QUESTION 22 – AIR

A. Document the steps which will be taken to contain fugitive dust during site preparation and construction of the project. If site preparation includes demolition activities, provide a copy of any notice of demolition sent to the Florida Department of Environmental Regulation (FDER) as required by the National Emission Standards for Asbestos, 40 CFR Part 61, Subpart M.

Construction dust includes soil and other particulate matter that is entrained into the air and carried off-site by the wind. These fugitive dust emissions can be created either by the operation of heavy equipment during land clearing and grading, operation of open-top haul trucks, the driving of ordinary pick-up trucks and other vehicles on unpaved areas, or by the wind itself blowing across exposed, non-vegetated land. These short term (temporary) construction phase impacts on air quality will be mitigated by the contractor by employing approved dust control measures to minimize wind erosion and particulate air pollution. Such measures include maintaining moisture on the surface of the exposed soil, grassing or mulching cleared areas that are awaiting building activities, covering open-top haul trucks during transit, and maintaining internal haul roads. Open burning of wastes will be handled in accordance with Chapter 62-256, F.A. C.

B. Specify structural or operational measures that will be implemented by the development to minimize air quality impacts (e.g., road widening and other traffic flow improvements on existing roadways, etc.). Any roadway improvements identified here should be consistent with those utilized in Question 21, Transportation.

The Elkton development is located in an area of St. Johns County that benefits from good existing air quality conditions. The site is removed from the built-up urban settings and is not affected by the higher air pollutant levels associated with these urban locations. The Florida Department of Environmental Protection does not maintain a continuing monitoring air quality program in this area; therefore, specific information about air quality conditions in the immediate vicinity of the site is unavailable.

No road-widening and/or intersection improvements are necessary because of air quality considerations; however, any such improvements documented in the transportation analysis were taken into account in the air quality analysis.

C. Complete Table 22-1 for all substantially impacted intersections within the study area, as defined in Map J, and all parking facilities associated with the project. Using the guidance supplied or approved by the Florida Department of Environmental Regulation, determine if detailed air quality modeling for carbon monoxide (CO) is to be completed for any of the facilities listed in the table.

(1) Specify source type as either intersection, surface parking area, or parking deck. For each intersection provide an approach volume for each link. For each parking facility provide the total (incoming and outgoing) volume.
(2) These should be compatible with maximum service volumes utilized in Question 21, Transportation.

The Florida Department of Environmental Protection Guidelines details the criteria and procedures to be adopted in reviewing the project and determining the direct or indirect effects on air quality. Critical intersections were identified in Question 21 and it was determined that based on existing traffic count data, that a sample of sites would be modeled for air quality performance. Two sites were selected for screening runs. The I-95 and SR 207 interchange and the intersection of SR 207 and SR 206 were chosen because they both represent worst-case scenarios. It was determined that if these two locations pass air quality screening tests, then it would be unnecessary to conduct an air quality analysis at every identified critical intersection. The peak hour volumes used herein are compatible with the total projected volumes used in Question 21. The base 2006 condition analysis used the existing traffic volumes for these intersections. A final analysis was done using the 2021 projected traffic volumes. All of the intersections passed the CO Screening Test using the Florida Department of Transportation computer program COSCREEN 2004. **Table 22-1** includes the intersections chosen for the analysis. The intersections highest approach volumes, the nearest air quality receptor distance, and the COSCREEN results are shown in the table as well. The COSCREEN computer model results are included on the following pages.

Table 22-1

Air Quality Analysis

Intersection	Year	Land Use	Average Speed (mph) (1)	Highest Peak Hour Approach Volume	Critical Distance to Closest Receptor (feet)		Pass or Fail Screening Test (2)
					X	Y	
SR 207 & SR 206	2006	Suburban	45	775	10	50	Pass
SR 207 and I-95	2006	Suburban	45	2884	50	50	Pass
SR 207 & SR 206	2021	Suburban	45	1180	10	50	Pass
SR 207 and I-95	2021	Suburban	45	4659	50	50	Pass

(1) Maximum speed 45 mph, curve flattens at higher speeds.
(2) Approach volume of less than 1,000 vph automatically passes the test.

