling Partnership State of Curbside Report

Regional Recycling Composition



Note: see handout for detailed recycling composition profile.

Regional Recycling Capture Rate

BURNS McDONNELL

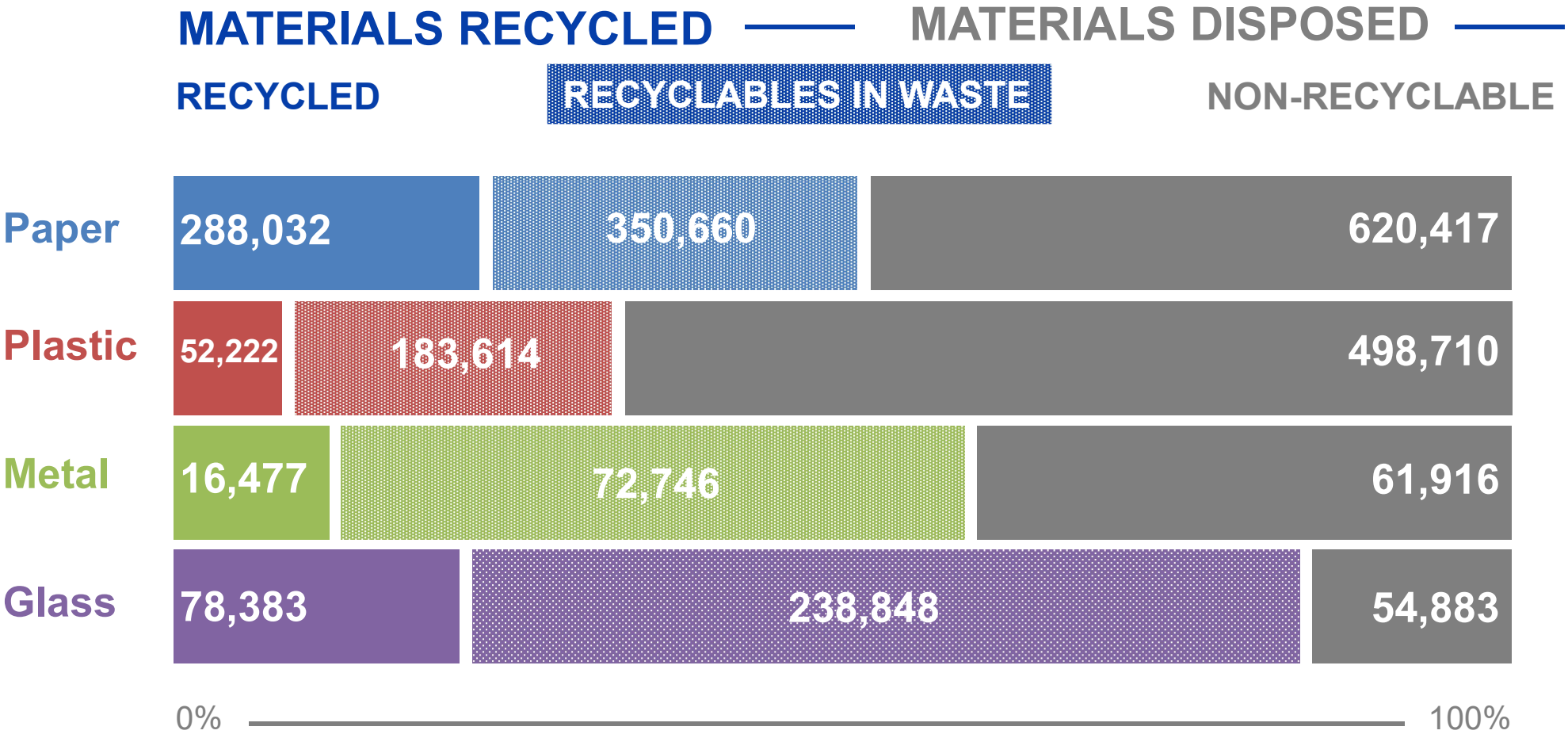
Regional Capture Rate Formula

- Capture Rate provides an understanding of how effectively a curbside recycling program operates

Significance of Regional Capture Rate Metric

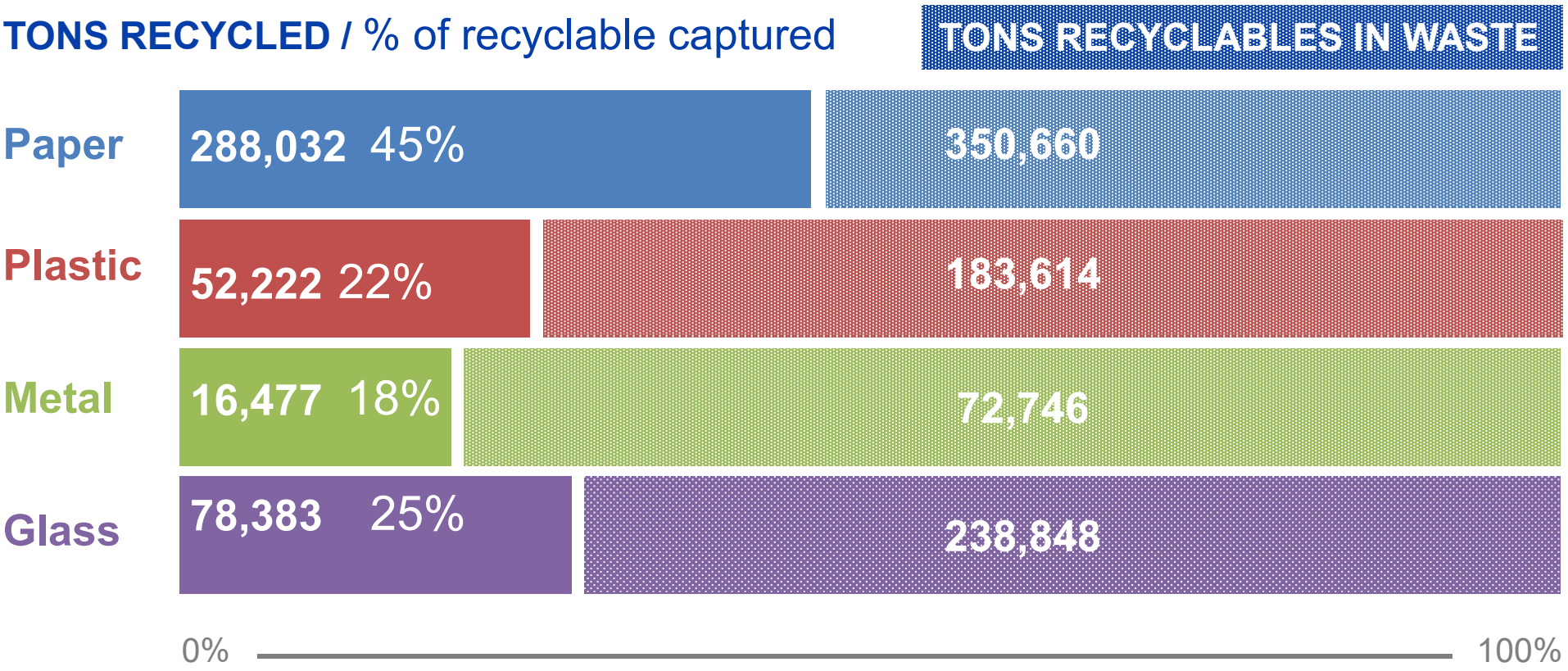
- Capture Rate provides direction on individual recycling materials to target for increased recovery and could shape education/outreach campaign materials provided by The Recycling Partnership
- Low capture rate indicates significant opportunity to increase recovery through single stream recycling
  - *Attend the Educational Campaign Pretesting Focus Group Workshop at 1:30pm today to join the discussion*

Where Are the Recyclables?



