

Abstract: Installation, Command, and Regional Strategies for Meeting Executive Order 13514 Mandated 50% Waste Diversion Goals

By Jeff Mathieu

Executive Order 13514 has established non-hazardous solid waste and construction and demolition debris goals of 50% diversion by 2015. Meeting this goal will be a challenge for many DoD installations. The volume of waste generated by a DoD installation is small in comparison to a larger city resulting in a high cost for collection with low returns. Installations and Commands must make smart decisions based on the volume of each waste stream generated, the economic value of each commodity, and the cost to collect, package, and recycle the materials.

Tetra Tech has been completing Qualified Recycling Program (QRP) analyses for the past 5 years nationwide and at international locations. The focus of these QRP analyses has been on QRP Operations, commodity processing, regulated waste recycling, Market Analyses for QRP items, and Economic Analyses of operations and alternatives. As part of the Economic Analyses, Tetra Tech also evaluates the specifications and costs of service contracts to include refuse, recycling, composting, custodial, and grounds maintenance to identify potential cost savings.

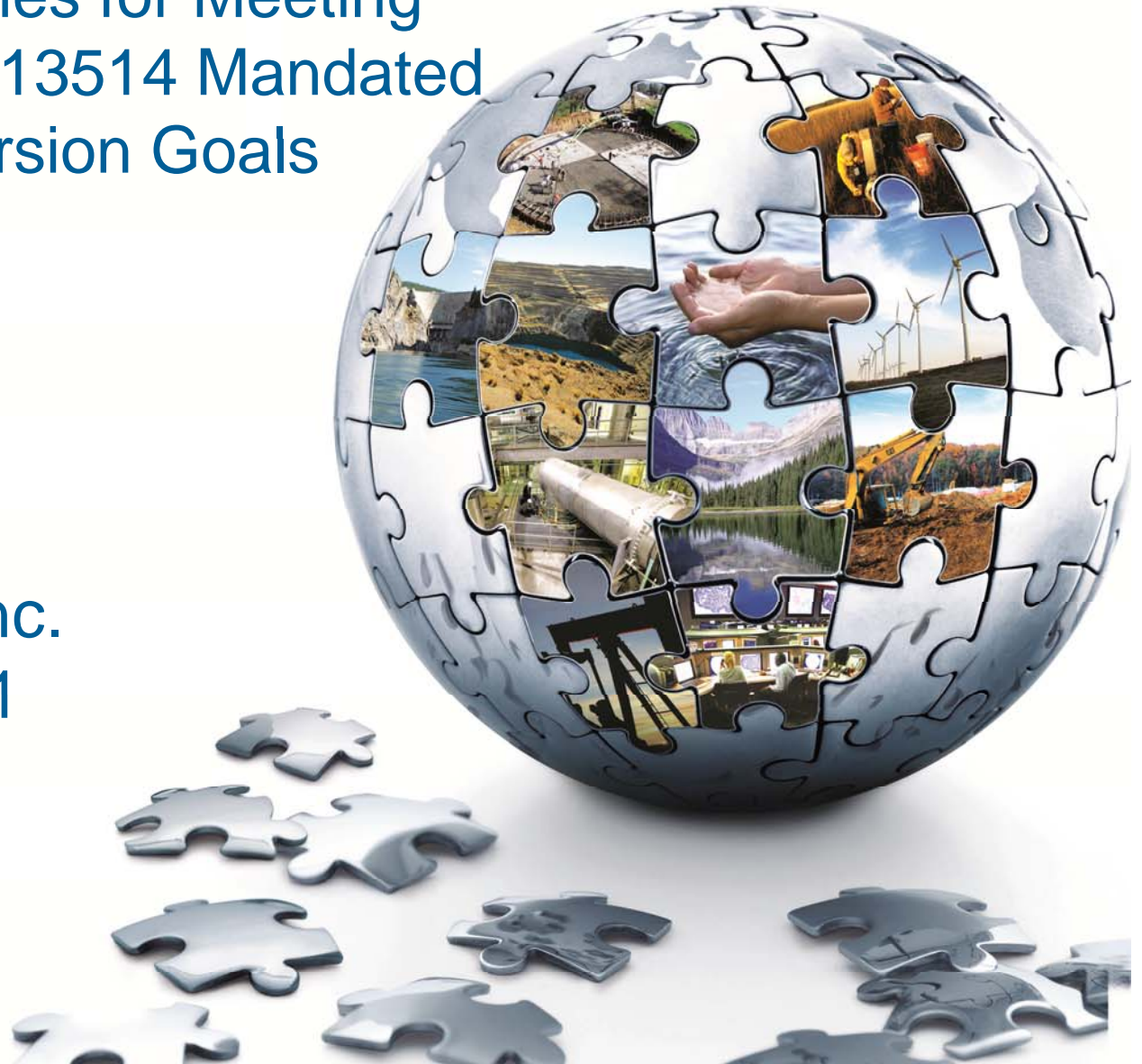
These analyses have shown that the profitability of a QRP depends on multiple factors such as a champion for the program, distance to regional markets, contractual specifications, local/regional support for recycling, and outreach programs.

