

# Status Report on Oceano Dunes PM10 Modeling

California Air Resources Board  
June 21, 2017

# Modeling Objectives

2

- Develop technical tool to support development of effective mitigation strategies
- Provide framework to understand:
  - Park locations with greatest impacts
  - Spatial patterns of downwind PM10 levels
  - Relative benefits of different levels of emission reductions

# Overview of Modeling Approach

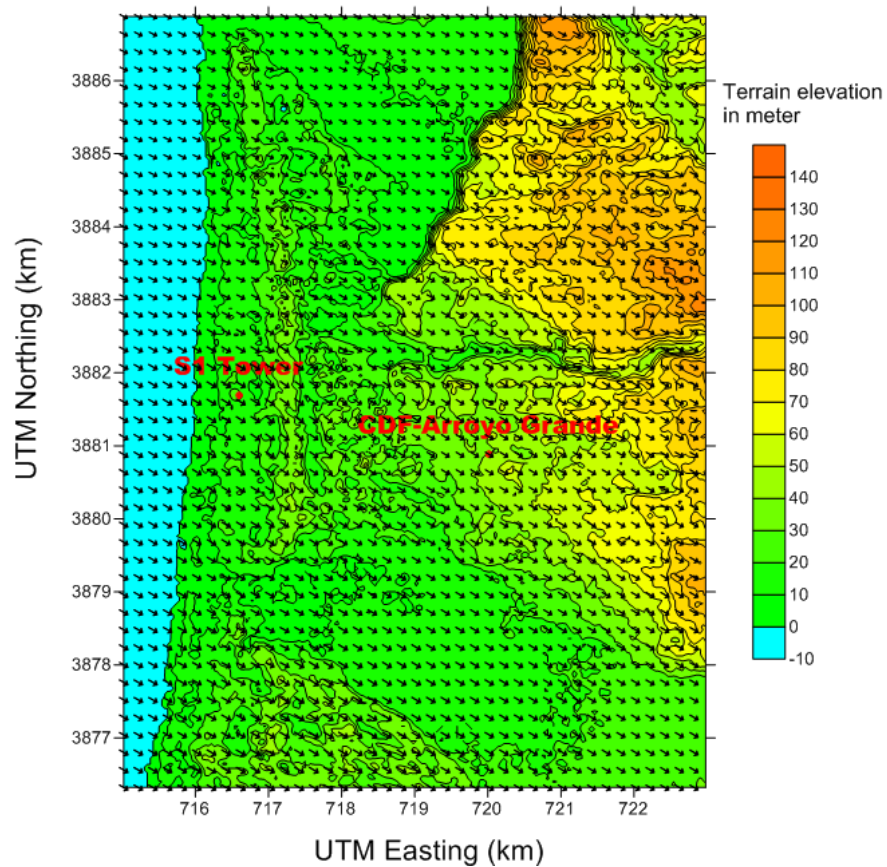
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- U.S EPA approved modeling platform using CalPuff and CalMet
- Covers period from May 1 to August 31, 2013
- Emissions estimated from PI-SWERL measurements
- Wind field based on regional meteorological stations and local terrain