Overall Capture Rate Results

What percent of available materials are captured?



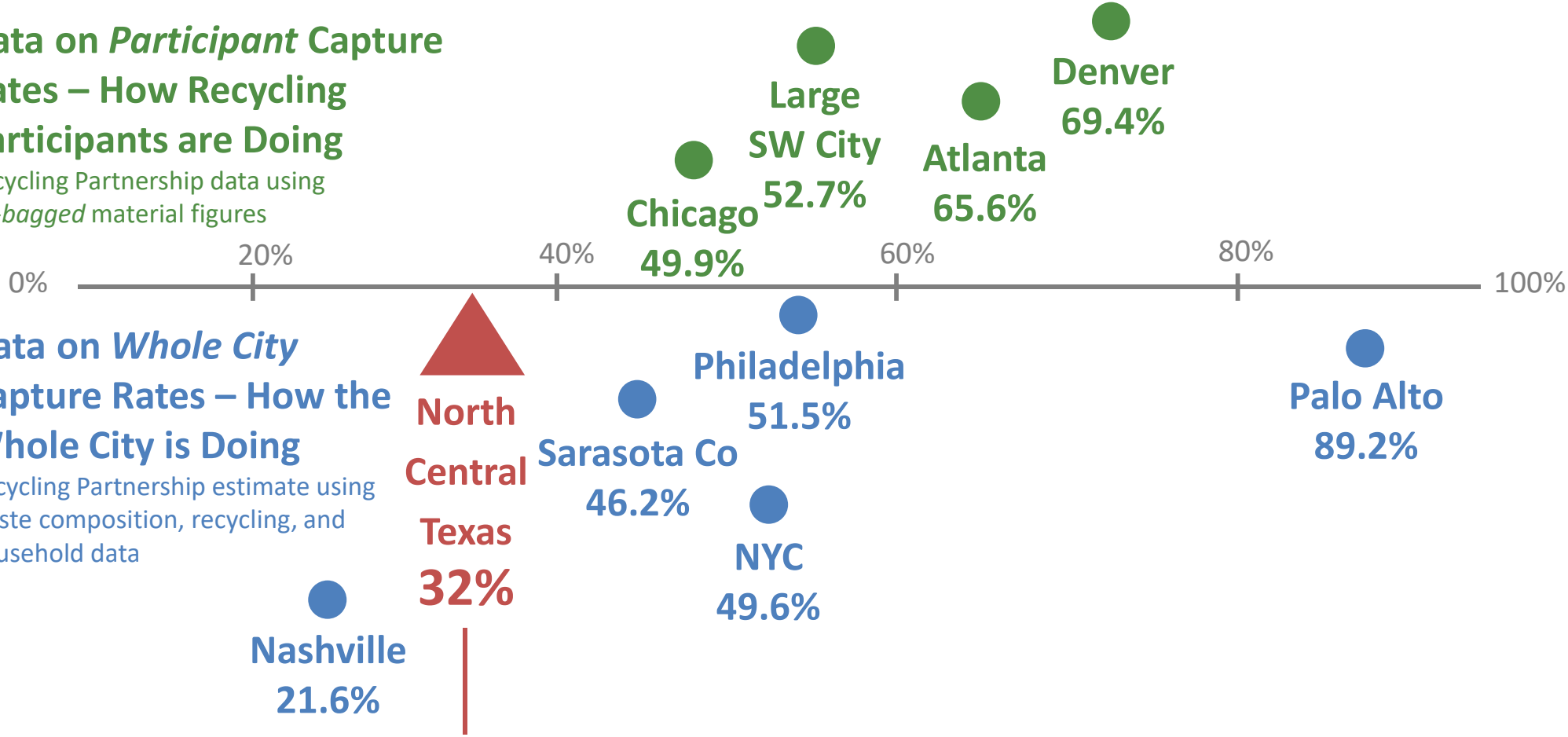
Opportunity

CAPTURE RATES MORE ACCURATELY INFORM ACTION THAN RECYCLING RATE.