This presentation will provide installation and MAJCOM representatives with strategies and best practices that can significantly improve the financial management of integrated solid waste while achieving the goals of Executive Order 13514.

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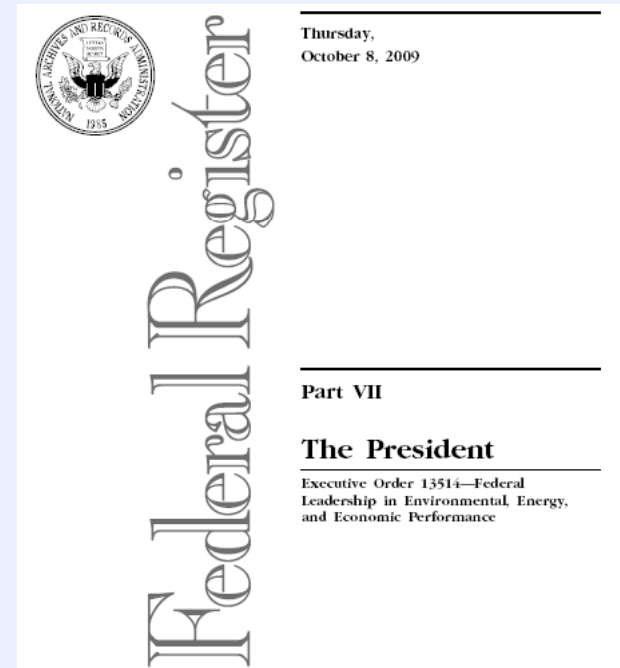
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Overview

Executive Order 13514 Goals

- Promote P2 and eliminate waste by:
- (i) minimizing the generation of waste and pollutants through **source reduction**;
- (ii) diverting at least **50 percent of non-hazardous solid waste** by FY 2015;
- (iii) diverting at least **50 percent of construction and demolition materials & debris** by FY 2015;
- (vi) **increasing diversion of compostable & organic material from the waste stream**



Challenges for DoD Installations

- Sustainable Materials Management
 - Reuse, Source Reduction, Material Substitution
 - Green Procurement Program
 - Extended Producer Responsibility
 - Evaluate Large Quantity Purchases
- Problems with Data
 - Fence to Fence Waste Generation
 - C&D Debris, Organics, and Packaging
 - Characterizations

Challenges for DoD Installations

- Low Volume of Waste
- High Collection Costs, per ton basis
 - 5,000 tons of waste and recycling
 - Collection 1,3, or 5 times/week
 - Pay for multiple collection trips
 - \$100/ton = \$500,000

Challenges for DoD Installations

- Lack of Revenue Source
 - City residents pay Fee for Service
 - Landfills & MRFs charge Tipping Fees
- Contract Specifications
- High Turnover

Essential Elements

- Champion – without a program champion the program will fail!
 - If you have an individual that is dedicated give them senior leadership support
- Leadership Commitment
- Strategic Plan – short term and long term
 - As recycling programs mature, phase in new programs

Zero Waste

- Zero Waste Cities

- San Francisco, Palo Alto, San Jose,
- Oakland, Los Angeles, Burbank
- Telluride, Albuquerque, Austin
- Seattle, Central Vermont, Sydney, Tokyo

- Army has announced Zero Waste Installations
- Fort Detrick, MD; Fort Hood, TX; Fort Hunter-Liggett, CA; Fort Polk, LA; JB Lewis-McChord, WA, US Army Garrison Grafenwoehr, Germany

50% Diversion of MSW

- How do you get to 50%?
- GRIT
 - Endurance in pursuit of long-term goals and an ability to persist in the face of adversity



How do you get to 50%?

