COLORADO DEPARTMENT OF TRANSPORTATION

Sustainability of Concrete Pavement

I-225 - Mississippi to 6th Avenue

CDOT Vision

- Design Long Lasting Pavements
- Conserve Natural Resources
- Maximize Resources
- Utilize Innovation
- Consider Environmental Impacts

Project: I-225 - Mississippi to 6th Avenue

- **2 Mile Reconstruction**

Existing:

- 4 Lane Divided Highway
- 8" Concrete Pavement (Recycled on-site)
- 4" Asphalt Overlay (Recycled off-site)

Project Design:

- 6 Lane Divided Highway
- 13" Concrete Pavement (Utilizing on-site Recycled Aggregates)
- Lime Treated Subgrade (Utilizing on-site Recycled Aggregates)
- Median Barrier
- Sound Walls
- MSE Walls
- Soil Nail Walls
- Storm Sewer Improvements

Project Modifications

- Original Detour 12" Asphalt
- Approved Detour 7" Concrete (Recycled on-site)

Award

- ACPA's 2011 Sustainable Practices Recognition Award

Recycled Material

- 30,000 Tons of Concrete
- Eliminated 2,400 Truck Loads of Material
- Project Savings Estimated at $1.4 Million

Concrete Recycling Process

Impact Roller

Hauling Concrete

Loading the Crusher

Crushing Concrete

Recycled Coarse Aggregate

Inspector Removing Debris

Mobile Concrete Plant

Concrete Pavement

I-225 Recycled Coarse Aggregate Gradation

Sieve	% Pass	ASTM #57	ASTM #67
1-1/2"	100	100	100
1"	100	95 - 100	100
3/4"	80	---	90 - 100
1/2"	31	25 - 60	---
3/8"	11	---	20 - 55
#4	3	0 - 10	0 - 10
#8	2.5	0 - 5	0 - 5

Other Physical Properties

Property	Method	Results	Requirement
Spec. Gravity	ASTM C 128	2.34	N/A
Absorption	ASTM C 128	7.7%	N/A
Abrasion	ASTM C 131	33.3% Loss	Max. 50% Loss
Soundness	ASTM C 88	1% Loss	Max. 12% Loss
ASR	ASTM 1567	0.05 Expansion	Max. 0.08

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