OF WHAT IS AVAILABLE ……. WHAT IS CAPTURED

Data on *Participant* Capture Rates – How Recycling Participants are Doing

Recycling Partnership data using *un-bagged* material figures

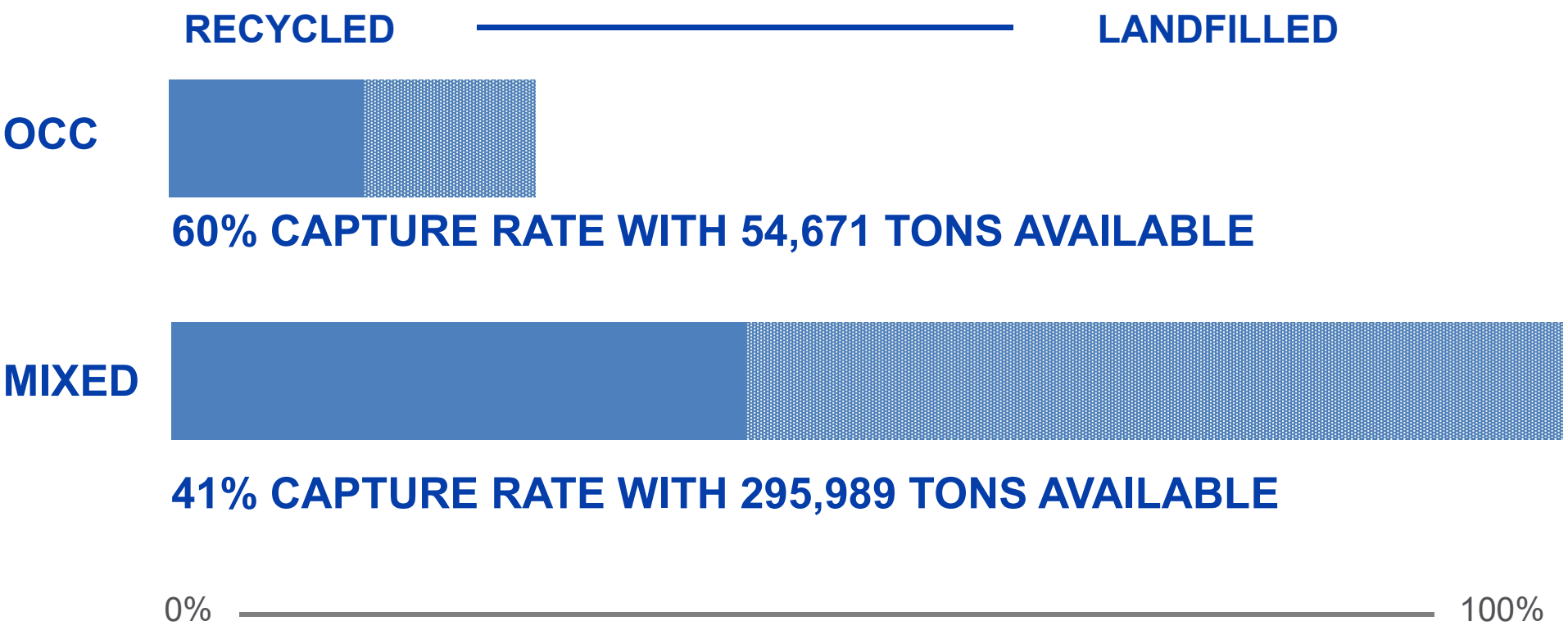


Data on *Whole City* Capture Rates – How the Whole City is Doing

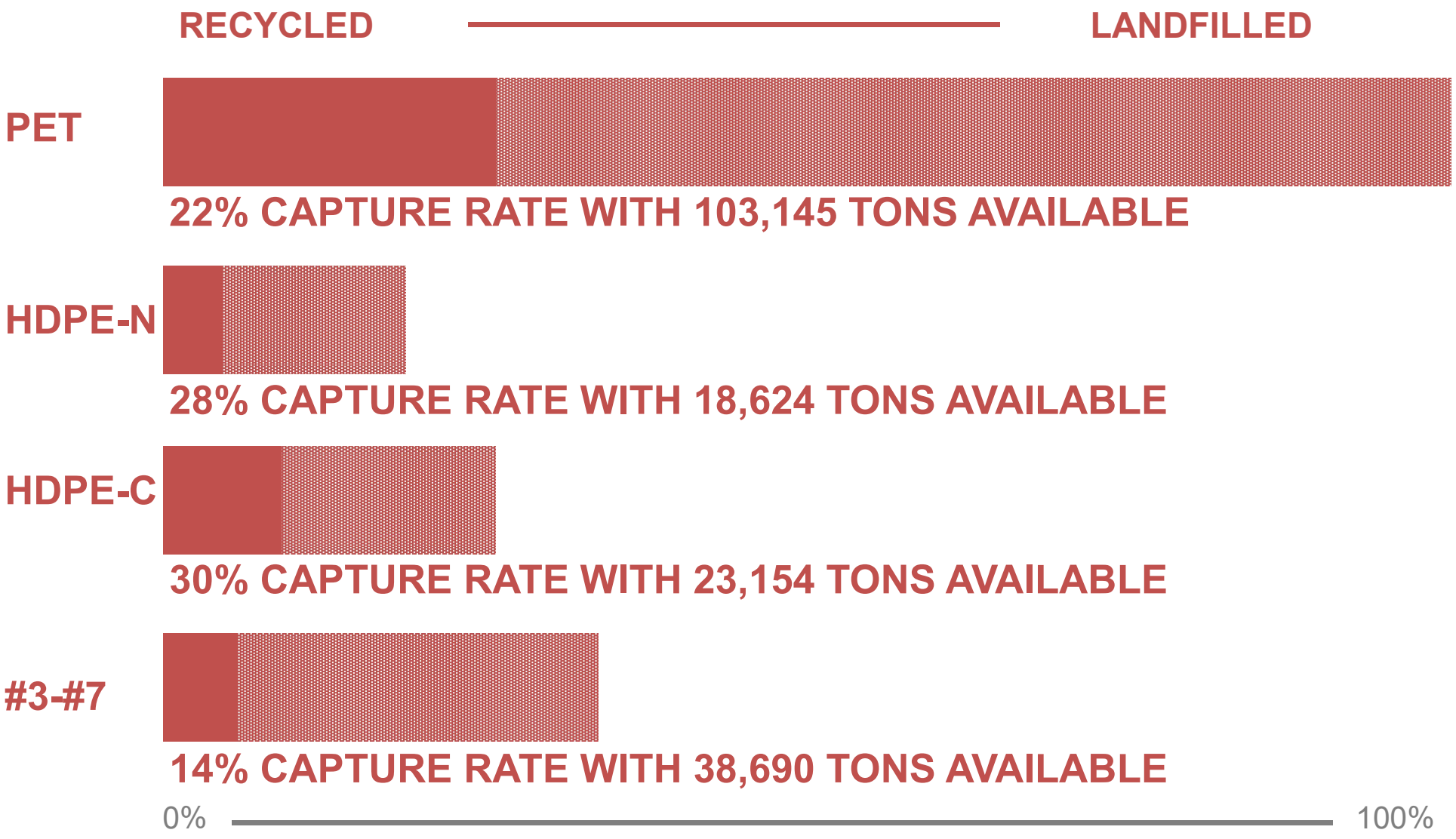
Recycling Partnership estimate using waste composition, recycling, and household data