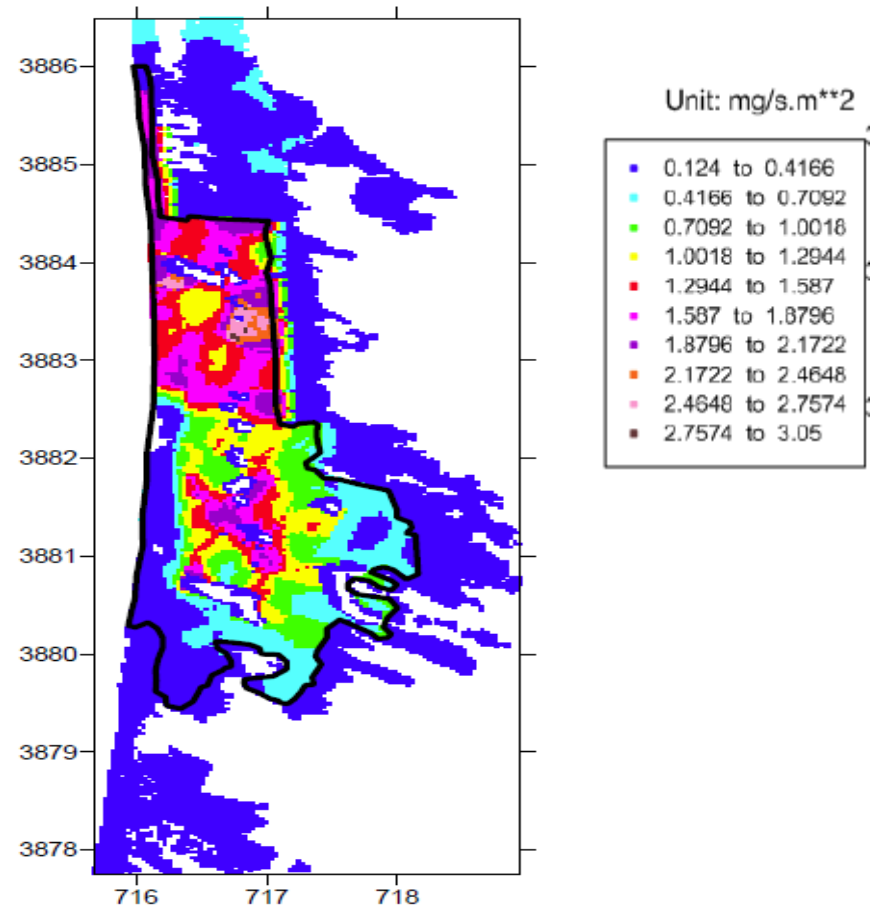
# Modeling Inputs

4

## Gridded Wind Field



## Gridded Emissions Field



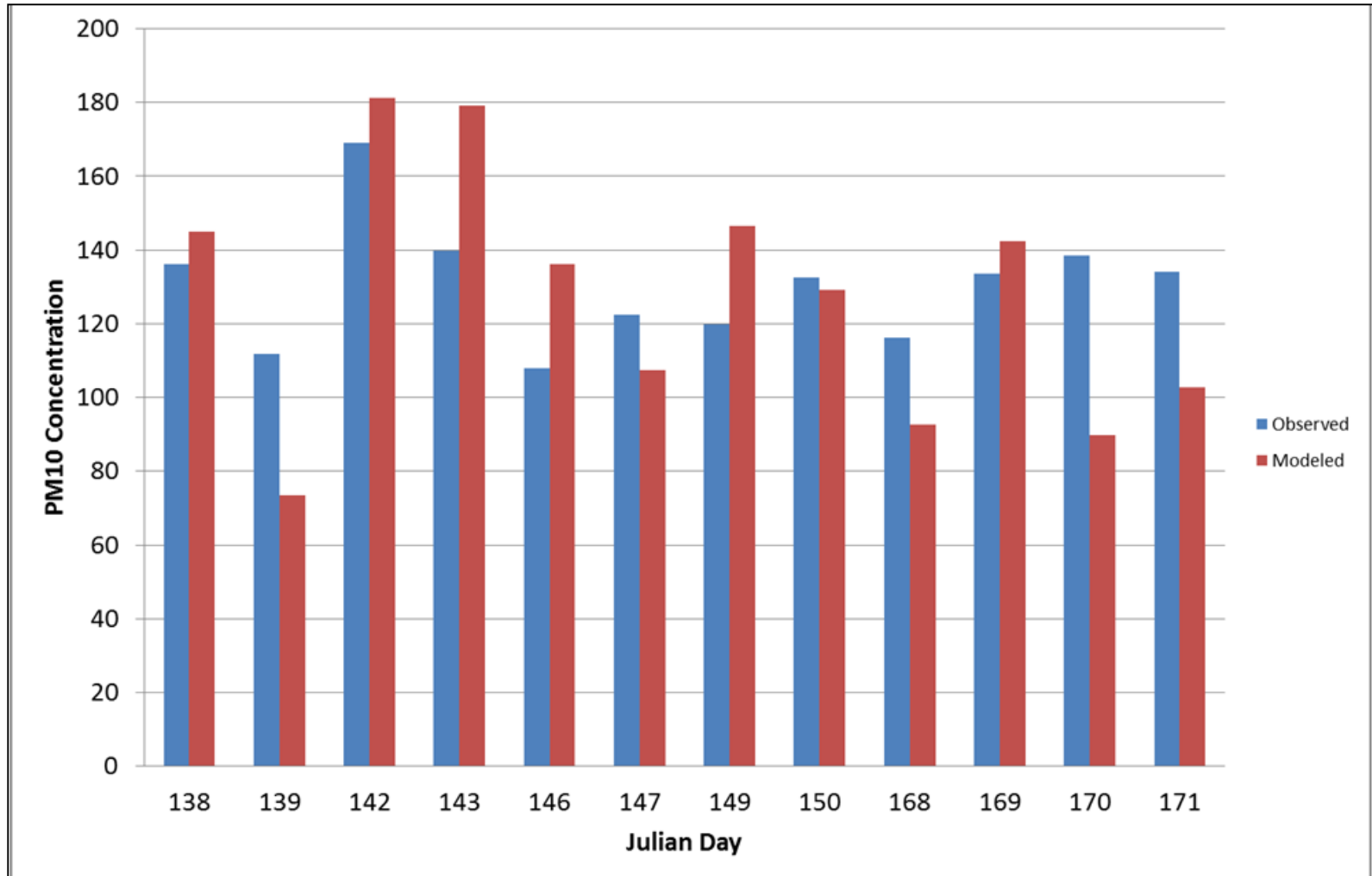
# Work to Date

5

- Completed modeling of 2013 period
- Initial focus on model performance at CDF monitor; additional evaluation ongoing
- Today's preliminary results include:
  - Assessment of emission zones impacting different downwind areas
  - Gradients in downwind concentrations
  - Evaluation of 25 percent reduction in emissions

