H. AIR QUALITY

1. Existing Conditions

2. Existing Conditions

New York State is divided into nine Air Quality Control Regions (AQCRs) based on geographic location. The NYSDEC has a network of ambient air monitoring stations located in each of the AQCRs which evaluate the attainment status for each region with respect to the Ambient Air Quality Standards (AAQSs).

The City of Yonkers is located within NYSDEC AQCR 3 and NYSDOT Region 8. The Federal criteria pollutants (parameters) currently monitored within the region include: sulfur dioxide, ozone, total suspended particulates, inhalable particulates, and lead, in addition to several non-criteria pollutants.

Although there is no available ambient air quality monitoring data for the City of Yonkers, regional State monitoring data is available to characterize the site. As shown in Table IV.H-1, ambient air quality exceeds State and Federal AAQSs for all parameters, with the exception of ozone. Elevated ozone levels are found throughout the northeastern United States. Non-attainment of the ozone standard is more of a regional than a local problem and cannot be resolved without coordinated regional air pollution control programs. In the event of elevated ozone levels, the State has an air pollution episode monitoring plan to issue health warnings to the public to caution those prone to health problems to remain indoors and to refrain from strenuous activities. The Site is consistent with all New York State Department of Transportation (NYSDOT) regional transportation control programs, including the State Implementation Plan established to bring the area into compliance with the ozone and CO AAQS. The NYS emission control strategies include: low emission vehicles (NYS has fully adopted the California Low Emission Vehicle Program in legislation and regulation); enhanced inspection and maintenance programs to ensure vehicles are properly maintained; reformulated

gasoline; oxygenated fuels; and alternative fuels for fleet purchases.

Table IV.H-1
Ambient Air Quality Data

NYSDEC Region 3 - Air Quality Data

	2000	2001	2002	2003	NY AAQS	Nat'l AAQS
Ozone (1) ppm						
1-hour average	0.116	0.127	0.156	0.128	0.12 ppm	0.12 ppm
8-hour average	0.078	0.091	0.102	0.091	-	0.08 ppm
Annual average	0.021	0.024	0.024	0.024	-	-
PM-10 (2), ppb						
24-hour concentration	31	35	73	49	-	150 ppb
Annual average	10	11	11	13	-	50 ppb
PM-2.5 (3), ppb						
24-hour concentration					-	150 ppb
Annual average	38	42.6	33.1	44.4	-	50 ppb
Sulfur Dioxide (4), ppb						
3-hour average	27.4	32.1	38.9	45.8	0.5 ppm	-
24-hour average	15	14.5	21.1	25	0.14 ppm	0.14 ppm
Annual average	2.3	2.6	2.2	2.4	0.03 ppm	0.03 ppm
Lead (5), ppb						
24-hour average	0.77	0.560	0.57	0.71	-	-
3-month average	0.18	0.15	0.12	0.24	-	1.5 ppb
Annual average	0.09	0.08	0.06	0.07	-	-

3. Potential Impacts

Technical Background -Construction Impacts

Rock drilling and blasting will not generate any significant fugitive (released into the general environment) dust emissions.

There are two main sources of dust at a rock crushing site. One source is the processing equipment that crushes, screens, and conveys the aggregate. The other is associated with

stockpiles of pulverized rock where fines can become airborne by wind. Generally rock crushing equipment is not powerful enough to generate many PM-2.5 (particles smaller than 2.5 microns in diameter) particles, although generation of PM-10 (particles smaller than 10 microns in diameter) particles is a concern. Dust can be minimized using engineering controls. A dust suppression method which is suitable for mobile or temporary operations is wet suppression. Wet suppression consists of spraying water directly at the source, either into the inlet of the crusher, on top of the screen, or at the conveyor transfers. Spraying a very small amount of fine mist on the rock stream itself can help prevent airborne dust when rock is being processed. As shown in Table IV.H-2, wet suppression can reduce emissions by 70 to 95 percent.

Another method to reduce airborne dust is to keep the crushers as full as possible, by allowing less room for air.