NCTCOG – regional capture rate for residential curbside recyclables = **32.0%**

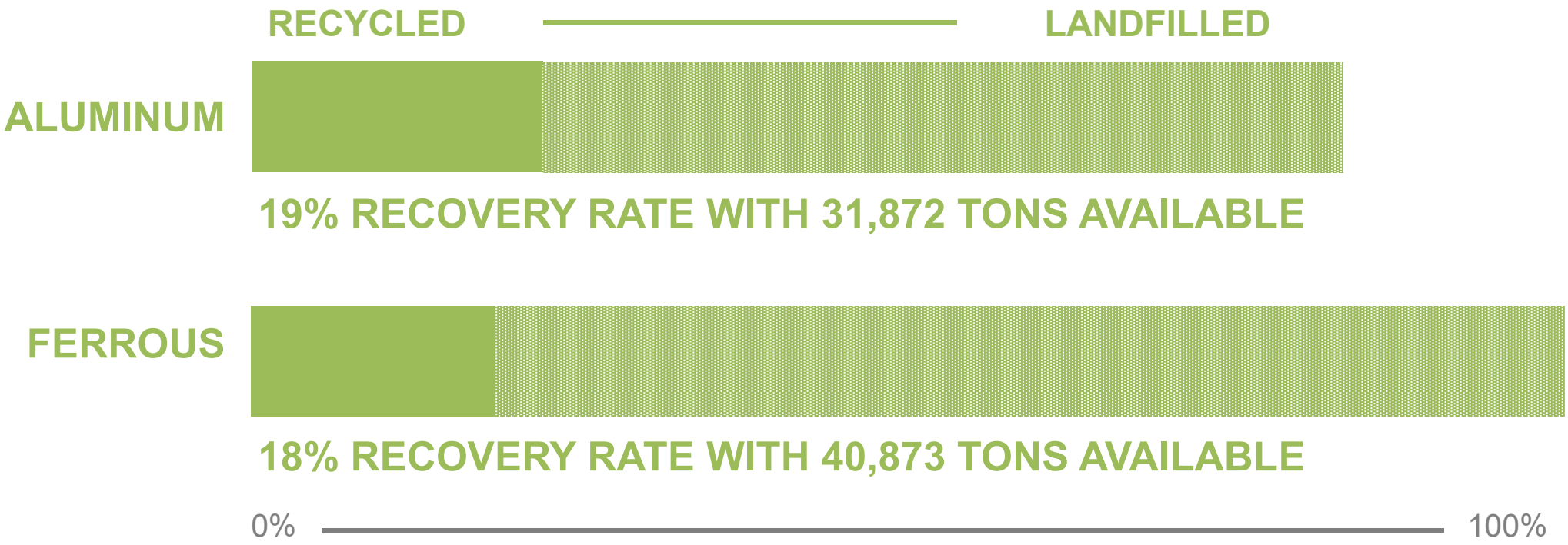
Paper Capture Rate Results



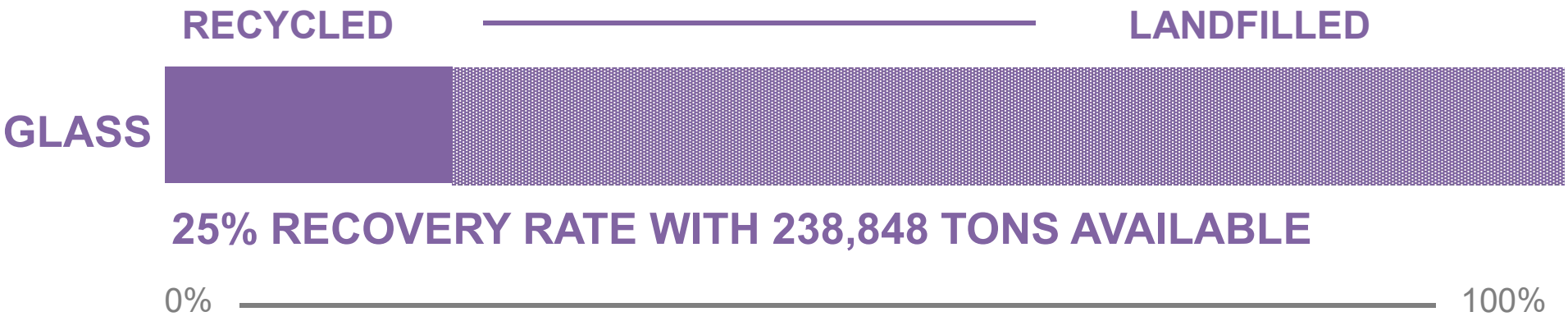
Plastic Capture Rate Results



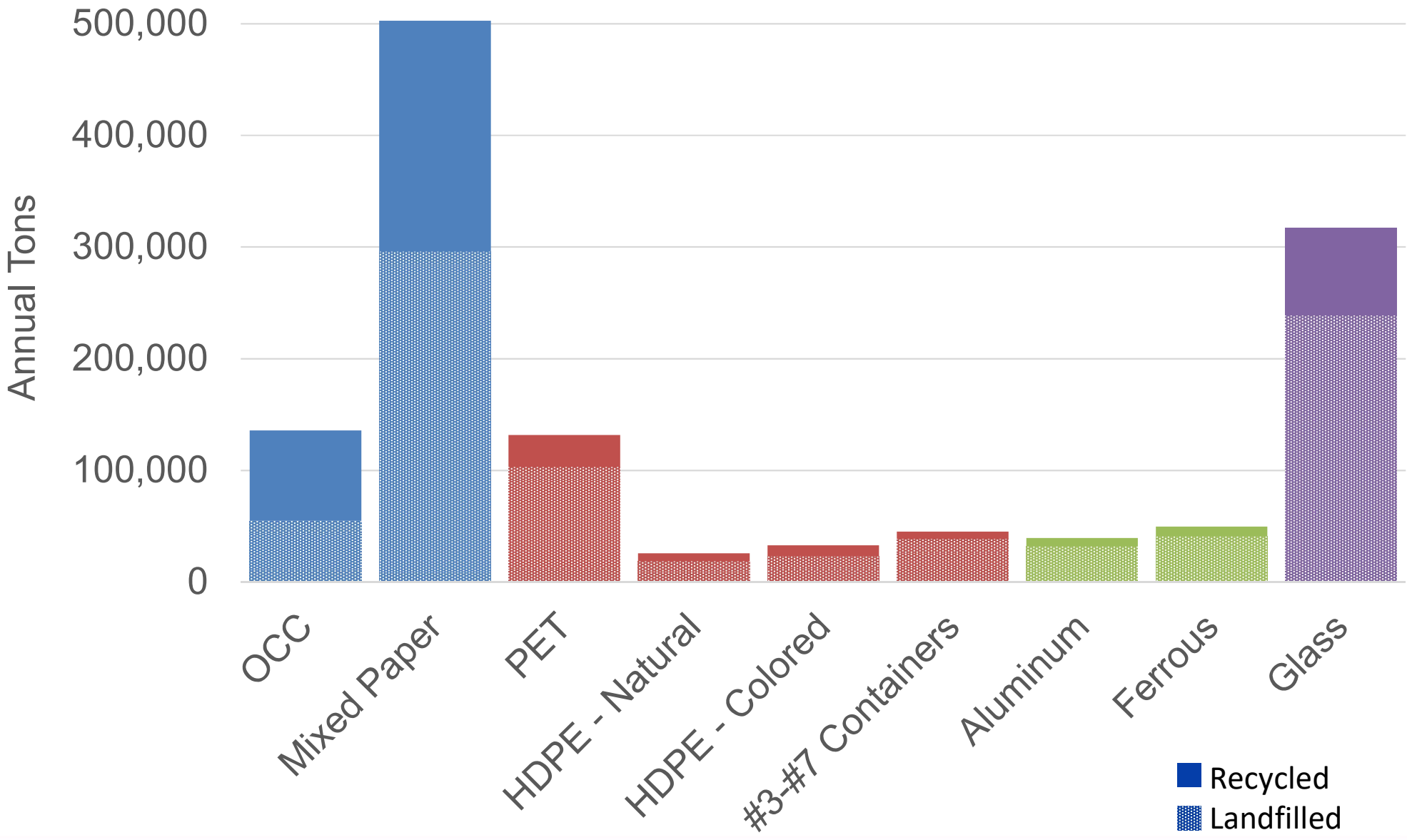
Metal Capture Rate Results



Glass Capture Rate Results



Individual Materials Capture Rate Results



Value of Disposed Materials

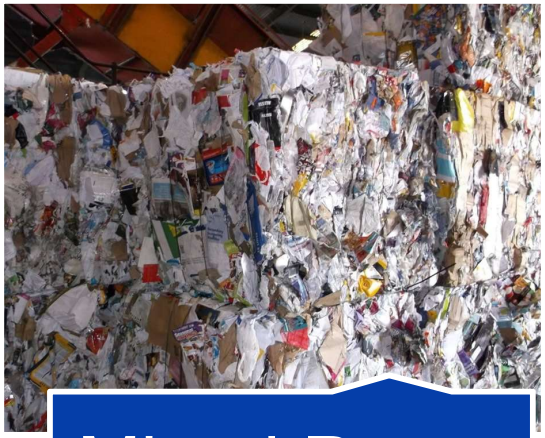
BURNS McDONNELL

Economic Impact of Recycling

- 2016 Texas Commission on Environmental Quality (TCEQ) Study on the Economic Impacts of Recycling
  - Estimated quantity of recyclable materials disposed in Texas
  - Examined economic value disposed recycling material
- The following provides same analysis for North Central Texas

Recyclable Materials with Highest per Ton Value

OCC



Mixed Paper

PET

HDPE

Aluminum

Steel

Five Year Average Commodity Values

Commodities	Five Year Average ($/ton)	Percentage of Recycling Stream
OCC[1]	$107	14.3%
Mixed Paper[2]	$55	36.4%
PET	$272	5.1%
HDPE-N	$687	1.3%
HDPE-C	$422	1.7%
Aluminum	$1,331	1.3%
Steel/Tin	$108	1.6%

[1] Current rate slightly lower due to China import restrictions

[2] Current rate significantly lower due to China import restrictions

Value of Glass on Secondary Material Market

- After initial processing at the region's MRFs the value of glass ranges from -$5 to $12 per ton
- Glass processed by MRFs in the region are sent to a secondary processing facility
- After secondary processing, where the segregated material is sold as feedstock to manufacturers, the value is much higher at around $90 per ton
- Value of glass not included in the following analysis to provide conservative estimates