# Comparison of Modeled to Measured PM10 Levels at CDF

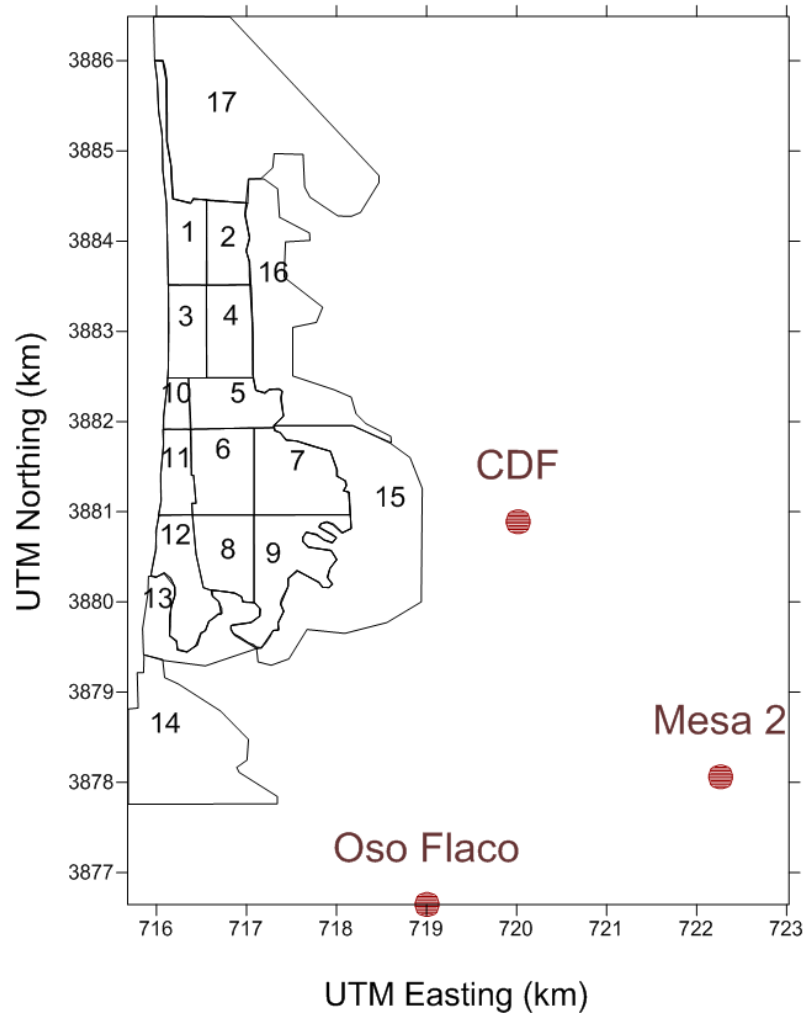
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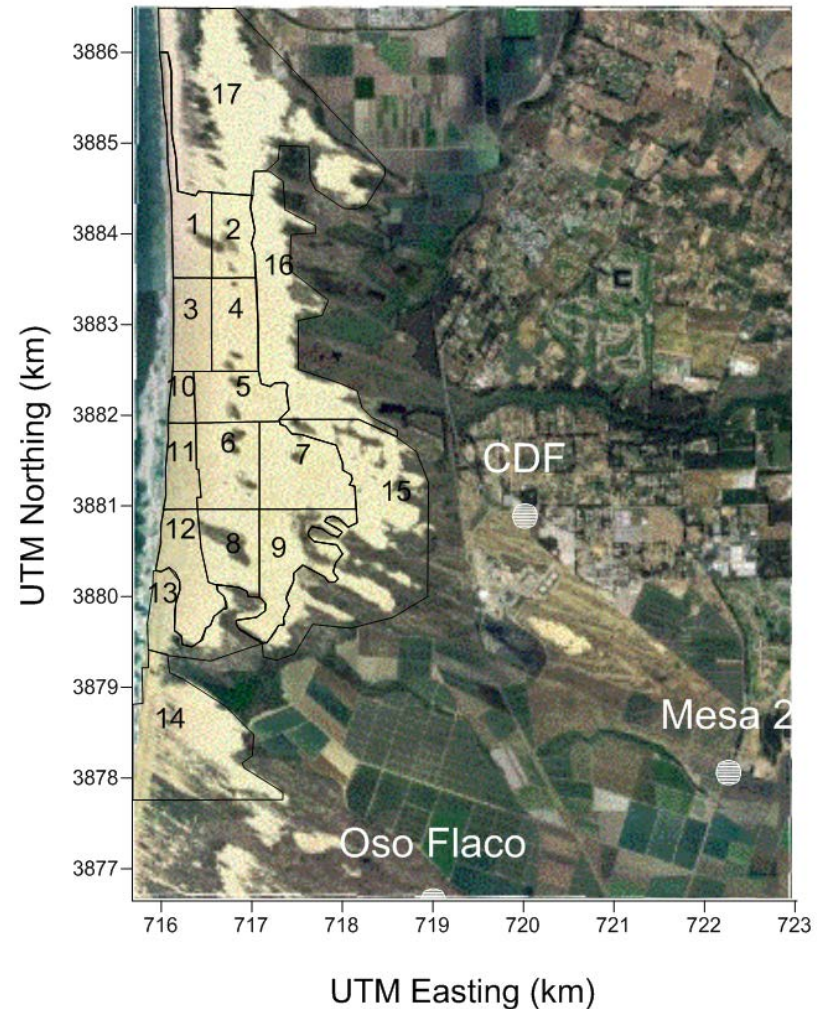
# Emission Zones