Table IV.H-2
Summary of Typical Rock Crushing Plant Emission Factors

Emission Source	Emission Factors for PM, lb/ton	Emission Factor for PM-10, lb/ton
Primary Crushing (Jaw) - Dry	0.0007	0.00033
Primary Crushing (Jaw) - Wet	0.00021	0.0001
Secondary Crushing (all crushers) - Dry	0.00504	0.0024
Secondary Crushing (all crushers) - Wet	0.0012	0.00059
Screening (all) - Dry	0.0315	0.015
Screening (all) - Wet	0.001764	0.00084
Truck Loading - Crushed Stone	0.00021	0.00010
Conveyor Transfer - Dry	0.0029	0.0014
Conveyor Transfer - Wet	0.00011	0.000048

Source: Texas Natural Resource Conservation Commission, Air Permits Division, Rock Crushing Plants, February 2002

Technical Background - Highway Impacts

The primary pollutants associated with vehicular exhaust emissions are nitrogen dioxide (NO2), hydrocarbons (HC), and carbon monoxide (CO). Since short-term exposure to elevated CO concentrations can have acute health impacts, State and Federal Ambient Air Quality Standards have been developed for ambient CO concentrations requisite to

protect the health and welfare of the general public with an adequate margin of safety. There are no short-term health standards (currently enforced) for NO2 and HC, since the primary concern with these pollutants is their role in the photochemical reactions that lead to the formation of secondary pollutants known as ozone (O3) and "smog", which are known lung and eye irritants. Since ozone and smog formation is a slow process which occurs outside the primary impact area of the Cross County Shopping Center, these pollutants are reviewed only on a regional (mesoscale) basis, not a local (microscale) basis.

The principal pollutant associated with vehicular emissions is carbon monoxide (CO). Approximately 80 percent of atmospheric CO emissions are attributable to vehicular sources. These emissions, which are associated with the incomplete combustion of fossil fuel, tend to increase as vehicle speeds decrease and are maximized during idling and acceleration modes. CO emissions also increase as temperatures decrease. Therefore, roadway intersections characterized by vehicular deceleration, queuing at idle, and acceleration during winter temperature regimes represent the area where vehicular CO emissions are highest.

A traffic analysis was prepared to evaluate the impact of the Cross County Shopping Center along the primary access routes in the area. This traffic analysis has been used to evaluate the potential for air quality impacts from increased traffic volumes.

Highway Impacts

Under the current NYSDOT guidelines (NYSDOT Environmental Procedures Manual, Chapter 1.A), the following criteria are used to determine whether an air quality analysis (site specific CO modeling) is required for a proposed major development:

- Unsignalized intersections do not require an air quality analysis.

- Intersections and roadways with a Level of Service of A, B, or C do not require an air quality analysis.

As shown in Table IV.H-3, Level of Service Summaries (AM, PM, and Saturday Peak Hours), many of the signalized intersections had Levels of Service of C or better. Thus, an air quality analysis is not required for those intersections. Intersections 5, 6, 8, 12, 13, 14, and 15 had level of service D, E, or F in the Build condition. However, when improvements were made at those intersections all improved to level of service B or C, with the exception of intersections 8 and 12. However, the Build with improvements in both of these cases resulted in an improvement over the No-Build with the level of service improving from E to D. Nonetheless those seven intersections were then subjected to an additional level of screening.

Table IV.H-3

Intersection LOS Summary

		PEAK PM HOUR			PEAK SATURDAY HOUR		
No.	**Intersection Name**	**2005 Existing**	**2009 No Build**	**2009 Build**	**2005 Existing**	**2006 Build**	**2008 Build**
3a	Central Park Avenue (NB) and South Driveway* (Signalized)			B			C
4	Central Park Avenue (NB) and Mall At Cross County Driveway (Signalized)	B	C	C	B	C	C
4a	Central Park Avenue (NB) and Mall At Cross County Driveway* (Signalized)			A			B
5	Central Park Avenue (SB) and Mile Square Road* (Signalized)	C	C	C	C	D	D
5a	Central Park Avenue (SB) and Mile Square Road* (Signalized)			B			C
6	Central Park Avenue (NB) and Mile Square Road (Signalized)	D	E	E	D	F	F
6a	Central Park Avenue (NB) and Mile Square Road* (Signalized)			B			B
7a	Central Park Avenue (NB) and NYS Thruway Exit 3* (Signalized)			B			B
8	Vredenburgh Avenue and Mile Square Road with Trenchard Street (Signalized)	D	E	E	C	E	E
8a	Vredenburgh Avenue and Mile Square Road with Trenchard Street* (Signalized)			D			D

Table IV.H-3 (Continued)