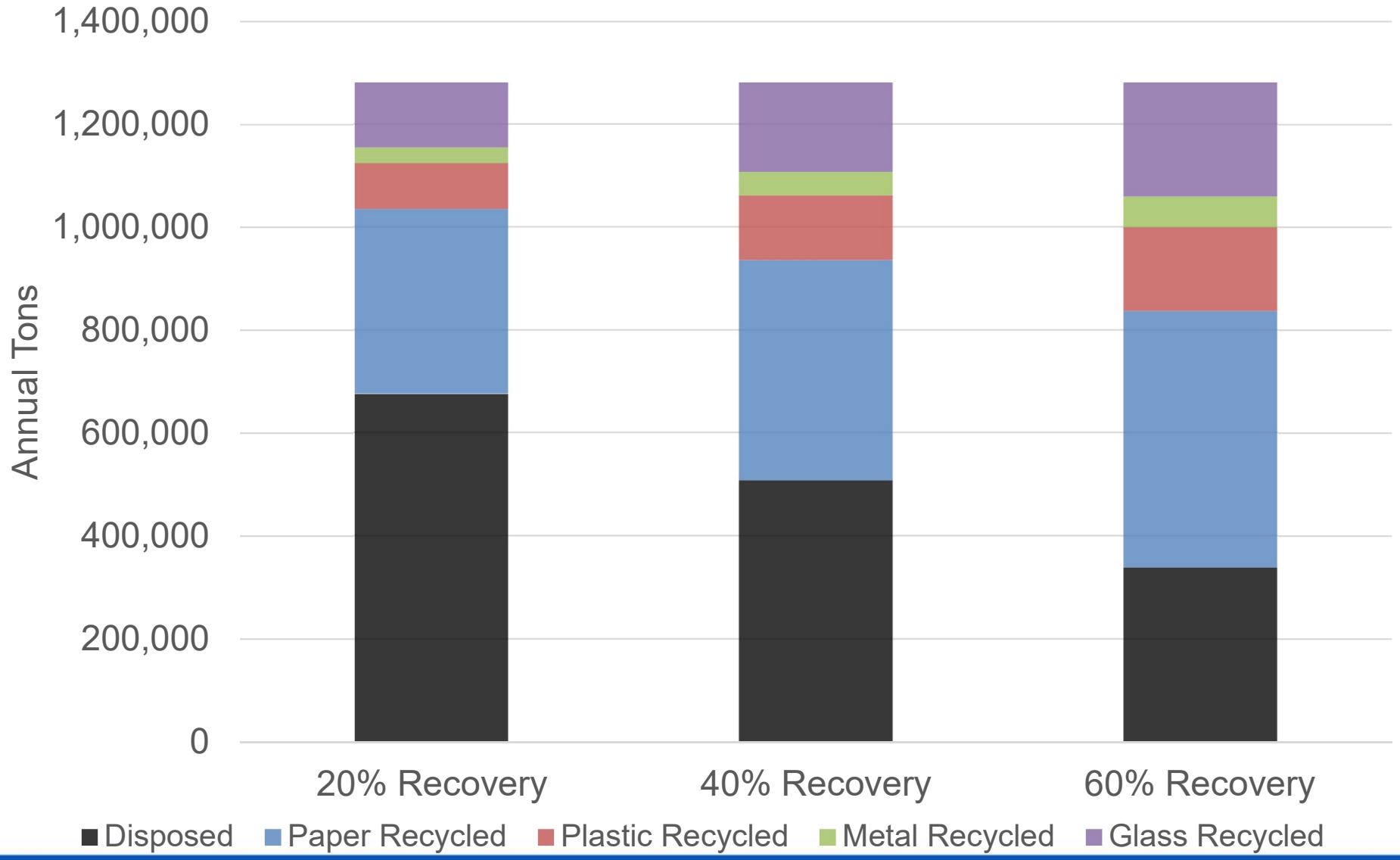
Value of Plastic #3-#7 on Secondary Material Market

- Plastics #3 - #7 range in value depending on the region, mix of materials and location of end markets
  - Certain portions of the #3 - #7 mix are more valuable than others
- While market indices are currently close to $0 per ton, some MRFs in the region are selling material in the range of $75 to $250 per ton
  - Market conditions depend on the material quality, transportation cost, existing contracts and configuration of the manufacturing facility
- Value of Plastic #3 - #7 not included in the following analysis to provide conservative estimates

Potentially Recyclable Material in Refuse (Tons)

Material	Potentially Recyclable Tons	20% Recovery	40% Recovery	60% Recovery
Recyclable Paper	350,660	70,132	140,264	210,396
Recyclable Plastic	183,614	36,723	73,446	110,168
Recyclable Metals	72,746	14,549	29,098	43,647
Recyclable Glass	238,848	47,770	95,539	143,309
Total	**845,868**	**169,174**	**338,347**	**507,521**

Additional Recycling Potential Within the Regional Waste Stream (includes currently recycled tons)



Multiple Reasons to Recycle

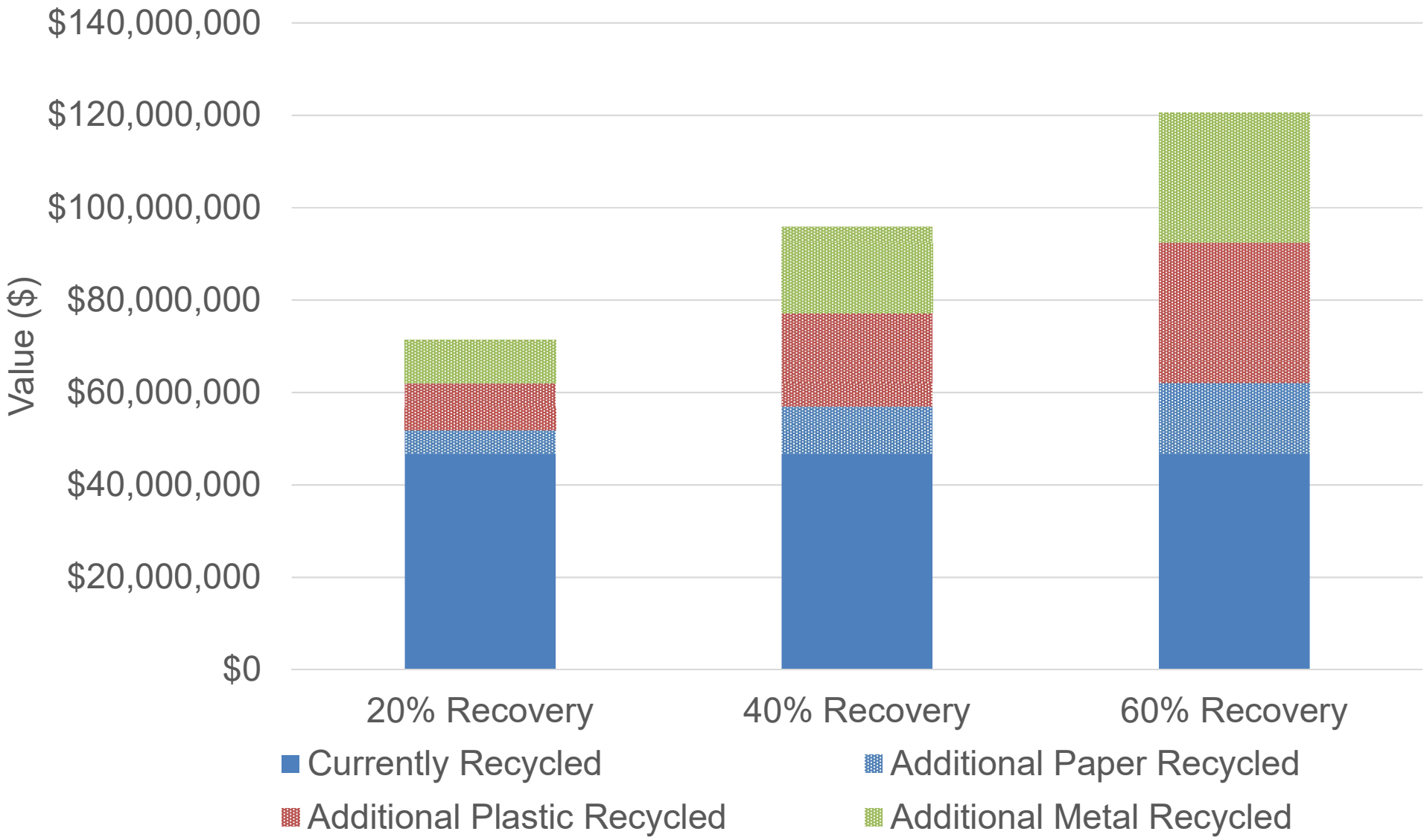
- Financial value
- Minimize disposal
- Environmental benefits
- Policy/diversion goals