7

Locations of Monitors and Emissions Zones



Locations of Monitors and Emissions Zones

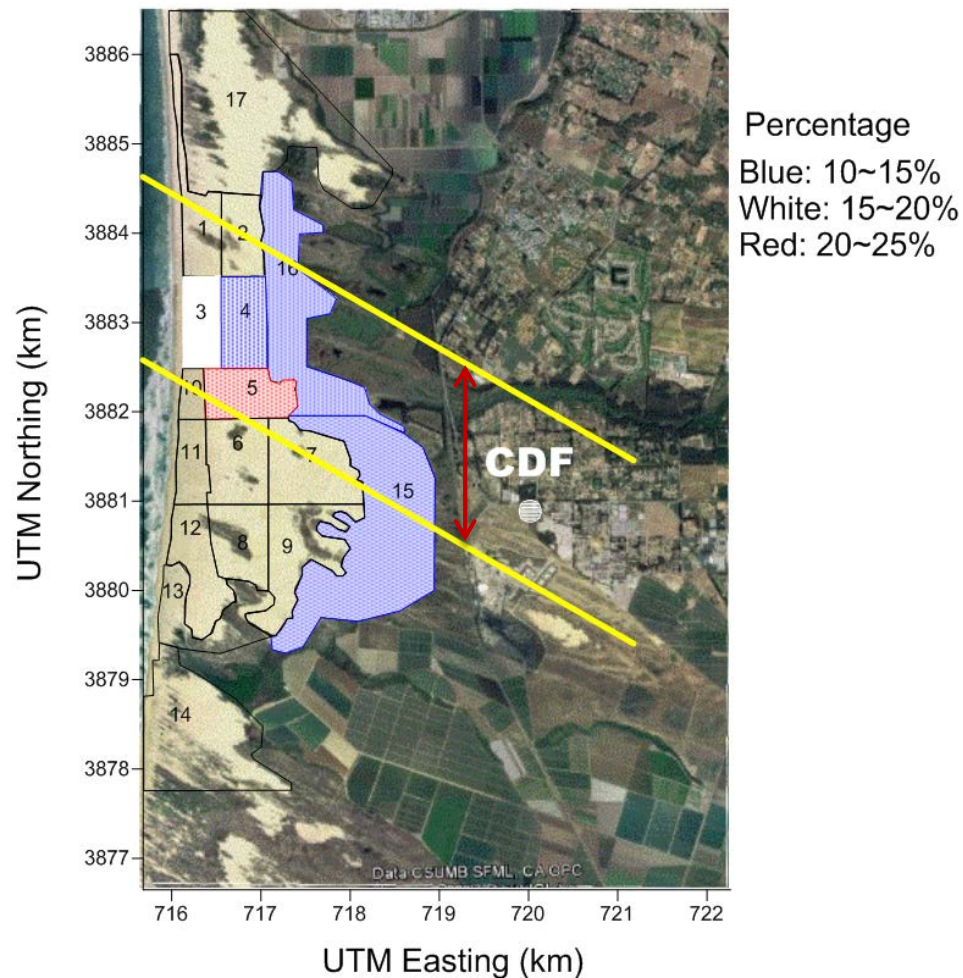




# Zones Impacting Region around CDF Monitor

8

Contributing zones  
Based on 24-hour PM10 concentration on 5/22/2013



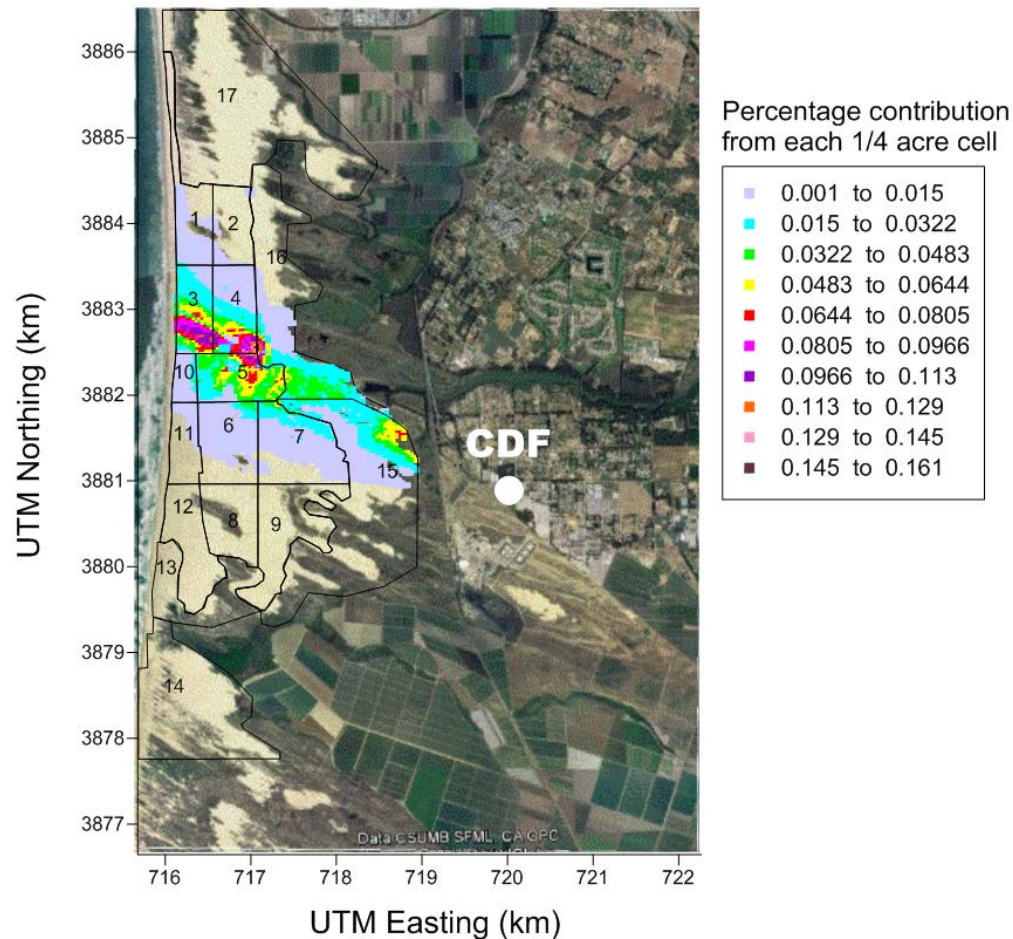


# Grid Cell Contributions at CDF

9

Source attribution

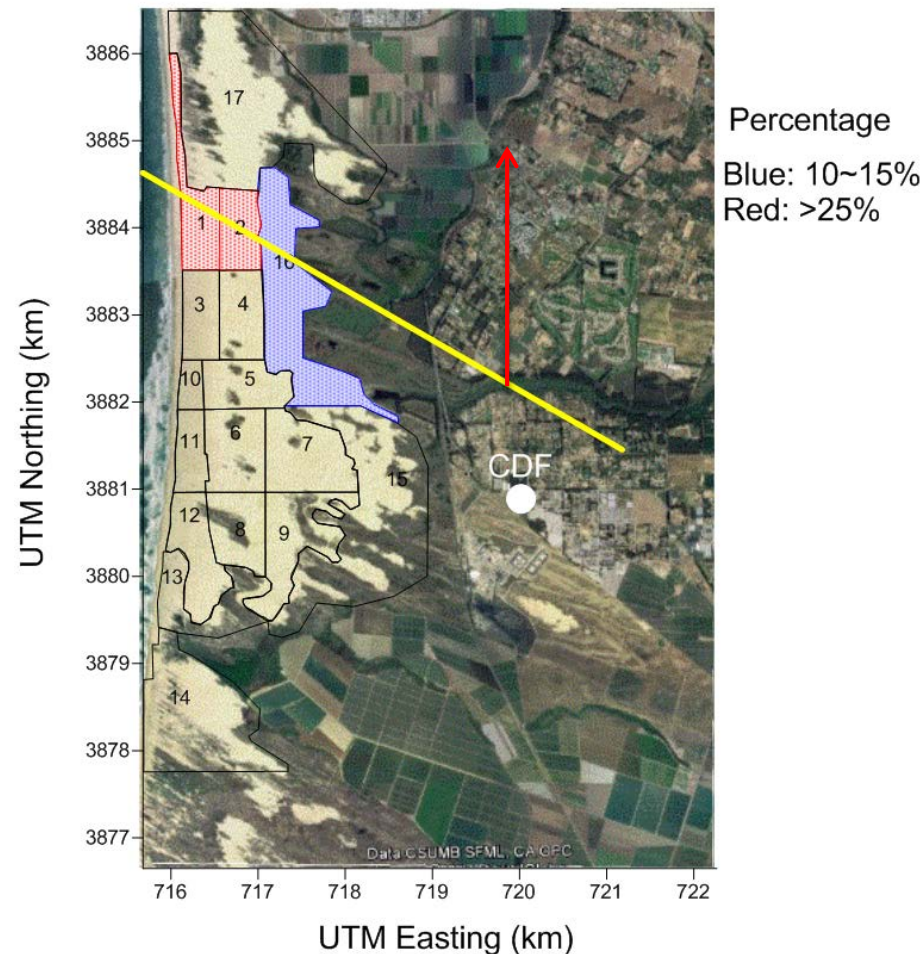
Based on 24-hour PM10 concentration on 5/22/2013