D. If detailed modeling is required, estimate the worst case one-hour and eight-hour CO concentrations expected for each phase through buildout for comparison with the state and federal ambient air quality standards. Utilize methodology supplied or approved by the Florida Department of Environmental Protection for making such estimates. Submit all air quality modeling input and output data along with associated calculations to support the modeling and explain any deviations from guidance. Provide drawings of site geometry and coordinate information for each area modeled. Show the location of the sources and receptor sites. Modeling assumptions should consider federal, state, and local government programmed link and intersection improvements with respect to project phasing. Any roadway improvements utilized in the model should be consistent with those used in Question 21, Transportation. Provide verification of any assumptions in the modeling which consider such programmed improvements. It is recommended that air quality analyses be completed concurrently and in conjunction with the traffic analyses for the project.

All of the critical intersections for Elkton have been evaluated and passed the CO Screening test. The CO Screening Test uses very conservative assumptions about traffic flow and air pollution parameters to identify intersections that require more detailed analysis to determine potential air quality problems. Since all critical intersections passed the CO Screening Test, detailed modeling is not necessary.

E. If initial detailed modeling shows projected exceedance(s) of ambient air quality standards, identify appropriate mitigation measures and provide assurances that appropriate mitigating measures will be employed so as to maintain compliance with air quality standards. Submit further modeling demonstrating the adequacy of such measures.

The proposed Elkton development will not introduce land use activities that require point source air quality permits. Intersections that pass the CO Screening Test are presumed to operate within mobile source air quality standards. Therefore, the project is not projected to cause the ambient air quality standards to be exceeded.

08-08-2006

CO Florida 2004

Project: Elkton DRI
Facility: SR 207 & SR 206
Analyst:

Environmental Data:

Temperature:	41 F
Reid Vapor Pressure:	11.5 psi
Land Use:	Suburban
Stability Class:	D
Surface Roughness:	108
Background Concentration:	1-hr = 3.3 ppm 8-hr = 2.0 ppm

Project Data:

Region:	1: North Florida
Year:	2006
Intersection Type:	4 x 4 Intersection
Max Approach Traffic Volume:	775 veh/hour
Speed:	55

Receptor Data (all distances are in feet):

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Default Rec 1	10	150	6
Default Rec 2	10	50	6
Default Rec 3	50	10	6
Default Rec 4	150	10	6
Default Rec 5	50	50	6
Default Rec 6	10	-150	6
Default Rec 7	10	-50	6
Default Rec 8	50	-10	6
Default Rec 9	150	-10	6
Default Rec 10	50	-50	6

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	6.4	3.9
Default Rec 2	6.6	4.0
Default Rec 3	7.4	4.5
Default Rec 4	7.4	4.5
Default Rec 5	6.1	3.7
Default Rec 6	7.4	4.5
Default Rec 7	7.4	4.5
Default Rec 8	6.6	4.0
Default Rec 9	6.4	3.9
Default Rec 10	6.1	3.7

****
PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED
****

08-08-2006

CO Florida 2004

Project: Elkton DRI
Facility: I-95 & SR 207
Analyst: Fred Kyle

Environmental Data:

Temperature:	41 F
Reid Vapor Pressure:	11.5 psi
Land Use:	Suburban
Stability Class:	D
Surface Roughness:	108
Background Concentration:	1-hr = 3.3 ppm 8-hr = 2.0 ppm

Project Data:

Region:	1: North Florida
Year:	2006
Intersection Type:	Diamond Interchange
Max Freeway Traffic:	2884 veh/hour
Max Arterial Traffic:	1391 veh/hour
Freeway Speed:	65
Arterial Speed:	45

Receptor Data (all distances are in feet):

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Default Rec 1	85	1020	6
Default Rec 2	85	50	6
Default Rec 3	50	50	6
Default Rec 4	150	50	6
Default Rec 5	85	-1020	6
Default Rec 6	85	-50	6
Default Rec 7	50	-50	6
Default Rec 8	150	-50	6
Default Rec 9	-85	-1020	6
Default Rec 10	-85	-50	6
Default Rec 11	-50	-50	6
Default Rec 12	-150	-50	6
Default Rec 13	-85	1020	6
Default Rec 14	-85	50	6
Default Rec 15	-50	50	6
Default Rec 16	-150	50	6