Financial value of materials is only one of several reasons to recycle

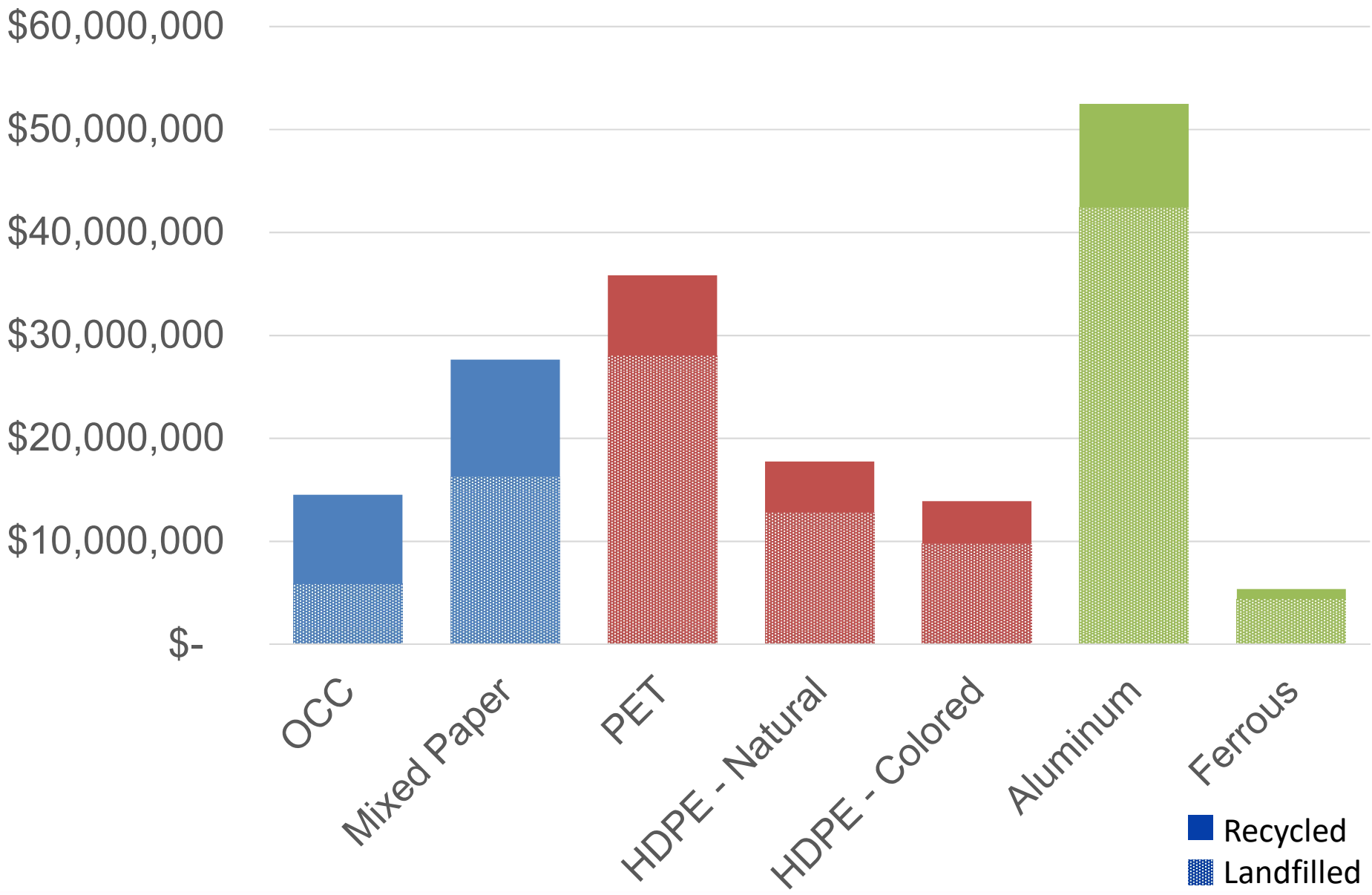
Potentially Recyclable Material (Value, Million $)

Material	Total Value Disposed	20% Recovery	40% Recovery	60% Recovery
Recyclable Paper	$25.4	$5.0	$10.1	$15.2
Recyclable Plastic	$50.6	$10.1	$20.2	$30.3
Recyclable Metals	$46.8	$9.3	$18.7	$28.1
Total	**$122.8**	**$24.4**	**$49.0**	**$73.6**

Value Potential of the Regional Waste Stream



Individual Materials Value



Valuable Material Going to Disposal

- Estimated $122 million potentially recyclable material disposed annually
- Recyclable plastics and metals represent highest value material with lowest capture rates in region
- Opportunity to recover this value at the regional level through coordinated education and outreach campaign

MRF Interviews

BURNS McDONNELL

MRF Interviews Overview

- Coordinated with the MRFs in the region to understand preferences on material throughput
- Will inform the development of regional education and outreach campaign
- Quality of the material impacts ability for the region to realize the value of material that is improperly disposed
- Nine MRFs process the region's single family residential recyclables

MRF Interviewees

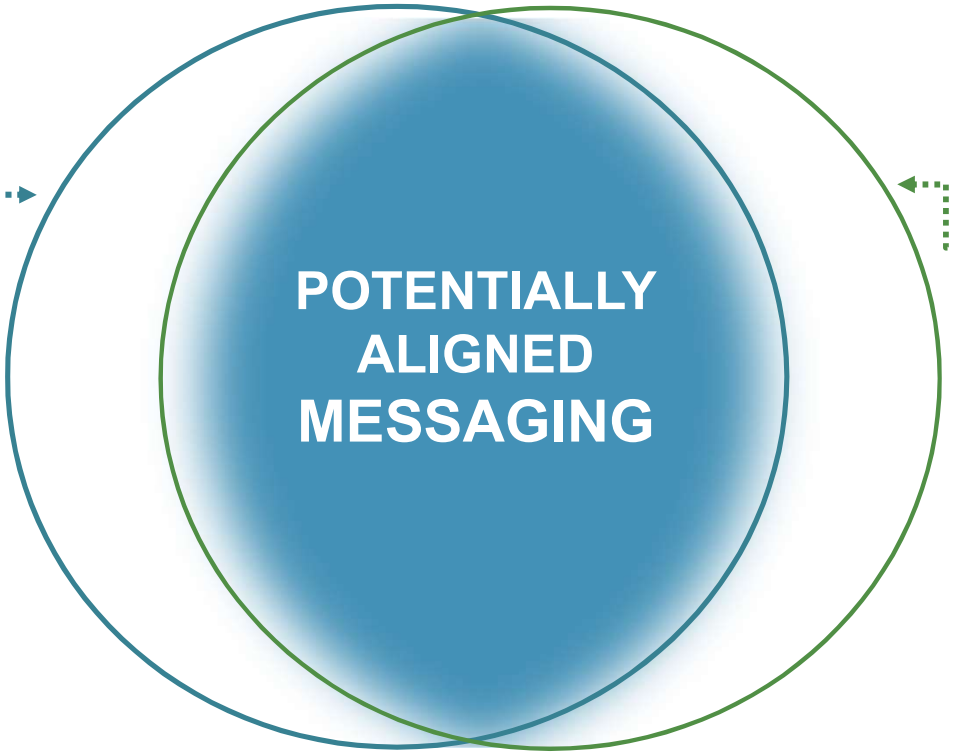
- Contacted the MRF operators in the region
  - Republic
  - Waste Management
  - Balcones
  - Waste Connections
  - Pratt
  - CWD
  - FCC
- All data provided by MRF operators has been aggregated to maintain confidentiality

Moving from Survey to Harmonized Messaging

The Recycling Partnership MRF Accepted Material Survey provides basis for discussion between MRF(s) and communities

What works at the MRFs?

