





## Aggregate Recycling

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## History


- 1973 Clark Excavating began
- 1979 Villager Construction was formed engaging in excavating, paving, sewer, and waterline
- 1998 entered milling business and quickly thrived up and down the east coast
- Since grown to perform bonded work for contractors, municipalities, and State and Federal agencies up to \$20 million
- 2008 One-Site Aggregate Recycling



## FHWA Recycled Materials Policy Administrator's Message:


The FHWA policy is:

- Recycling and reuse can offer engineering, economic and environmental benefits.
- Recycled materials should get first consideration in materials selection.
- Determination of the use of recycled materials should include an initial review of engineering and environmental suitability.
- An assessment of economic benefits should follow in the selection process.
- Restrictions that prohibit the use of recycled materials without technical basis should be removed from specifications.



## Aggregate Recycling


- On-site aggregate recycling adds value to materials already on your project.
- Save on trucking, disposal, and purchase cost.
- Increase project profit by selling unneeded reclaimed aggregates.



## Recycled Aggregates

### Applications

- Sub-bases and foundations
- many types of general bulk fills
- bank protection
- base or fill for drainage structures
- road construction
- noise barriers and embankments

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## Match your equipment to you specific project for success

- Variety of equipment large/small
- Ability to adjust to environment
  - onboard dust suppression systems
  - sound damping technology




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## Recycled concrete aggregate:

- Is high quality - meeting or exceeding all applicable state and federal specifications
- Is an accepted source of aggregate into new concrete by ASTM and AASHTO.
- Is currently being used in concrete and asphalt products with better performance over comparable virgin aggregates.
- Provides for superior compaction and constructability.
- Is higher yield - recycled aggregates are lighter weight per unit of volume, which means less weight per cubic yard, resulting in reduced material costs, haul costs, and overall project costs.
- Weighs ten to fifteen percent (10%-15%) less than comparable virgin quarry products (concrete).
- Offers a way to reduce landfill waste streams.







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## Concrete

- Produce specification sized recycled aggregates at your location
- avoid haul-off costs and landfill disposal fees
- Eliminate the expense of aggregate material import and export
- Increase project efficiency and improve job cost - recycled concrete aggregates yield more volume by weight (up to 15%)





## RECYCLED ASPHALT PRODUCTS (RAP)

**Asphalt recycling is not a novel concept, cold recycling dates back to the early 1900's. The first hot in-place recycling was reported in the literature in the 1930's. Modern asphalt recycling technologies that are used today evolved in the 1970s**

- The majority of the RAP that is produced is recycled and almost always returned back into the roadway structure in some form, usually incorporated into asphalt paving by means of hot or cold recycling, but it is also sometimes used as an aggregate in base or subbase construction.
- It has been estimated that as much as approximately 36 million tons, or 80 to 85 percent of the excess asphalt concrete presently generated, is reportedly being used either as a portion of recycled hot mix asphalt, in cold mixes, or as aggregate in granular or stabilized base materials.



## FRAP & RAP

- Reclaimed Asphalt Pavement
  - one size
- Fractionation Reclaimed Asphalt Pavement
  - multiple sizes = more RAP in mix





**WHAT'S YOUR RAP WORTH?**

**QUANTITY**  
30,000 tons of asphalt materials (millings or waste)

**RAP**  
5% -6% AC = 1,500 -1,800 tons of AC.  
28,200 – 28,500 tons of aggregate.


**WORTH**  
Liquid AC is \$485.00 / liquid ton (avg. price in 2008).  
Virgin aggregate is worth \$10.00 / ton.

**YIELD**  
\$727,500.00 - \$873,000.00 for the AC.  
\$282,000.00 - \$285,000.00 for the aggregate.

**GRAND TOTAL**  
**\$1,012,500.00 - \$1,155,000.00**

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**C & D**  
recycling  
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THANK YOU

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On-Site Concrete Recycling on  
NYSDOT Road Reconstruction  
Project

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Material previously disposed of is now stockpiled at a project



  
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Concrete waste is being recycled to state spec 2" minus




  
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Materials are recycled and stockpiled simultaneously to facilitate a quick turn around for re-use




  
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Asphalt also has a high value for recycling, both as a sub-base material and reclaimed material for hot-mix

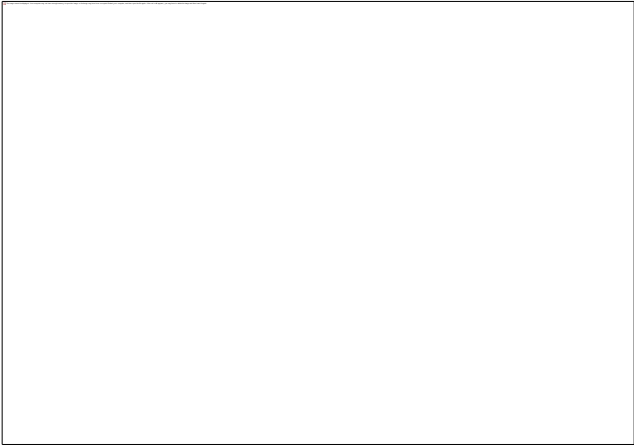



  
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RAP being produced on-Site  
for use as a state approved  
sub-base



  
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Carefully matched equipment  
is the key to successful  
aggregate recycling



  
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Properly recycle RAP for use in hot mix greatly increases the value of asphalt waste products



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THANK YOU



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