- Baseline: Refuse, Recycling, Organics
- Infrastructure On/Off Base, Capacity
 - Landfill – Recycling Programs
 - Materials Recovery Facility
 - Composting Operation – Green Waste/Food
- IDEAL SCENARIO
 - Recycling: Single Stream for MSW
 - Composting – All Organics
 - Trash

50% Diversion of MSW

- Characterization

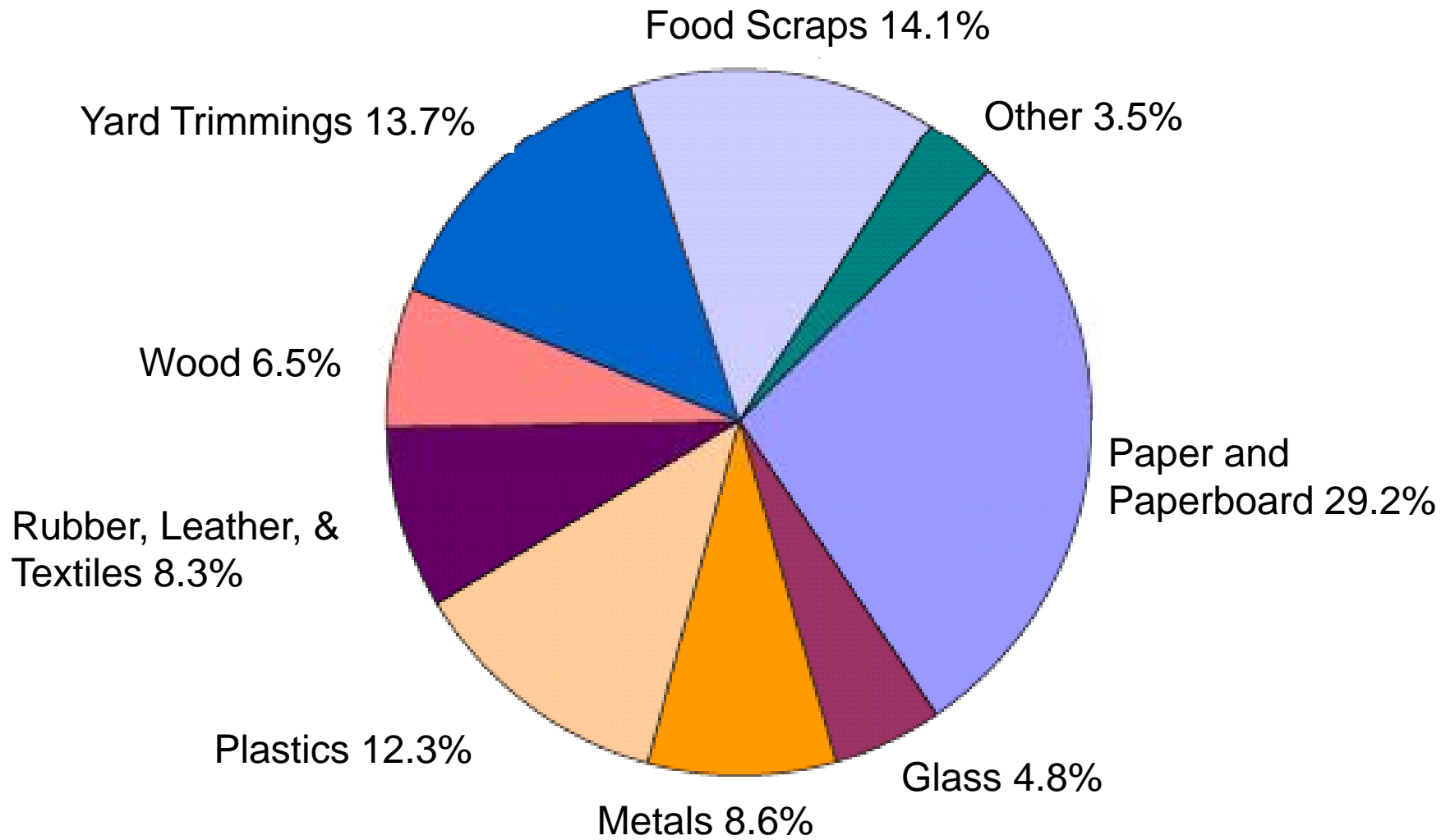
- Paper
- Cardboard
- Plastics
- Metals
- Organics