- Bale Quality
- Processing Efficiency
- Worker Safety
- Contract



What works in the communities?

- Commitments/Goals/ Bans
- Resident Knowledge
- Consistency
- Contract

Align messaging for opportunities to establish:

1. **REGIONAL MESSAGING**
   Everyone hears and sees same messages

2. **MODULAR MESSAGING**
   Predictable categories with slight variety

Aim for: Clear • Prioritized • Consistent • Searchable

MRF Survey

- Region's MRF operators completed MRF Survey developed by the Recycling Partnership
- Information provides understanding of the problem materials MRF operators encounter
- Collects information on each individual product generally accepted in single stream recycling programs
- Provides indicator of materials to focus on targeting throughout the region

MRF Survey Categories

- For each individual material, the respondent checked a box to indicate if each was
  - Accepted (i.e. acceptable material for processing)
  - Not accepted and not detrimental (i.e. can be processed but is not highly marketable)
  - Not accepted and detrimental (can not be processed without risk of damage to equipment or personnel safety)
  - Do not want on list but accept (accepted based on agreement with generator but is not highly marketable)

MRF Survey Analysis

- Focus on identifying materials that were most frequently categorized as
  - Accepted by four or more MRFs
  - Not accepted and detrimental by one or more MRFs
- The following slides review the MRF Survey Analysis according to these color-coded legends

Number of Companies Identifying Not Accepted and Detrimental
Three or more
Two
One

Number of Companies Identifying Accept
Seven
Six
Five
Four

Acceptable Paper Material Categories

Material	Accept	Do Not Accept (Non-Detrimental)	Do Not Accept (Detrimental)	Do Not Want on List but Accept
Mail	7	0	0	0
Kraft Bags	7	0	0	0
Magazines	7	0	0	0
Newspaper	7	0	0	0
OCC	7	0	0	0
Office Paper	7	0	0	0
Paperboard Boxes	7	0	0	0
Paperback Books	6	1	0	0
Shredded Paper	6	0	0	0
Pizza Boxes	5	1	1	0
Cartons	4	2	0	1
Hard Cover Books	2	1	2	2
Cold Cups	1	3	2	1
Hot Cups	1	2	3	1
Ice Cream Container	1	3	2	1
Take-out Conatiners	1	1	3	2
Tissue Paper	1	4	1	1
Other	0	0	0	1

Number of Companies Identifying Accept
Seven
Six
Five
Four

Acceptable Metal Material Categories

Material	Accept	Do Not Accept (Non-Detrimental)	Do Not Accept (Detrimental)	Do Not Want on List but Accept
Aluminum				
Can	7	0	0	0
Aerosol	4	0	3	0
Foil or Foil-like Container	2	4	1	0
Other Aluminum Containers	3	3	1	0
Other:	0	0	1	1
Steel				
Can	6	1	0	0
Aerosol	4	0	3	0
Pots and Pans	3	3	1	0
Spiral Wound Container	2	2	2	0
Scrap Metal	0	3	2	2
Other:	0	0	1	0

Number of Companies Identifying Accept
Seven
Six
Five
Four

Acceptable Plastic Material Categories

Material	Accept	Do Not Accept (Non-Detrimental)	Do Not Accept (Detrimental)	Do Not Want on List but Accept
HDPE Bottles & Jars	6	0	0	1
Non-Bottle PET Containers & Lids	6	0	0	1
Non-bottle HDPE Containers & Lids	5	0	1	1
Other Drink Bottles (e.g. juice in #7)	5	1	0	1
Other Food Bottles & Jars	5	1	0	1
Other Household Bottles & Jars	5	1	0	1
PET Bottles & Jars	5	1	0	1
PET Thermoform	5	2	0	0
PP Bottles	5	2	0	0
Other Tubs & Lids	4	2	0	1
PP Containers & Lids	4	2	0	0
Buckets	2	1	2	2
Bulky Plastic	2	0	2	2
Flower Pots	2	3	1	1
Other Containers & Packaging	2	2	0	1
Bags, Wraps Film (bag in bag)	1	0	4	2
EPS Foam Blocks & Shapes	1	4	1	0
Plastic Bags	1	1	4	1
Produce, Deli & Bakery Containers, Cups, Trays	1	4	1	0
Toys	1	4	2	0
EPS Foam Food Service & Other Containers	0	4	2	0

Number of Companies Identifying Accept
Seven
Six
Five
Four

Acceptable Glass Material Categories

Material	Accept	Do Not Accept (Non-Detrimental)	Do Not Accept (Detrimental)	Do Not Want on List but Accept
Bottles and Jars	5	1	0	1
Drinking Glass	1	4	1	1
Mugs	1	4	2	0
Other	1	1	1	0
Window	0	3	3	0

Number of Companies Identifying Accept
Seven
Six
Five
Four

Prohibitive Paper Material Categories

Material	Accept	Do Not Accept (Non-Detrimental)	Do Not Accept (Detrimental)	Do Not Want on List but Accept
Take-out Containers	1	1	3	2
Hot Cups	1	2	3	1
Cold Cups	1	3	2	1
Hard Cover Books	2	1	2	2
Ice Cream Container	1	3	2	1
Pizza Boxes	5	1	1	0
Tissue Paper	1	4	1	1
Cartons	4	2	0	1
Mail	7	0	0	0
Kraft Bags	7	0	0	0
Magazines	7	0	0	0
Newspaper	7	0	0	0
OCC	7	0	0	0
Office Paper	7	0	0	0
Paperback Books	6	1	0	0
Paperboard Boxes	7	0	0	0
Shredded Paper	6	0	0	0
Other	0	0	0	1

Number of Companies Identifying Not Accepted and Detrimental
Three or more
Two
One

Prohibitive Metals Material Categories

Material	Accept	Do Not Accept (Non-Detrimental)	Do Not Accept (Detrimental)	Do Not Want on List but Accept
Aluminum				
Aerosol	4	0	3	0
Foil or Foil-like Container	2	4	1	0
Other Aluminum Containers	3	3	1	0
Other:	0	0	1	1
Can	7	0	0	0
Steel				
Aerosol	4	0	3	0
Scrap Metal	0	3	2	2
Spiral Wound Container	2	2	2	0
Pots and Pans	3	3	1	0
Other:	0	0	1	0
Can	6	1	0	0

Number of Companies Identifying Not Accepted and Detrimental
Three or more
Two
One

