



# Concrete & Asphalt Recycling into Reusable Products

(SNL/NM Pollution Prevention Program)

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# Presentation Overview

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- **Motivation Behind Concrete/Asphalt Recycling**
- **Concrete & Asphalt Recycling Background**
- **Current Recycling Process**
- **Applications for Recycled Concrete & Asphalt**
- **Cost Issues**
- **“To Date Results and Looking Ahead**
- **Questions**

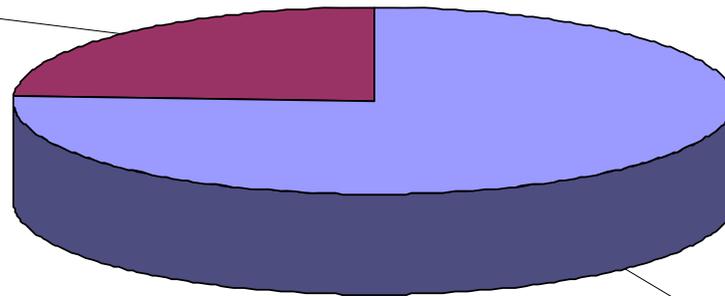
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# Why Recycle Concrete & Asphalt

**Concrete was 76% of the Waste Sandia Sent to Landfills in FY05  
(in tons and percent of total)**

**Solid Waste That is Not Concrete = 5,544 tons or 24%**



**Concrete Portion of Solid Waste = 17,508 tons or 76%**



# Concrete & Asphalt Generation

## Primary Sources of Concrete:

- Building Demolition Material
- Curb & Gutter
- Walkways
- New Building Construction (washout)

## Primary Sources of Asphalt:

- Roadway Resurfacing/Reconstruction
- Parking Lot Resurfacing/Reconstruction





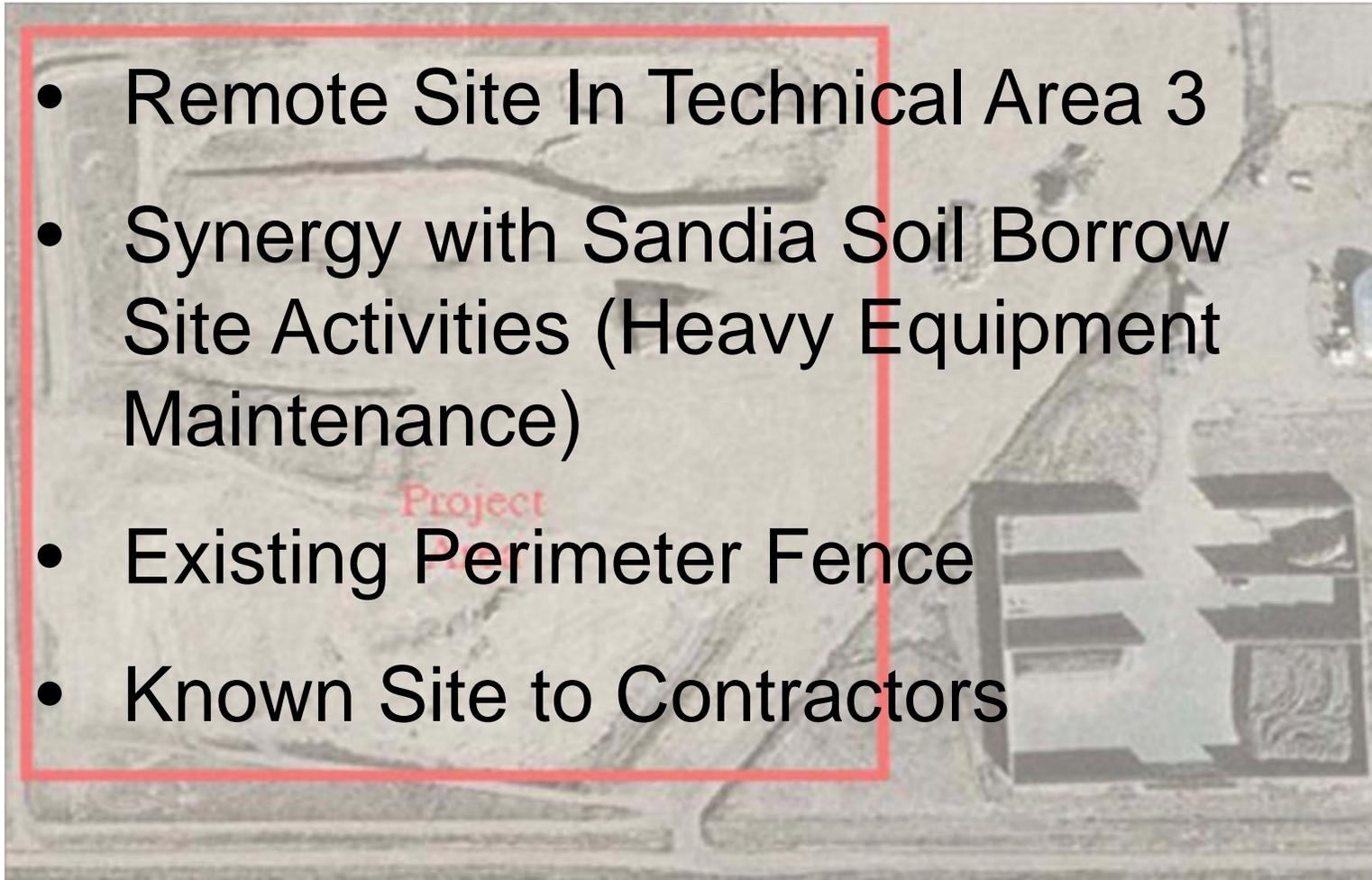
# Current Concrete/Asphalt Recycling Process

