

PROPOSED RULE (PR) 403.2
FUGITIVE DUST FROM LARGE ROADWAY
PROJECTS

Working Group Meeting #3
December 14, 2021





Introduction

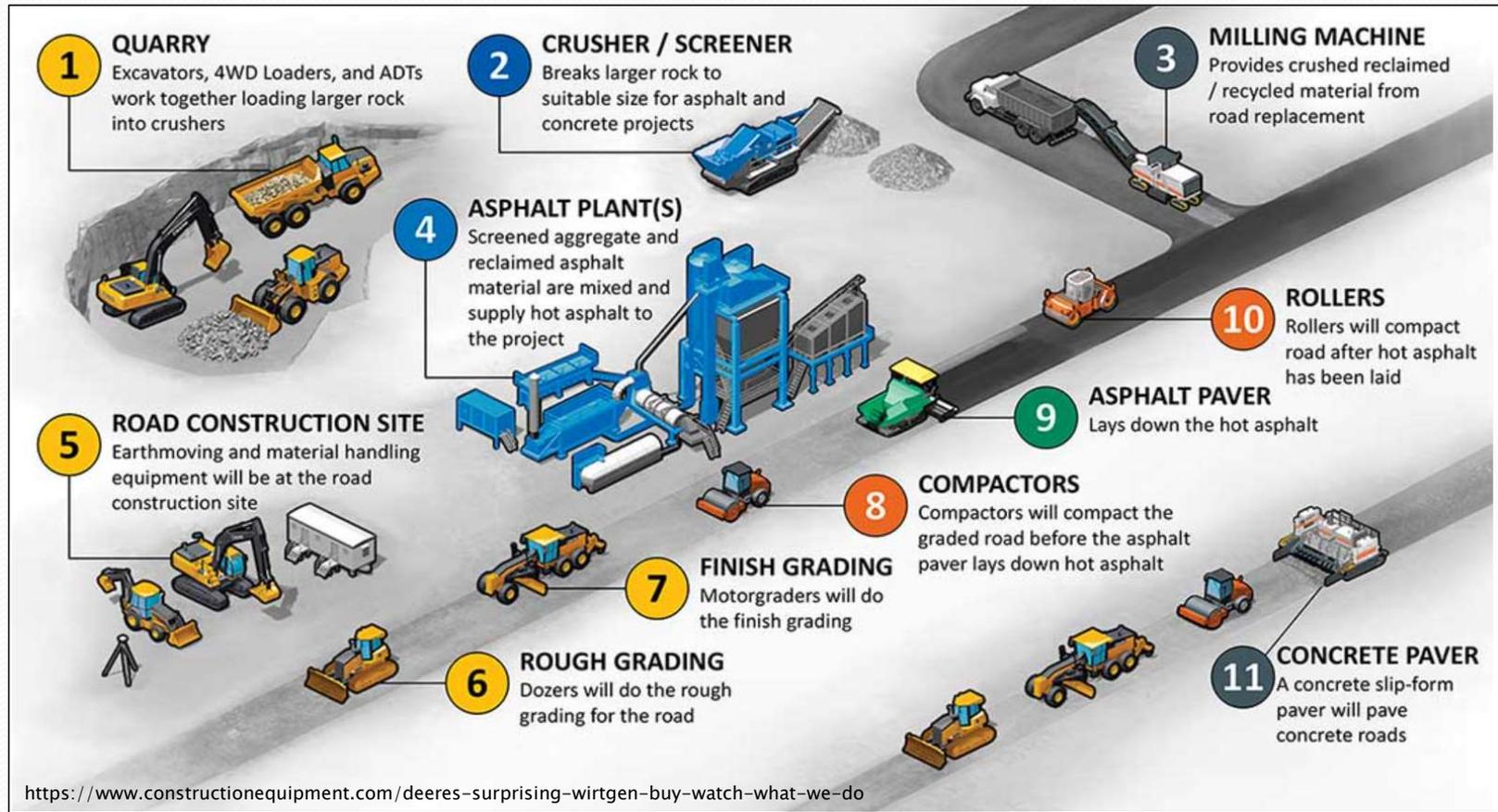
- Two previous working group meetings
 - 7.15.21 and 10.22.21
- Proposed rule first focused on construction demolition piles as a source of air quality impacts and resulting complaints
- Rulemaking is now focusing more on limited instances of large road construction project activities near heavily travelled roadways
 - Activities with highest potential for air quality impacts, on areas already exposed to poor air quality from near-roadway environment



Discussion Points From Last Working Group Meeting

- Potentially prohibited activities directly next to sensitive areas at certain large road construction projects (e.g., crushing and grinding)
 - Type and distance still being evaluated
- Definitions (e.g., “Areas of Public Exposure”, and “Large Road Construction Project”)
 - Preliminary definitions provided but still being evaluated
- Other issues – stakeholders requesting additional details on potential rule requirements, including controls and recordkeeping