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	5.7	3.4
Default Rec 2	6.7	4.0
Default Rec 3	7.0	4.2
Default Rec 4	6.4	3.9
Default Rec 5	5.8	3.5
Default Rec 6	6.1	3.7
Default Rec 7	6.4	3.9
Default Rec 8	5.7	3.4
Default Rec 9	5.7	3.4
Default Rec 10	6.7	4.0
Default Rec 11	7.0	4.2
Default Rec 12	6.4	3.9
Default Rec 13	5.8	3.5
Default Rec 14	6.1	3.7
Default Rec 15	6.4	3.9
Default Rec 16	5.7	3.4

****
PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED
****

08-08-2006

CO Florida 2004

Project: Elkton DRI
Facility: SR 207 & SR 206
Analyst:

Environmental Data:

Temperature:	41 F
Reid Vapor Pressure:	11.5 psi
Land Use:	Suburban
Stability Class:	D
Surface Roughness:	108
Background Concentration:	1-hr = 3.3 ppm 8-hr = 2.0 ppm

Project Data:

Region:	1: North Florida
Year:	2021
Intersection Type:	4 x 4 Intersection
Max Approach Traffic Volume:	1180 veh/hour
Speed:	55

Receptor Data (all distances are in feet):

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Default Rec 1	10	150	6
Default Rec 2	10	50	6
Default Rec 3	50	10	6
Default Rec 4	150	10	6
Default Rec 5	50	50	6
Default Rec 6	10	-150	6
Default Rec 7	10	-50	6
Default Rec 8	50	-10	6
Default Rec 9	150	-10	6
Default Rec 10	50	-50	6

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	6.0	3.6
Default Rec 2	6.4	3.9
Default Rec 3	6.6	4.0
Default Rec 4	6.8	4.1
Default Rec 5	5.7	3.4
Default Rec 6	6.8	4.1
Default Rec 7	6.6	4.0
Default Rec 8	6.4	3.9
Default Rec 9	6.0	3.6
Default Rec 10	5.7	3.4

****
PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED
****

08-08-2006

CO Florida 2004

Project: Elkton DRI
Facility: I-95 & SR 207
Analyst: Fred Kyle

Environmental Data:

Temperature:	41 F
Reid Vapor Pressure:	11.5 psi
Land Use:	Suburban
Stability Class:	D
Surface Roughness:	108
Background Concentration:	1-hr = 3.3 ppm 8-hr = 2.0 ppm

Project Data:

Region:	1: North Florida
Year:	2021
Intersection Type:	Diamond Interchange
Max Freeway Traffic:	4659 veh/hour
Max Arterial Traffic:	2743 veh/hour
Freeway Speed:	65
Arterial Speed:	45

Receptor Data (all distances are in feet):

Receptor Name	East-West Distance from Intersection	North-South Distance from Intersection	Receptor Height
Default Rec 1	85	1020	6
Default Rec 2	85	50	6
Default Rec 3	50	50	6
Default Rec 4	150	50	6
Default Rec 5	85	-1020	6
Default Rec 6	85	-50	6
Default Rec 7	50	-50	6
Default Rec 8	150	-50	6
Default Rec 9	-85	-1020	6
Default Rec 10	-85	-50	6
Default Rec 11	-50	-50	6
Default Rec 12	-150	-50	6
Default Rec 13	-85	1020	6
Default Rec 14	-85	50	6
Default Rec 15	-50	50	6
Default Rec 16	-150	50	6

RESULTS (including background CO):

Receptor Name	Max 1-Hr Conc (ppm)	Max 8-Hr Conc (ppm)
Default Rec 1	5.8	3.5
Default Rec 2	7.3	4.4
Default Rec 3	7.6	4.6
Default Rec 4	7.0	4.2
Default Rec 5	6.2	3.7
Default Rec 6	7.4	4.5
Default Rec 7	7.5	4.5
Default Rec 8	6.9	4.2
Default Rec 9	5.8	3.5
Default Rec 10	7.3	4.4
Default Rec 11	7.6	4.6
Default Rec 12	7.0	4.2
Default Rec 13	6.2	3.7
Default Rec 14	7.4	4.5
Default Rec 15	7.5	4.5
Default Rec 16	6.9	4.2

****
PROJECT PASSES - NO EXCEEDANCES OF NAAQ CO STANDARDS ARE PREDICTED
****