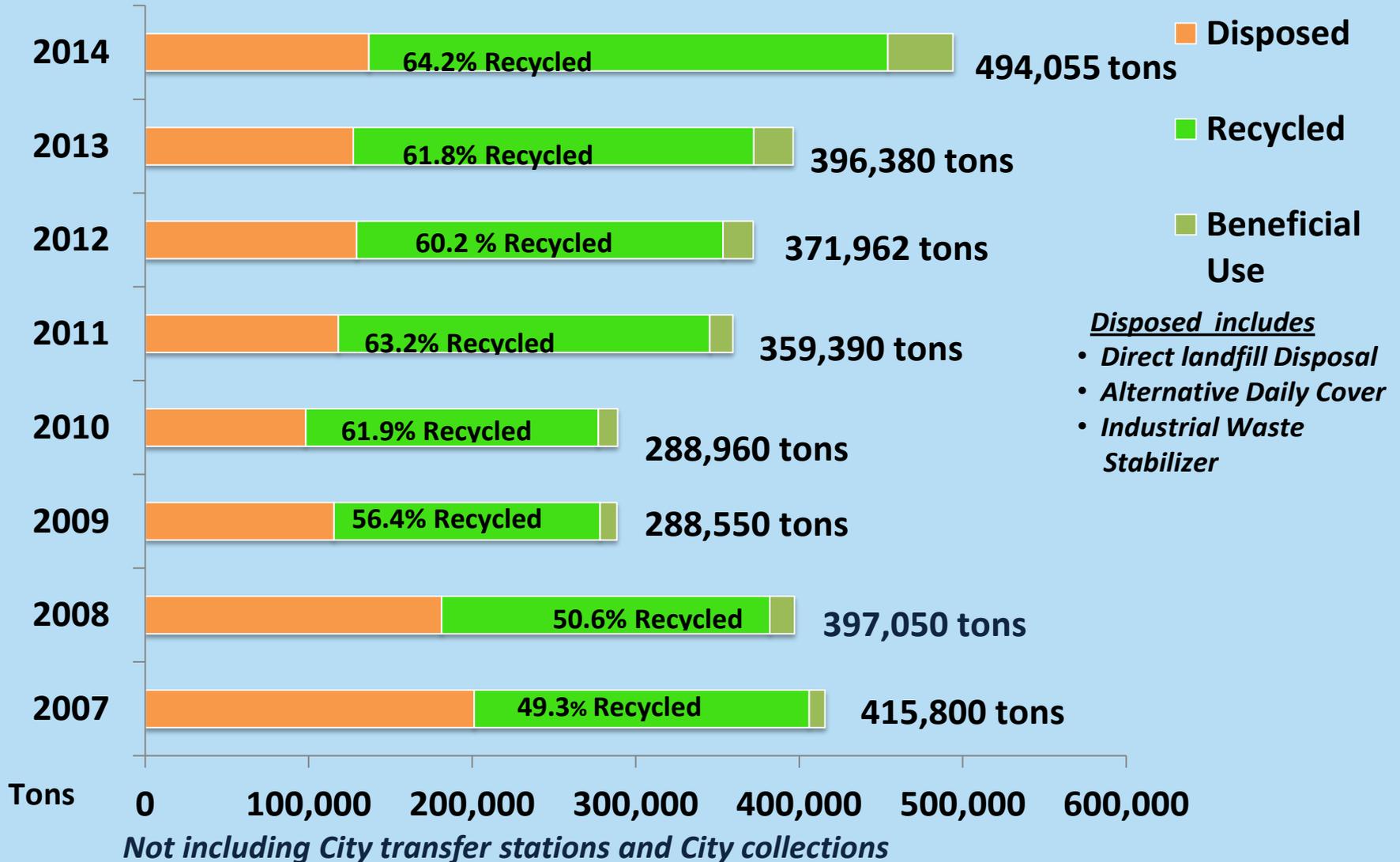


A close-up photograph of asphalt shingles on a roof, showing the overlapping pattern and the granular texture of the shingles. The lighting creates shadows between the shingles, emphasizing their three-dimensional structure.