Common Road Construction Activities



Activities Potentially Resulting in Large Road Construction Dust*

- Clearing, excavation, and grading (including trenching)
- Use of unpaved roads and staging areas (including road dust associated with on-site crushing and grinding equipment and associated vehicles; e.g., front loaders)
- Demolition of concrete facilities (structures including on-site crushing & grinding)
- Stockpiles (including recycled concrete)
- Aggregate and soil loading and unloading (transfer to and from construction vehicles; e.g., recycled material transfer to/from haul trucks)

*Adapted from CalTrans Construction Manual, Chapter 4, Section 4-1802 "Before Work begins"

PM10 Standards and Background Levels

- Standards
 - Federal standard = 150 ug/m³, state standard = 50 ug/m³ (24-hr average)
 - CEQA threshold = 10.4 ug/m³ project impact during construction (24-hr average)
 - Rule 403 = 50 ug/m³ upwind/downwind difference (instantaneous)
- Background Levels
 - PM10 levels in 2020 varied throughout the South Coast Air Basin, ranging from 43 to 124 ug/m³ (24-hr max), and 17 to 52 ug/m³ (annual average)
- Staff is currently **not** considering any concentration limits or monitoring requirements as part of PR 403.2

Conceptual Examples of Road Construction Equipment and Associated PM 10 Emission Factors (EF)*

Equipment Examples (non-tailpipe fugitive dust)	EF (lb/hr)	EF (lb/ton thru-put)	EF (lb/VMT)**
Grader	NA	NA	1.542546
Rubber Tired Dozer	0.75	NA	NA
Bulldozer	0.75	NA	NA
Screen PM10 (uncontrolled)	NA	0.00865	NA
Tertiary Crushing PM10 (uncontrolled)	NA	0.00243	NA
Concrete Saw	NA	0.001090968	NA
Excavator	NA	0.000088797	NA
Crane	NA	0.000088797	NA
Tractor/Loader/Backhoe	NA	0.000088797	NA

*Equipment examples taken from California Emission Estimator Model (CalEEMod) and emission factors calculated based on US EPA AP-42: Compilation of Air Emission Factors.