# Zones Impacting Regions North of CDF

10

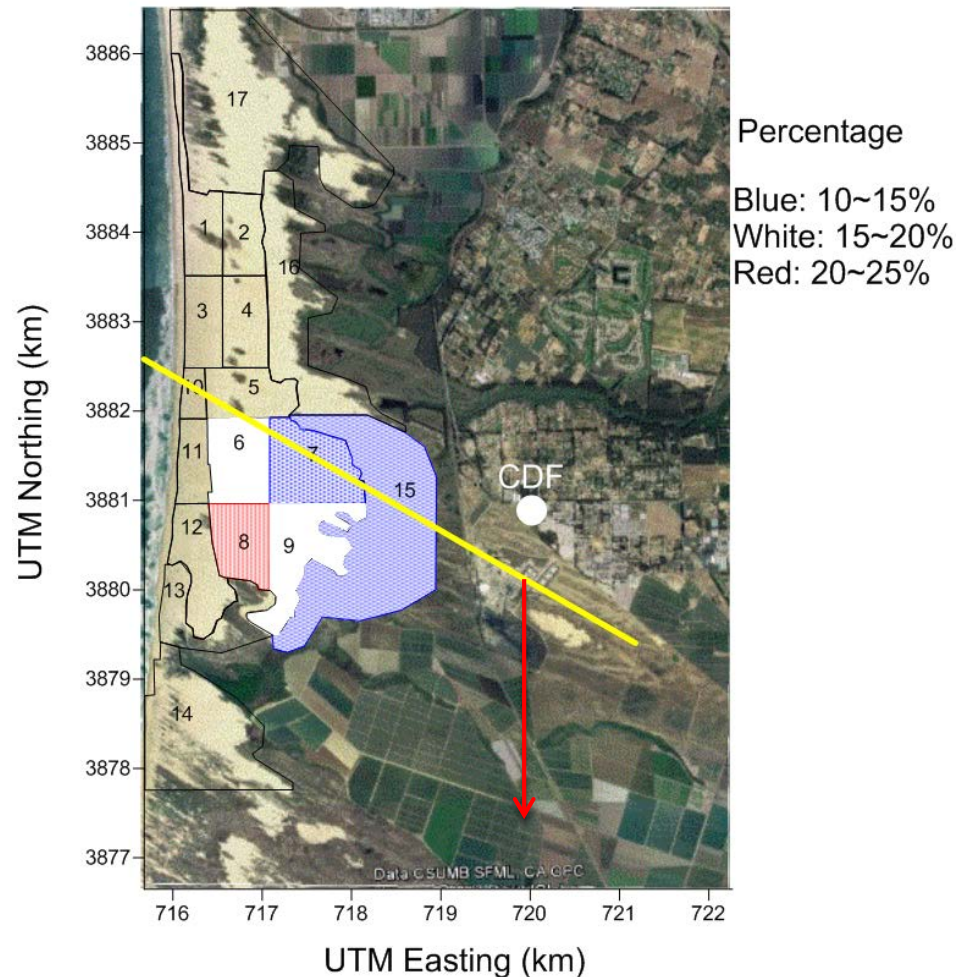
Contributing zones  
Based on 24-hour PM10 concentration on 5/22/2013