- Market Analysis

- Programs that target the largest waste streams

Materials Generation in MSW, 2009
243 Million Tons (Before Recycling)



50% Diversion of MSW

- Desk-side to Curbside to Processing
 - Proper tools and training
 - Source Separated or Commingled?
 - Desk-Side or Common Area Collection?
- Custodial Services Collection
 - Custodial Services vs Refuse/Recycling
- Refuse – Service Contract Specifications
 - Majority sized for high frequency collection

50% Diversion of MSW

- Refuse and Recycling Combined?
 - No Incentive to Increase Recycling
 - Example:
 - Contractor collects trash and recycling
 - Paid Fixed Monthly Rate by CLIN for collections
 - Retains any revenue from recycling
 - Very low diversion rate – 17% but contractor is still getting paid – no incentive

50% Diversion of MSW

- Organics
 - Grounds Maintenance and Food Waste
 - Need to identify all sources
- Data Collection
 - Many installations are not collecting all of the data on diversion programs

25% Recycling

15% Organics

10% Data Collection

50% Diversion of MSW

- Recycling That May Be Occurring
 - Scrap Metal – check with local dealers
 - Carpet
 - Furniture
 - Food
 - Shredded Paper
 - Pallets
- Need to know what happens fence to fence

50% Diversion of C&D Debris

- Infrastructure – On Base and Off Base
 - Rubble Yard, Gravel Yard, Landfill, C&D Debris Processing Facility
 - On Base: Control
 - Off Base: Direct C&D Debris and collect data
- Contract Specifications
 - Paving
 - Demolition/Renovation
 - MILCON

50% Diversion of C&D Debris

- Concrete – crush as road base 2” minus
 - Establish Service Contract, Portable Crushing
 - Specify the types of materials
 - Economics
 - Purchase Crushed Rock \$8 to \$10/ton
 - Disposal Cost for C&D Debris \$5/ton
 - Portable Crushing as low as \$5/ton
 - Cost Avoidance of \$8 to \$10, can be significant

50% Diversion of C&D Debris

- Roofing, Flooring, Paving Contracts
 - Specs for recycling and data collection
- Design-Build (Separate Demolition)
- Recycling/Diversion Specifications must be included in all scopes
- Waste Management Plan

50% Diversion of C&D Debris

- Contracting for Demolition

- Selection Criteria

- Past Performance (at least 3 projects 50%) 30%
 - Technical Approach 40%
 - Cost 30%

- Payment Plan & Deliverables

- Demolition/Waste Management Plan 20%
 - Health & Safety Plan 10%
 - Demolition Activities 40%
 - Demolition Diversion Data 30%

USAF Success Stories

- Installation #1 in Texas
 - 3% participation rate from Housing
 - Refuse Collection 5 times too high
 - Desk-Side Collection for 100% Participation
 - BMP: DeCA - Cardboard, Pallet Reuse, Food Donations
 - Wooden Crates
 - Increased Diversion Rate from 11% to 70%

USAF Success Stories

- Installation #2 in Texas
 - Refuse collection 4 times greater than required
 - BMP – on site composting, provided free to grounds maintenance, MFH, and base employees
 - Reuse of pallets
 - Paving – asphalt recycling
 - Scrap Metal
 - Increased Diversion Rate from 30% to 48%

USAF Success Stories

- Installation #3 in Texas
 - Grounds Maintenance Data not collected
 - MILCON/base C&D debris data not collected
 - Collection frequency 5 times more than required
 - Fixed Monthly CLIN for Refuse and Recycling regardless of recycling rate
 - Collection Process not coordinated
 - Custodial Services – trash emptied once per week
 - Refuse Collection – 3 to 6 times per week
 - Employees – empty recycling as needed
 - Recycling Collection – once per week
 - Increase from 17% to 38% (goal was 40%)