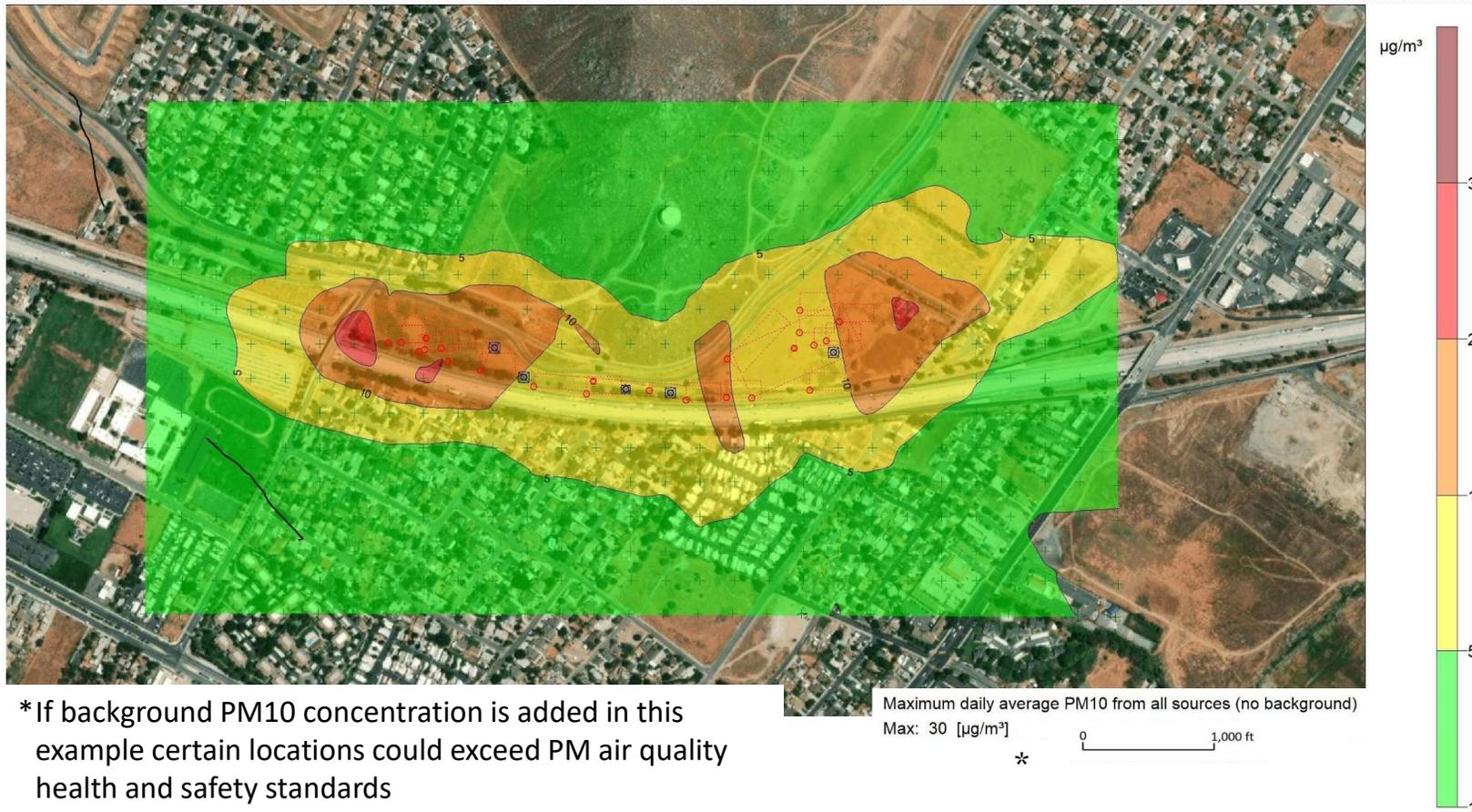
NA = not applicable

** VMT =Vehicle Miles Traveled

Dispersion Modeling

- Modeling can be used to illustrate potential air quality impacts from different situations
 - Useful when monitoring data is not available
- Next slide illustrates one hypothetical scenario of a road construction project
 - Scenario does not mimic an actual project, but is based on a default project construction scenario from CalEEMod, and from EPA's AP-42 emission factors
 - Project is placed in a random near-road location, not at an actual project site
 - Scenario is not meant to be best case or worst case – rather it highlights activities with higher potential air quality impacts when not properly controlled
 - Examples: Crushing, loading/unloading of trucks/stockpiles, grading

Hypothetical Example of Large Road Construction Project Air Impacts**



* If background PM10 concentration is added in this example certain locations could exceed PM air quality health and safety standards

**Modeling analysis does not represent an actual project at this location

Potential Approach for PR 403.2

- PR 403.2 would place additional requirements on some road construction activities when they occur in close proximity to areas of public exposure:
 - Prohibition on certain activities
 - Additional fugitive dust controls for some activities
 - Advance project notification to the public and job-site signage
 - Identification of dust control supervisor
 - Recordkeeping of fugitive dust controls

Potential Prohibited Activities

- Staff is exploring activities with the highest potential air quality impact to nearby areas of public exposure, and that also have opportunity to be located farther away
 - Crushing/grinding/screening
 - Loading of materials into or out of large storage piles
- Activities would only be prohibited under certain conditions
 - Very close proximity to nearby areas of public exposure
 - ✓ Distances to be determined
 - Staff exploring potential for very limited circumstances of operational infeasibility and necessity to avoid prohibition (e.g., emergency repairs)
 - ✓ Proposed rule would describe process an applicant must follow to determine infeasibility

Potential Additional Dust Control Requirements

- Potential general approach includes using existing requirements from other programs such as Rule 403 [Large Operations] and CalTrans Construction Manual
- Minimum control requirements based on project size, activity/equipment type, and distance to areas of public exposure
- During the course of construction, ensure that dust suppressant/water/covering applied to:
 - Temporary haul roads
 - Staging, material storage, and layout areas
 - Compacted soil, aggregate base roads, or driveways; paved surfaces; rough-graded soils; completed slopes; and stockpiles