# Zones Impacting Regions South of CDF

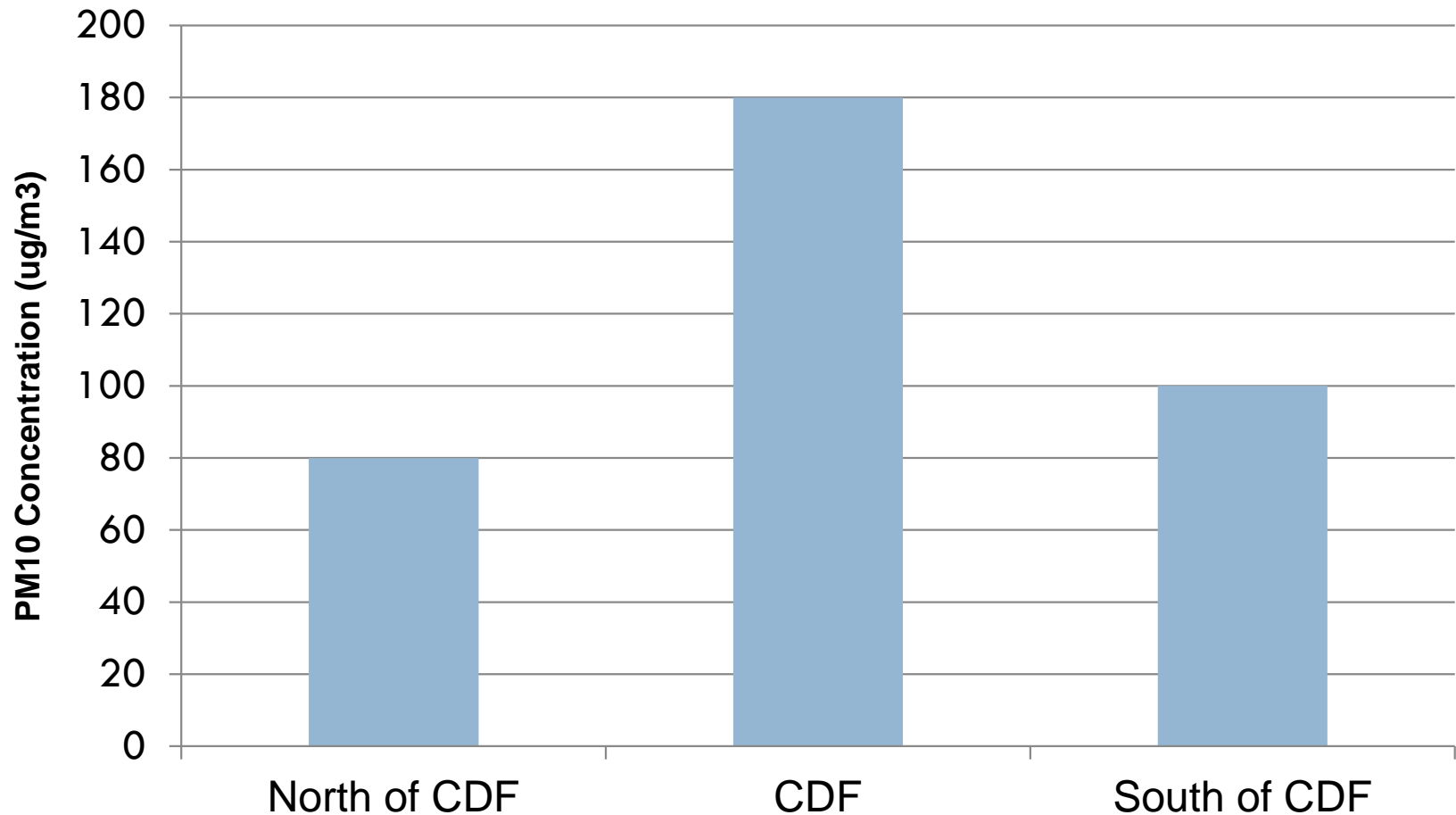
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Contributing zones  
Based on 24-hour PM10 concentration on 5/22/2013



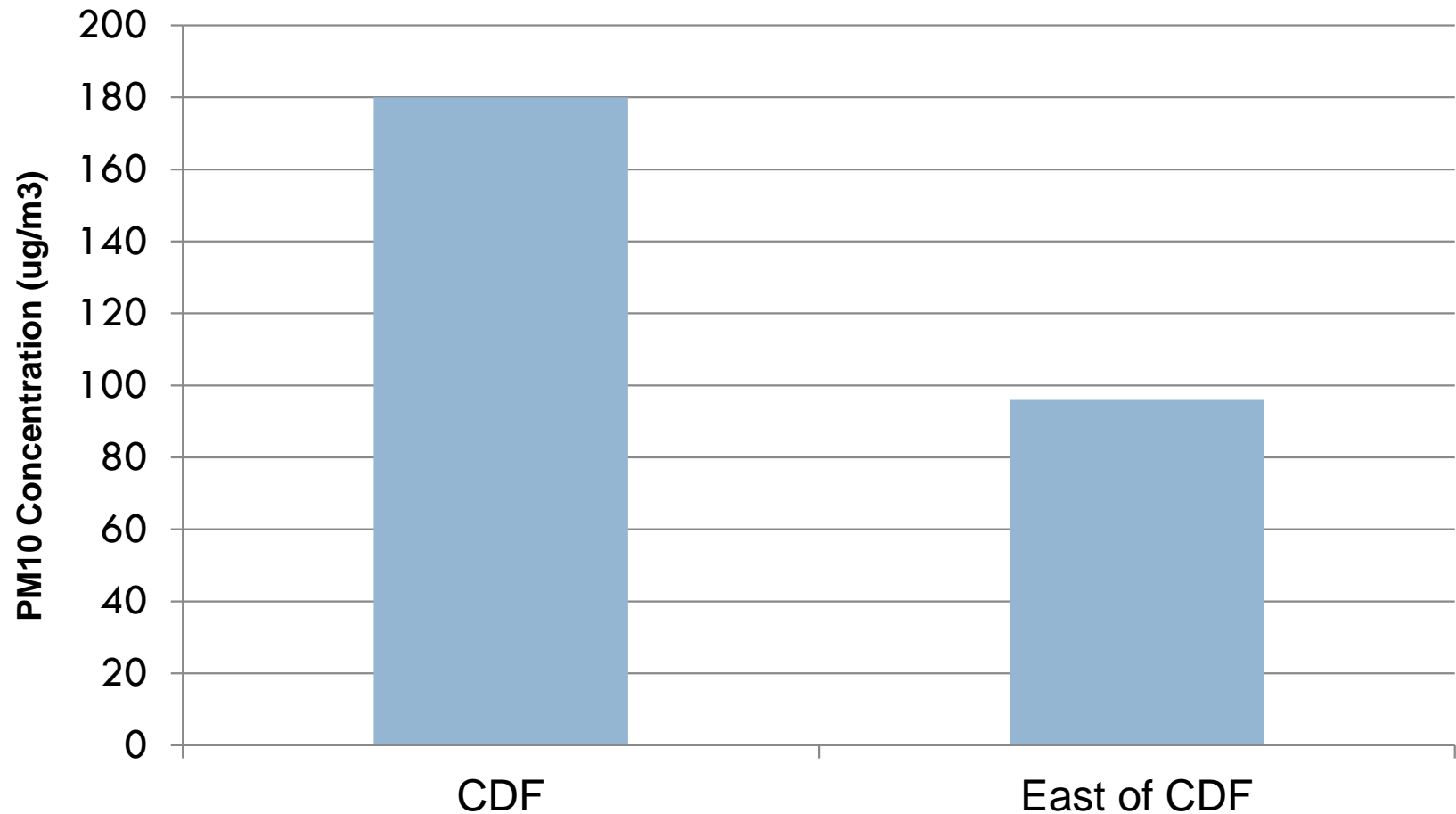
# Modeled Concentrations on May 22, 2013: North/South Gradient