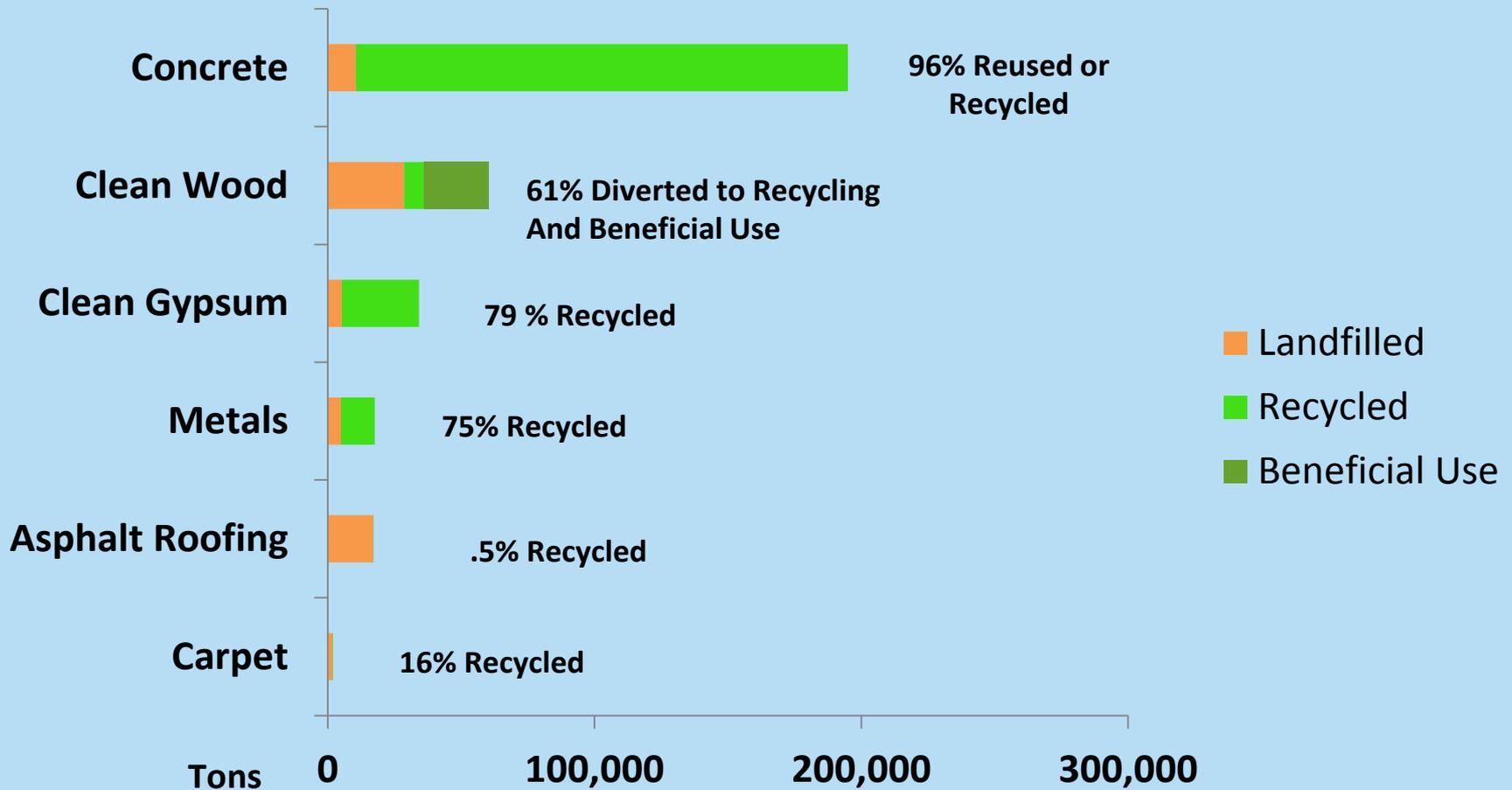
# **Tear-Off Asphalt Shingles Recycling Infrastructure Issues**

**Seattle SWAC October 7, 2015  
Seattle Public Utilities**

# Seattle C&D Tons Generated



# 2014 Material Diversion Levels



# Phased Landfill Disposal Bans for Construction Sites (2012-2016)

Material	2012	2013	2014	2015	2016
Asphalt Paving	Educate	Enforce	Enforce	Enforce	Enforce
Concrete & Bricks	Educate	Enforce	Enforce	Enforce	Enforce
Metal & Cardboard			Educate	Enforce	Enforce
New Gypsum Wallboard Scrap			Educate	Enforce	Enforce
Unpainted and Untreated Wood				Educate	Enforce
Carpet					Educate
Plastic Film Wrap					Educate
<u>Asphalt Roofing Shingles *</u>					Educate (July)

*\* May need to be extended out unless more permitted processing capacity in place in 2016*

# Roofers Survey - Disposal Ban (2014)

Response to “How would you be impacted by a disposal ban on tear-off asphalt shingles	40 companies in King County contacted and 30 responded	Reason for Response
<b>No Problem</b>	36%	Other companies do the hauling
<b>Somewhat of a Problem</b>	25%	Depends on Job Site Location
<b>Major Problem</b>	25%	<ul style="list-style-type: none"><li>• Lack of recyclers for shingles within or close to Seattle</li><li>• Cost &amp; inconvenience of using remote locations</li></ul>
<b>Don't Know</b>	15%	

