

MAKING A
GREAT
PLACE



Metro Diesel Retrofit Project



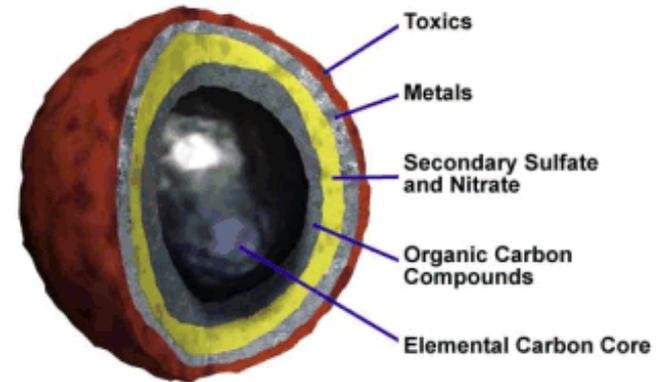
Metro Council Presentation

February 21, 2013

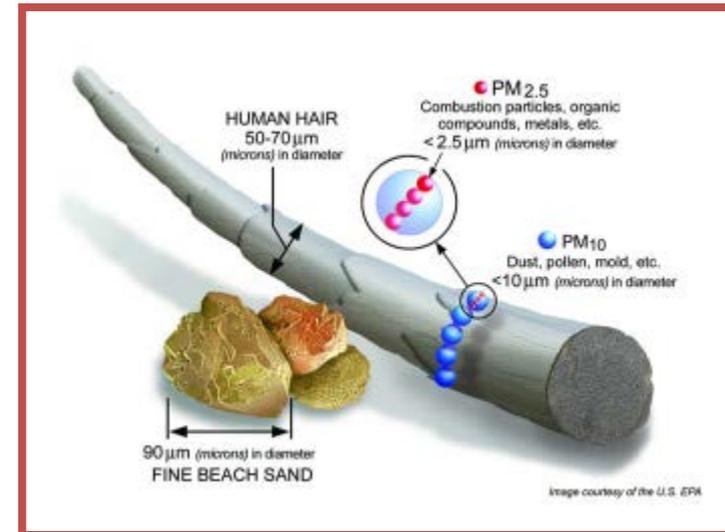
Diesel Particulate Matter

Combination of:

- Elemental carbons
- Heavy metals
- Nitrates
- Polycyclic Aromatic Hydrocarbons
- Mercury-Toluene-Lead-Cadmium



The smaller the particle, the stronger its potential impact on human health because it can be more easily inhaled.



Project History

- August 2006 – Inventory and analysis
- February 2007 – Work groups
- June 2009 – Funding exploration and development
- September 2010 – Hauler contracts executed
- March 2011 – Vehicle testing begins
- September 2011 – First device installed
- September 2012 – Device installation phase complete
- November 2012 – Mitigation analysis



Project Scope

- 73 Regional Haulers
- 1,000 Regional Trucks
- 20 Participant Haulers
- 160 Targeted Trucks
- 156 Tested Trucks
- 119 Qualified Trucks

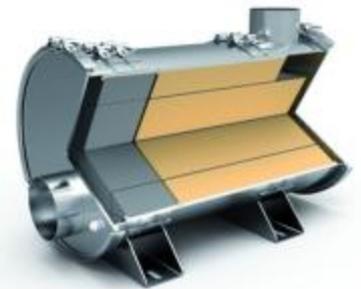


Participating Haulers

Hauler	Participant Trucks
Portland Disposal and Recycling	20
Recology (formerly AGG)	20
Allied Waste Services	15
Waste Connections of Oregon	13
Trashco Services	8
Sunset Garbage Collection	7
Gresham Sanitary Service	6
Cloudburst Recycling	4
Gruetter Sanitary Service	4
Heiberg Garbage and Recycling	4
Eckert Sanitary Service	3
Housing Authority of Portland	3
Rockwood Solid Waste	3
Aloha Garbage Company	2
Flannery's Drop Box Service	2
City Sanitary Service	1
Elmer's Sanitary Service	1
Lehl Disposal	1
Multnomah County Drop Box Service	1
Oak Grove Disposal Company	1

Devices

- 71 Level 1 DOC CCV
- 32 Level 3 Passive DPF
- 9 Level 3 Hybrid Active Passive DPF
- 7 HUG DPF



Type

Level 1 DOC CCV

Level 3 DPF / HUG

Average Cost

\$ 2,151

\$ 10,426

Emissions Analysis

Emissions Advantage, LLC

All Participating Vehicles (tons/year) – 119 Vehicles

	PM	NO _x	HC	CO	CO ₂
Baseline Emissions	2.8	33.3	2.3	12.5	6106
Reductions from Filters	1.3	0.0	1.3	6.2	0
Total Reductions	1.3	-0.5	1.3	6.2	691

Note – a negative value indicates an increase in emissions

Project Cost

Original Budget	Metro Match Funds @ 42.16%	DEQ/EPA DERA Funds @ 57.84%
\$1,116,292.00	\$470,628.70	\$645,663.30
Actual Budget	Metro Match Funds @42.16%	DEQ/EPA DERA Funds @57.84%
\$653,190.83	\$275,385.25	\$377,805.58

Monetized Benefits

- \$1.09M direct and indirect public health and environmental benefits per ton mitigated
- PM mitigation of 1.3 TPY leads to monetized human and environmental health benefit of \$1.4M per year