12



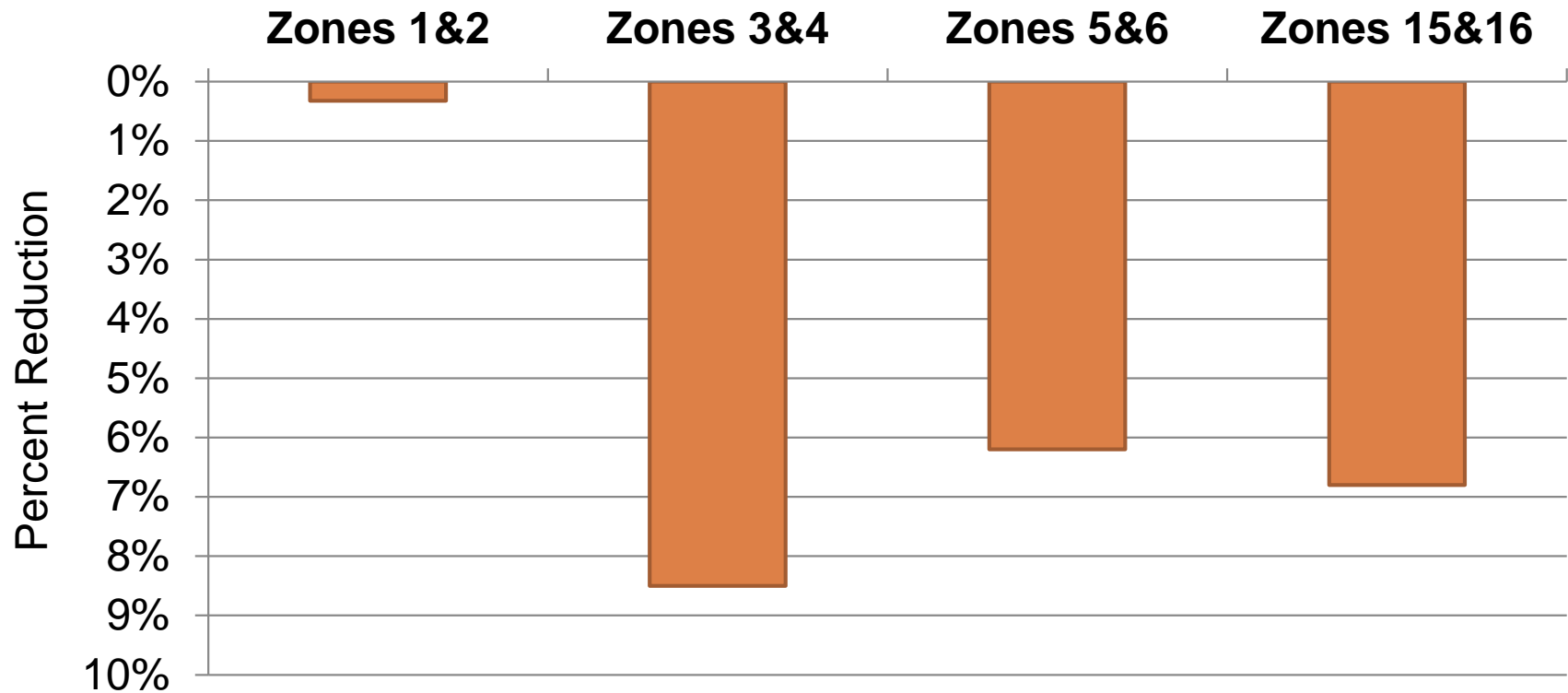
# Modeled Concentrations on May 22, 2013: East/West Gradient

13



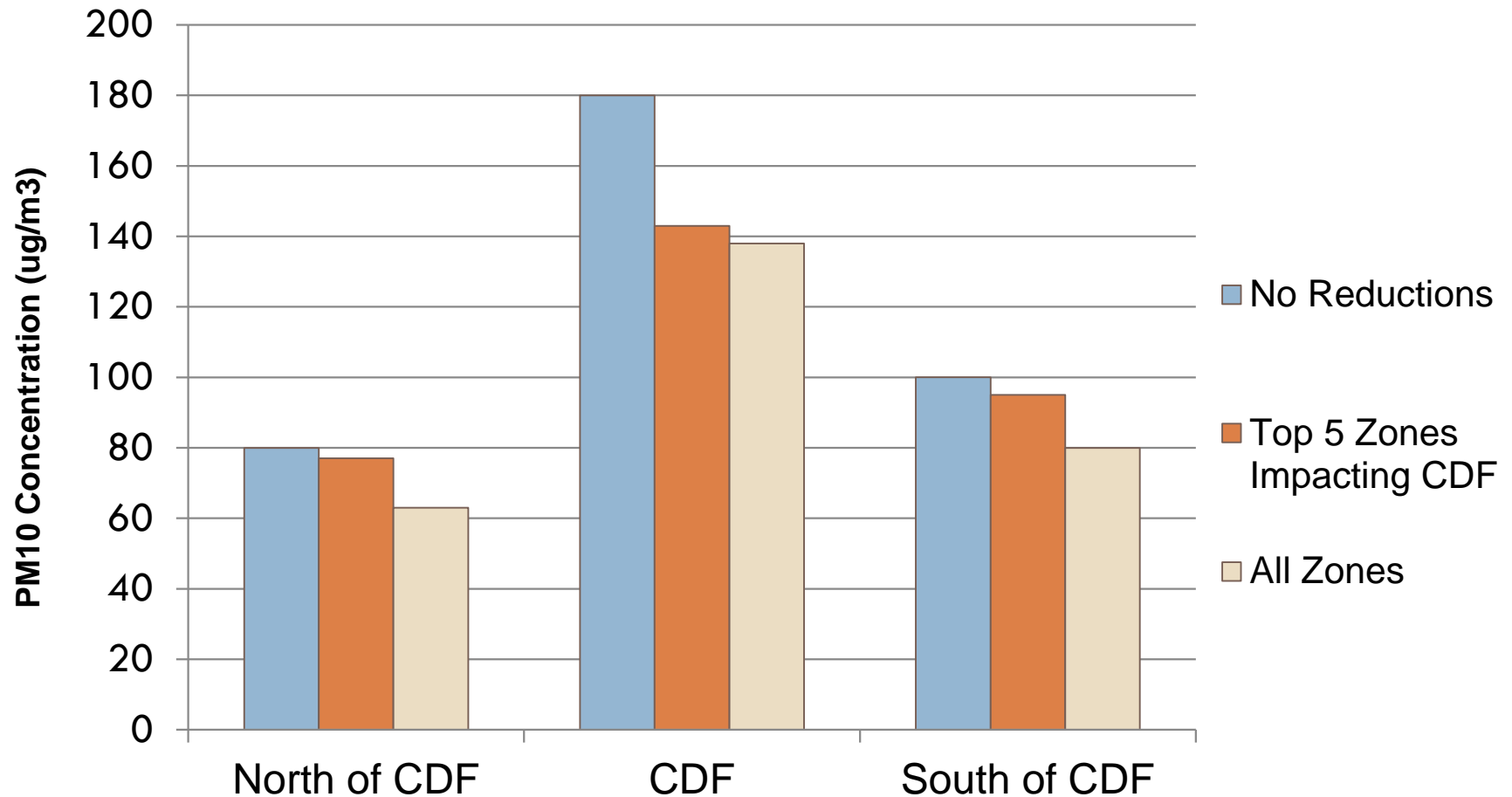
# Impact of 25% Reduction in Emissions from Selected Zones at CDF