Prohibitive Plastic Material Categories

Material	Accept	Do Not Accept (Non-Detrimental)	Do Not Accept (Detrimental)	Do Not Want on List but Accept
Plastic Bags	1	1	4	1
Bags, Wraps Film (bag in bag)	1	0	4	2
Buckets	2	1	2	2
Bulky Plastic	2	0	2	2
EPS Foam Food Service & Other Containers	0	4	2	0
Toys	1	4	2	0
EPS Foam Blocks & Shapes	1	4	1	0
Flower Pots	2	3	1	1
Non-bottle HDPE Containers & Lids	5	0	1	1
Produce, Deli & Bakery Containers, Cups, Trays	1	4	1	0
HDPE Bottles & Jars	6	0	0	1
Non-Bottle PET Containers & Lids	6	0	0	1
Other Containers & Packaging	2	2	0	1
Other Drink Bottles (e.g. juice in #7)	5	1	0	1
Other Food Bottles & Jars	5	1	0	1
Other Household Bottles & Jars	5	1	0	1
Other Tubs & Lids	4	2	0	1
PET Bottles & Jars	5	1	0	1
PET Thermoform	5	2	0	0
PP Bottles	5	2	0	0
PP Containers & Lids	4	2	0	0

Number of Companies Identifying Not Accepted and Detrimental
Three or more
Two
One

Prohibitive Glass Material Categories

Material	Accept	Do Not Accept (Non-Detrimental)	Do Not Accept (Detrimental)	Do Not Want on List but Accept
Window	0	3	3	0
Mugs	1	4	2	0
Drinking Glass	1	4	1	1
Other	1	1	1	0
Bottles and Jars	5	1	0	1

Number of Companies Identifying Not Accepted and Detrimental
Three or more
Two
One

Acceptable and Prohibitive Materials Discussion

BURNS McDONNELL

Acceptable and Prohibitive Materials Lists

- The following slides are meant to guide discussion to come to a consensus of
  - List of acceptable materials to focus on capturing in recycling
  - List of prohibitive materials to focus on properly disposing in refuse

Top Regionally Accepted Materials

Paper	Plastic	Metal	Glass
OCC	Plastic Bottles	Aluminum Cans	Bottles/Jars
Mail, Magazines, Newspaper	Plastic Jugs	Steel/Tin Cans	
Kraft bags			
Office Paper			
Shredded Paper			

*Note: based on materials ranked 6 or 7 in MRF Survey analysis – for discussion purposes only (i.e. this **does not** suggest all communities in the region change their outreach to match this list)*

Brainstorm Local Programs to Increase Capture Rate of Acceptable Materials

- Time permitting spend 5-15 minutes
- Request each attendee provide one, specific idea
- Ok to provide ideas on notecards

1:30pm today, Educational Campaign Pretesting Focus Group Workshop
Regional Forum Room, Centerpoint 2

Top Five Prohibitive Materials

- Respondents of the MRF Survey identified their top five prohibitive items
- The responses from the MRF Surveys show which materials are most detrimental
- The following slides show the top five prohibitive materials and explain why they are problematic

Prohibitive Sharps Materials Explained

Rank	Materials	Definition
5	Needles/Medical Equipment	Sharps and material that contains hazardous fluids

© Can Stock Photo - csp2316236

Prohibitive Sharps Materials Explained

Rank	Materials	Definition
5	Needles/Medical Equipment	Sharps and material that contains hazardous fluids

© Can Stock Photo - csp2316236

Explanation

Sharps present a sticking hazard for MRF employees that are picking material off the line. The safety of those working at the MRF is the highest priority of MRF operators.

Prohibitive Food Contaminated Materials Explained

Rank	Materials	Definition
4	Food/Yard Waste	Food contaminated material or other organic material

x75147037 www.fotosearch.com

Prohibitive Food Contaminated Materials Explained

Rank	Materials	Definition
4	Food/Yard Waste	Food contaminated material or other organic material

Explanation

Food contaminated material contributes heavily to the amount of residue material that is disposed in landfills and is often mixed with other small particle materials such as glass.

Prohibitive Explosive Materials Explained

Rank	Materials	Definition
3	Propane Tanks	A metal tank used to store propane for grilling

Prohibitive Explosive Materials Explained

Rank	Materials	Definition
3	Propane Tanks	A metal tank used to store propane for grilling

Explanation
Propane tanks that enter a processing system can act as other steel cans through the processing equipment. If they are not screened out, they become an *explosion hazard* if they are baled with other metal material.

Prohibitive Film Plastic Materials Explained

Rank	Materials	Definition
2	Plastic Bags	A bag that is manufactured from plastic film material

Prohibitive Film Plastic Materials Explained

Rank	Materials	Definition
2	Plastic Bags	A bag that is manufactured from plastic film material

Explanation

Oftentimes acts as paper and contaminated clean recyclable bales. When China increased the standard of paper bales, the contamination caused by plastic bags became much more problematic than it had recently.

Prohibitive Wrap-able Materials Explained

Rank	Materials	Definition
1	Wire, Hose Cords Rope, Chains	Post consumer product that extends during use and coils for storage

Prohibitive Wrap-able Materials Explained

Rank	Materials	Definition
1	Wire, Hose Cords Rope, Chains	Post consumer product that extends during use and coils for storage

Explanation

This material wraps around MRF equipment, screens, and gears; causes unexpected breakdowns; equipment is stopped for operator to cut away material by hand

Conclusions and Next Steps

BURNS McDONNELL

Conclusions

- Reducing contamination creates more capacity to process valuable materials
  - Less operational interruptions
  - Higher equipment efficiency
  - Less contamination in bales
  - Increased safety
- Target least captured, most valuable materials to realize $122 million value of items currently disposed on secondary material market
- Effective education and outreach campaign would provide most value to regional system if over time:
  - Tonnage of prohibitive materials sent to MRFs decreases
  - Tonnage of plastic and metal bottles/cans increases

Update on Recycling Survey

- Compiling data from Re-TRAC surveys including
  - Regional waste flows
  - Regional recycling flows
  - Current education and outreach material
- Thank you to those who registered and completed the survey!
- Opportunity to renew subscription for Re-TRAC to become regional data tracking tool

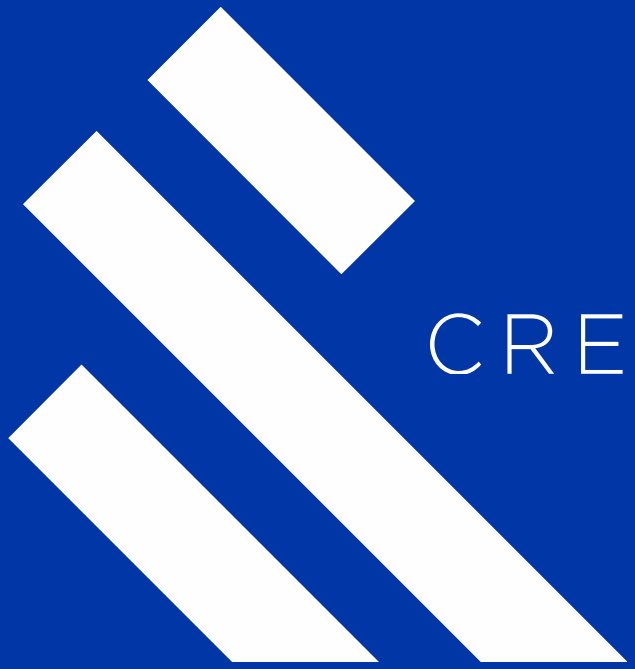
Educational Campaign Pretesting Focus Group Workshop

- 1:30pm today, Regional Forum Room, Centerpoint 2
- Workshop highlights
  - Overview of previous campaigns conducted by The Recycling Partnership
  - Review of Communication Tools
  - Review Current Communities Outreach
  - Discuss Regionally-focused Communication Tools

Questions?

Scott Pasternak
Burns & McDonnell
512-872-7141
spasternak@burnsmcd.com

Eric Weiss
Burns & McDonnell
512-975-7873
ebweiss@burnsmcd.com



CREATE AMAZING.