- Contractors Deliver Concrete/Asphalt Debris to the Concrete & Asphalt Recycling Area (CARA)
- Upon Accumulation of a Sufficient Quantity of Material, a Crushing Event is Conducted
- Crushed Material is then Stockpiled for Use
- P2 Works with Facilities and Project Managers to Obtain Commitments to Use Crushed Materials



# CARA Location

- Remote Site In Technical Area 3
- Synergy with Sandia Soil Borrow Site Activities (Heavy Equipment Maintenance)
- Existing Perimeter Fence
- Known Site to Contractors



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# CARA – Dedicated Stockpile Areas



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# CARA Stockpile Signage



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# Crushing Operations



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# Typical Aggregates Created

- Crushed Concrete Base Course (CCBC)
- Crushed Asphalt (1-1/2" minus)
- Conphalt (50-50 Blend)
- Track-Off Pad (2"-3")



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# Crushing Requirements

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- Crushed Concrete/Asphalt Base Course Meets City Of Albuquerque Specification, Section 302 Aggregate Base Course Construction
- Crushed Asphalt as Surface Cover Meets City Of Albuquerque Specification, Section 308, Natural Gravel Surfacing for Unpaved Roadways
- Other Aggregates are Size/Gradation Specific



# Applications

Crushed Asphalt used as a Surface Cover for the Grounds and Roads Services Equipment Yard



CCBC used in construction of the MESA WIF Entrance Road

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# FY09-Specific Applications

Resurfacing Dirt Road with Conphalt (~2,140 Tons)



Reconstruction of G-Ave, H-Ave, I-Ave using CCBC (~ 5,500 Tons)

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# Crushing Cost Issues

- Concrete & Asphalt Recycling Program Costs Based on Reimbursement
- Initial “Seed” Money for 1<sup>st</sup> Crushing Event Provided by Recycling Revenues (Paper, Cardboard, Metal)
- Aggregate Users Pay for Material Based on \$/ton Crushing Costs





# Cost Comparison to Commercial Vendors

## Recycled Concrete Base Course Cost

Includes:

- Equipment Mobilization
- Crushing
- Testing

Resulting Cost is  
**\$9.40 per Ton**



Local Vendor Cost for ABC same as CCBC -  
**\$20.00 per Ton**



# Cost Savings Example

## FY08/09 G&H- and I-Ave Repaving Projects

- Base Course Needs ~ 5,500 tons
- Estimated Cost Savings ~\$15 per ton,  
(Including Transport/Delivery)
- Total Project Cost Savings  
~ **\$80K**





# “To Date” Results

<b>Crushing Event</b>	<b>Location</b>	<b>Concrete (tons)</b>	<b>Asphalt (tons)</b>	<b>Total (tons)</b>
2006	KAFB Landfill	2,500	0	2,500
2007	KAFB Landfill	5,500	0	5,500
2008	CARA	6,000	2,000	8,000
2009	CARA	12,260	6,370	18,630
<b>TOTALS</b>		<b>26,260</b>	<b>8,370</b>	<b>34,630</b>

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# CWM Program Upkeep

- Review Upcoming Projects for Potential Opportunities and Coordinate with PMs
- Readily Visible Signage
- Regular Inspections
- **Promote Awareness**
- **Promote Success**



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# Contamination Issues



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# Looking Ahead FY10/11 Plans

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## Facilities Pre-Purchase of Conphalt (\$50K)

- Resurface of 1-mile Stretch of Dirt Road in Remote Site Area (Conphalt)
- TA1 12<sup>th</sup> Street Reconstruction (CCBC)
- A3 East Road Reconstruction (Conphalt Base Course)

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***Questions?***

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