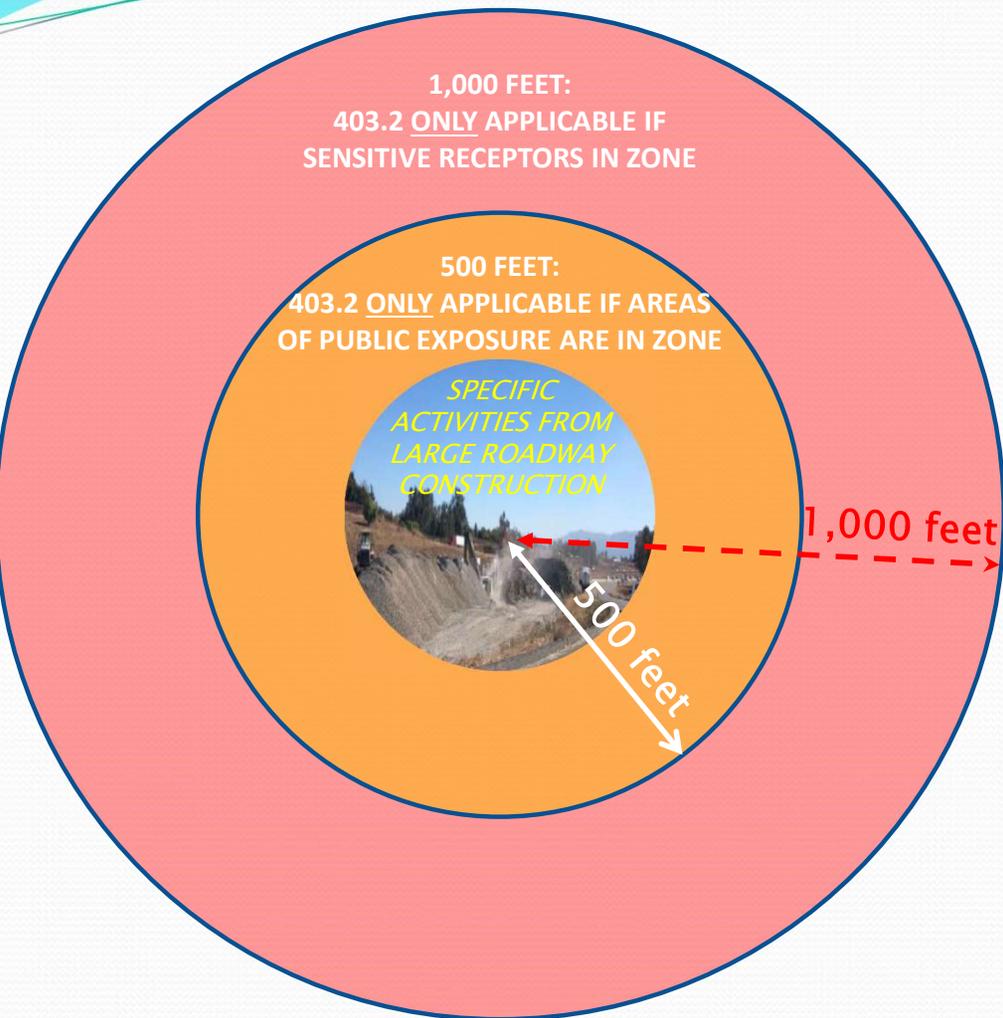
Recordkeeping Objectives

- Expanded recordkeeping on all applicable “large road” projects
 - Focus on activities with highest potential for air quality impact when in proximity to nearby areas of public exposure
- List of project construction equipment, **control measure** and **frequency** (e.g., crushing and grinding, sprinkler dust suppression, every 30 minutes)
- Reporting format will be built from existing reporting for Rule 403

Previously Recommended Thresholds and Definitions

- Distance – from activity(s) to receptor(s)
- “Large Road” metric
- Stockpile/pile size
- Other Proposed Key Rule Definitions

Potential Receptor Distances Used for PR 403.2 Applicability (cont'd)



Sensitive Receptors



Homes



Schools, Daycares, Hospitals



Parks and recreational facilities

Open Space Areas?

?

Areas of Public Exposure



Office, Commercial and Industrial Buildings

Potential “Large Road” and “Distance” Metrics – CARB Studies

■ Large Roadway

- Technical Advisory Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways- April 2017
 - High-volume roadways are defined as roadways that, on an average days, have traffic in excess of **50,000 vehicles** in a **rural area** and **100,000 vehicles** in an **urban area**

■ Distances

- Air Quality and Land Use Handbook- April 2005
 - Recommended siting and building new developments to be protective of public health, including siting schools, day care centers, playgrounds and housing **500 feet or more** from freeways, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day

Proposed Stockpile/Pile Size

- Only covers construction piles associated with large roadway construction projects
- Staff is proposing that the following pile sizes be **exempt** from PR 403.2 requirements:
 - **Less than 3 foot maximum height, AND**
 - **Less than 150 feet total surface area**
- Consistent with Rule 403 and Rule 1157 “Open Storage Piles” and Rule 1466 “Stockpiles”

Other Proposed Potential Key Rule Definitions

- Large Roadway Construction Site/Operation could cover any site where construction/demolition materials associated with large roadway projects involving aggregate material storage, crushing or grinding
- Large Demolition Piles could include large piles containing aggregate materials (typically recycled asphalt and concrete)
- Sensitive Receptor could include residences, hospitals, and schools (e.g., see definitions in Rules 1157, 1420.1, 1469, 1470, 1480)
- Occupied Buildings could include structures such as dwellings, offices, and commercial and industrial buildings which are routinely occupied
- Areas of Public Exposure could include areas within PR 403.2 receptor distances such as occupied buildings, parks, and recreational areas



Revised Tentative Rule Development Schedule

- 1st Working Group Meeting Held - July 15, 2021 ✓
- 2nd Working Group Meeting – October 22, 2021 ✓
- 3rd Working Group Meeting – December 14, 2021 ★
- Public Workshop – February 2022
- Governing Board Hearing – May 6, 2022



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OPEN DISCUSSION