USAF Success Stories

- Vandenberg AFB: Materials Diversion Center (MDC)
 - Truckloads of furniture and equipment trashed
 - Established MDC next to DRMO



TONS	11,419	10,325	1,280	745	185
MATERIAL	Heritage Deactivation Wastestreams	Asphalt and Concrete	Railroad Ties	Railroad Rails	Furniture

USAF Success Stories

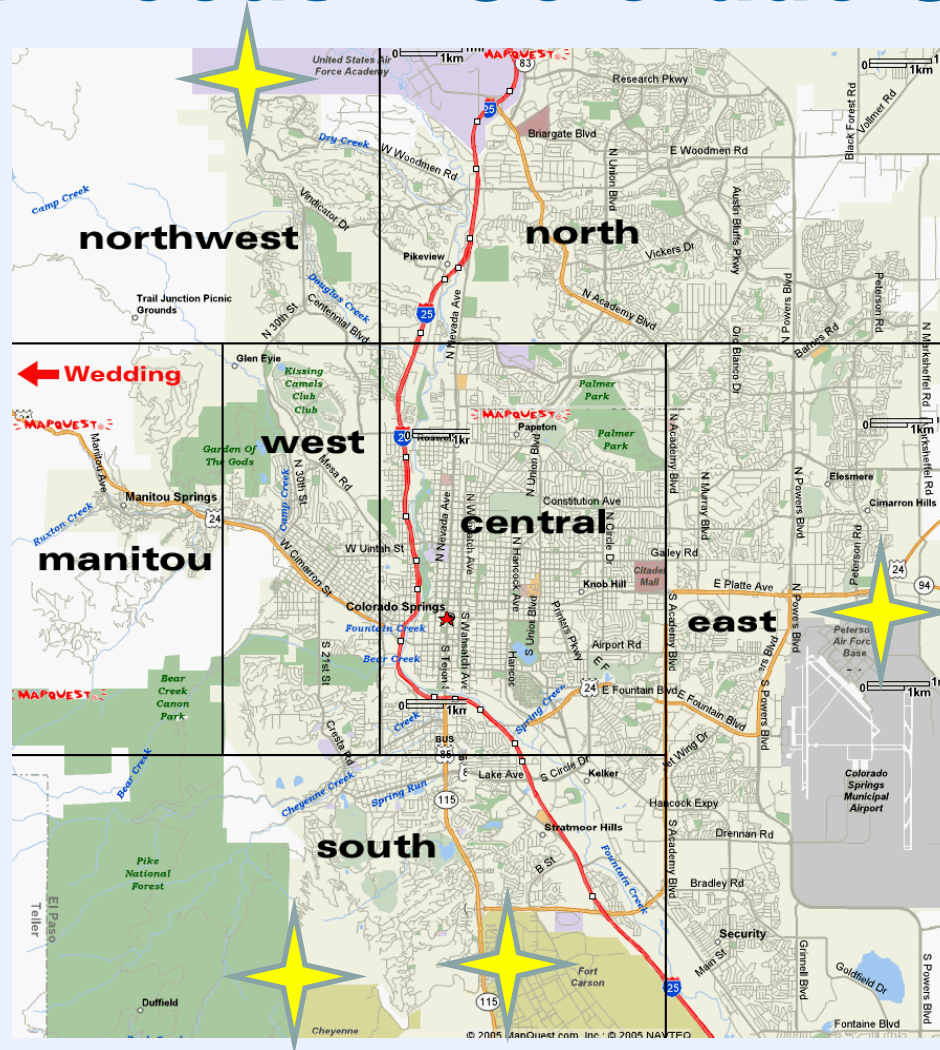
- Crushing Concrete from Runways



MAJCOM/Regional Focus

- 14 DoD Installations in Texas
 - Central TX Recycling Association
 - Published rates, guaranteed values
 - Commodity Market Analysis
 - Bases paying for used oil when companies would pay the base for the commodity
 - Mixed metals vs separated metals
 - Evaluate C&D Debris and Organics Options

Regional Focus – Colorado Springs



- Other locations: San Antonio, Washington DC/Maryland, Norfolk, VA, FL Panhandle

Summary

- Challenges – low volume/high cost
- Characterization
- Infrastructure – on base/off base
- Focus on largest waste streams
- Partner with city/other installations
- GRIT – short and long term plan

Questions?????

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