## Recycling Rates for Composition Roofing (Seattle)

Year	Estimated Generation (Tons)	Est Disposed (Tons)	Reported Recycled (Tons)	Recycling Rate
<b>Baseline 2007</b>	<b>27,258</b>	<b>26,967</b>	<b>291</b>	<b>1.5%</b>
<b>2008</b>	<b>25,281</b>	<b>24,297</b>	<b>983</b>	<b>4%</b>
<b>2009</b>	<b>16,247</b>	<b>15,477</b>	<b>771</b>	<b>5%</b>
<b>2010</b>	<b>14,440</b>	<b>13,180</b>	<b>1260</b>	<b>9%</b>
<b>2011</b>	<b>18,733</b>	<b>15,848</b>	<b>2884</b>	<b>15%</b>
<b>2012</b>	<b>19,453</b>	<b>17,074</b>	<b>2108</b>	<b>11%</b>
<b>2013</b>	<b>17,178</b>	<b>17,074</b>	<b>104</b>	<b>&gt; 1%</b>
<i><b>2013 Closure of Glacier Recycling – large outdoor unprocessed shingle pile</b></i>				
<b>2014</b>	<b>18,411</b>	<b>18,345</b>	<b>66</b>	<b>&gt; .5%</b>
<i><b>2014 Closure of Busy Beaver, Everett – large outdoor unprocessed shingle pile</b></i>				
<i><b>2015 Evergreen Recycling ordered to stop accepting more shingles and to move unprocessed pile</b></i>				

# Shingles and Market Development

## 2009 King County RAS to Hot Mix Paving Demonstration Project with Industry/Public Sector Stakeholders

- 29,000 tons of asphalt shingles generated in King County annually (includes manufacturer scrap and tear-off) – not including Seattle
- Small percentage is recycled
- Valuable resource (oil) gets disposed





SE 416<sup>th</sup> St Enumclaw Demonstration Project  
Paving completed in September, 2009

# Performance Results and RAP/RAS Use

**Extensive material engineering tests conducted with SE 416<sup>th</sup> pavement performance 2009 – 2015 favorable**

- **King County used at Bow Lake Transfer Station paving and will use at new Factoria Station**
- **King County Roads has their own specification (based on WSDOT) and is using 3% RAS + 15% RAP in their paving overlay program (*unincorporated K.C. and suburban cities*)**
- **SPU will use 3% RAS and 15% RAP in paving at new North Transfer Station**
- **WSDOT (2015) – 20 paving projects with high RAP and 2 with RAS on State highways**



# WSDOT Standard Specification Revision

**Incorporated former General Specification for RAS/RAP use in hot mix to the WSDOT Standard Specifications (April 2015)**

- **Allows pavers to propose up to 5% RAS by weight in the total hot mix or up to 20% RAS and RAP in combination**
- **Requires extra testing to verify specifications are being met**
- **Several HMA Producers are seeking mix design approval**
- **Allows in warm mix 20% or less RAP by total weight but no RAS as part of the mix**



# Local Recycler and Paver Infrastructure for RAS Production (2015)

C&D Recyclers accepting Asphalt Shingles	Hot Mix Paving Producers using RAS (some with processing capacity)	Expansion Plans for RAS Processing
United Recycling, Maltby – <i>only if United hauls -quantities limited</i>	Miles Resources, <i>Lakewood Plant</i>	
Lautenbach Industries, Mt. Vernon	Lakeside Industries, <i>Pierce County Plant</i>	Yes for King County Plant
	ICON Materials, <i>Auburn Plant</i>	
	Granite Construction, <i>Thurston County Plant</i>	Yes, in Everett
	Pyramid Materials, <i>Kitsap and Mason County Plants</i>	Possibly in King County
	City of Tacoma at its own plant	

# Regulations and Recycling of Shingles

Permit Status	Applicability	Requirements by Local Health Department and Ecology
<b>Statutorily Exempt</b>	<p><i>Only applies to RAP and recycled concrete since “inert”</i></p> <p>Mixing RAS with RAP makes entire pile subject to regulation</p>	<p>Surface water management</p> <p>Dust control</p>
<b>Conditionally Exempt</b>	Shingles and RAS	Concrete Pad & Under Cover (a Building?) or Containerized
<b>Piles Permit (WAC 173-350-320)</b>	Shingles and RAS	Concrete Pad, Contact Water Management System through surface water impoundments or tanks <b>(if not on sewer – asphalt plant operators not familiar with their options)</b>
<b>Intermediate Solid Waste Handling Permit</b>	Shingles and RAS	Indoors with Concrete Pad Leachate Collection & Discharge Dust Control

# Barrier to Shingle Processing Capacity Expansion

**Need for Guidance on Unprocessed and Processed Shingles – Design Requirements**



**Unprocessed Shingles in Building and on Pad/Leachate and Dust Control Recommended**



# 2015-2016 Action Steps to Expand Shingle Recycling

## Capacity Expansion

- **Tour hot mix plants in Pierce, Thurston & Kitsap Counties**  
*(shingles received, processed and stored on site)*
- **Facilitate meeting with regulators and industry**
- **Assist Recyclers and Asphalt Producers to navigate regulatory requirements through guidance document**  
*(variation by County and Ecology Regional Offices)*

## Seattle Procurement Needs

- **SDOT possible 2016 pilot of RAS in hot mix on heavily used Seattle arterials if MOVE levy passes**
- **Incorporate WSDOT specification for RAS into *Seattle Standard Specification for Road, Bridge & Municipal Construction***
- **Future pilot of RAP and RAS in warm mix *(SDOT's preference)***