14



# Modeled Concentrations on May 22, 2013 With 25% Reduction

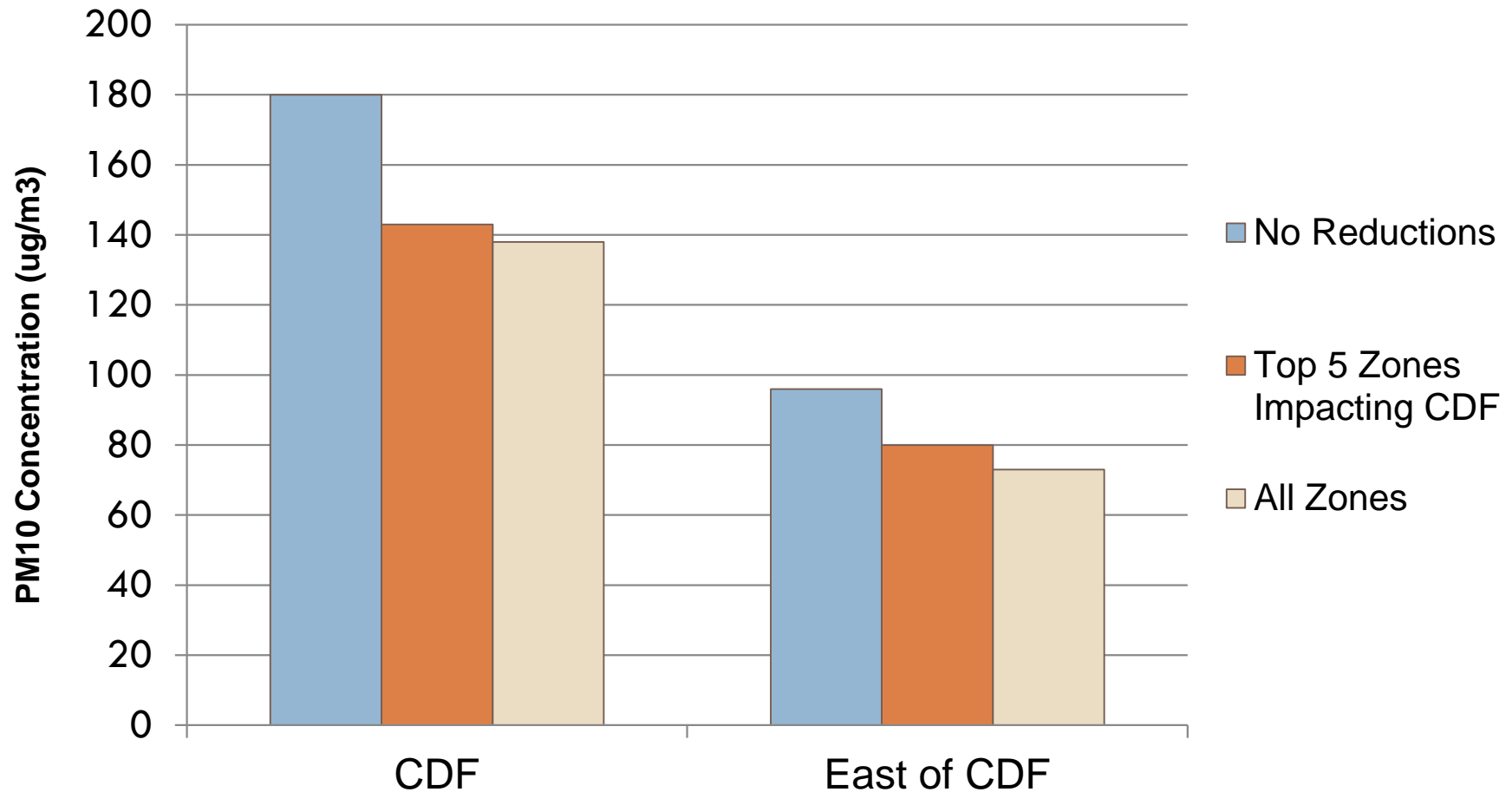
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# Modeled Concentrations on May 22, 2013 With 25% Reduction

16



# Next Steps

17

- Continue evaluation of predicted spatial patterns
- Model additional years to evaluate differences in weather conditions
- Evaluate additional emission reduction scenarios
- Refine assessments of potential mitigation measures:
  - Finer spatial scale
  - Effectiveness of specific mitigation approaches