Return on Metro Investment

Metro's Investment \$275,385

Project Lifecycle Benefit \$7,065,215

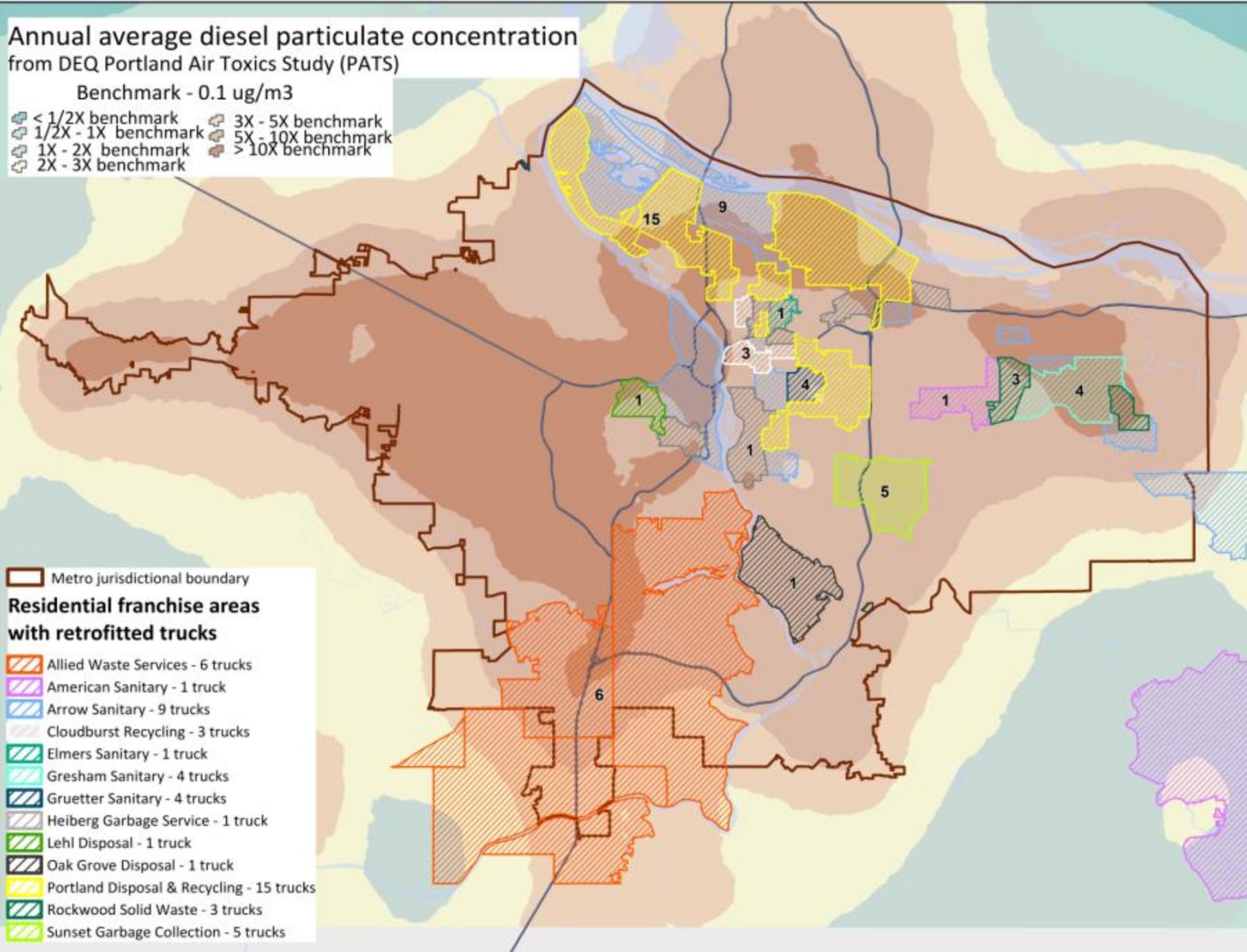
Annual average diesel particulate concentration

from DEQ Portland Air Toxics Study (PATS)

Benchmark - 0.1 ug/m3

- | | |
|--|--|
|  < 1/2X benchmark |  3X - 5X benchmark |
|  1/2X - 1X benchmark |  5X - 10X benchmark |
|  1X - 2X benchmark |  > 10X benchmark |
|  2X - 3X benchmark | |

-  Metro jurisdictional boundary
- Residential franchise areas with retrofitted trucks**
- | |
|--|
|  Allied Waste Services - 6 trucks |
|  American Sanitary - 1 truck |
|  Arrow Sanitary - 9 trucks |
|  Cloudburst Recycling - 3 trucks |
|  Elmers Sanitary - 1 truck |
|  Gresham Sanitary - 4 trucks |
|  Gruetter Sanitary - 4 trucks |
|  Heiberg Garbage Service - 1 truck |
|  Lehl Disposal - 1 truck |
|  Oak Grove Disposal - 1 truck |
|  Portland Disposal & Recycling - 15 trucks |
|  Rockwood Solid Waste - 3 trucks |
|  Sunset Garbage Collection - 5 trucks |



Next Steps

- Monitor contract requirements through September 2015
- Explore cleaner vehicle fuels and hybrid technologies



Questions



Matt Tracy

Principal Sustainable Operations Planner

Sustainability Center

503-797-1673

matt.tracy@oregonmetro.gov