Intersection LOS Summary

		PEAK PM HOUR			PEAK SATURDAY HOUR		
No.	**Intersection Name**	**2005 Existing**	**2009 No Build**	**2009 Build**	**2005 Existing**	**2006 Build**	**2008 Build**
11	Vredenburgh Avenue and Xavier Drive (Signalized)	B	B	B	C	C	C
11a	Vredenburgh Avenue and Xavier Drive (Signalized)			B			B
12	Vredenburgh Avenue and Kimball Avenue (Signalized)	D	D	E	D	E	F
12a	Vredenburgh Avenue and Kimball Avenue (Signalized)			C			D
13	Kimball Avenue and Site Driveway (Signalized)	B	B	B	C	C	D
13a	Kimball Avenue and Site Driveway* (Signalized)			A			B
13b	Kimball Avenue and Site Driveway - Egress Only (Signalized)			B			B
14	Kimball Avenue and North Drive (Signalized)	E	E	E	D	E	F
14a	Kimball Avenue and North Drive* (Signalized)			B			B
15	Kimball Avenue and Midland Avenue East with CCP EB Ramp (Signalized)	F	F	F	F	F	F
15a	Kimball Avenue and Midland Avenue East with CCP EB* (Signalized)			C			C
16	Kimball Avenue and Midland Avenue West with Nevada Place (Signalized)	B	C	C	B	C	C
16a	Kimball Avenue and Midland Avenue West with Nevada Place* (Signalized)			B			B
17a	Midland Avenue West and Cross County Parkway WB Ramps * (Signalized)			C			C

* with improvements

The next level of screening for signalized intersections with level of service D, E, or F is whether they exceed the following thresholds:

- A 10% or more reduction in source-receptor distance.
- A 10% or more increase in traffic volume.
- A 10% or more increase in vehicle emissions.
- An increase in the number of queued lanes.
- A 20% reduction in speed.

Based upon the improved level of service, all these criteria will be met except perhaps the volume measure. Thus, this has been examined in further detail. Table IV.H-4 summarizes the volume increases from No-Build to Build for those seven intersections. In all cases the volume increases were less than 10%.

	TABLE IV.H-4 TOTAL TRAFFIC VOLUMES THROUGH INTERSECTIONS													
		PM Peak Hour							Saturday Peak Hour					
ID	Location	Existing Volume	No-Build Volume	% Growth Existing to No-Build	Build Volume	% Growth No-Build to Build	Build/ Improv Volume	% Growth No-Build to Build/ Improv	Existing Volume	No-Build Volume	% Growth Existing to No-Build	Build Volume	% Growth No-Build to Build	Build/ Improv Volume	% Growth No-Build to Build/ Improv
5	CENTRAL PARK AVENUE (SB) & MILE SQUARE ROAD														
8	VREDENBURGH AVENUE & MILE SQUARE ROAD & TRENCHARD STREET	1,563	1,765	13%	1,810	3%	1,869	6%	1,480	1,693	14%	1,809	7%	1,858	9.7%
14	KIMBALL AVENUE & NORTH DRIVE	2,590	2,818	9%	2,921	4%	2,967	5%	2,688	3,020	12%	3,173	5%	3,138	4%
6	CENTRAL PARK AVENUE NB & MILE SQUARE ROAD & MILDRED AVENUE	2,330	2,721	17%	2,791	3%	2,808	3%	2,422	2,789	15%	2,913	4%	3,034	9%
12	KIMBALL AVENUE & VREDENBURGH AVE & TURNER AVENUE	1,460	1,660	14%	1,709	3%	1,709	3%	1,410	1,925	37%	2,009	4%	1,781	-7%
13	KIMBALL AVENUE & SITE DRIVEWAY	1,271	1,461	15%	1,488	2%	1,488	2%	1,173	1,649	41%	1,675	2%	1,510	-8%
15	KIMBALL AVENUE & MIDLAND AVENUE & C.C. PARKWAY EB OFF RAMP	3,189	3,458	8%	3,568	3%	3,632	5%	2,826	4,118	46%	4,457	8%	3,645	-11%

Following State and Federal requirements and the NYSDOT screening procedures, it has been determined that no further analysis is necessary and the project will not cause any adverse air quality impacts and will not result in any violations of the National or State AAQAs.

4. Mitigation Measures

Construction Impacts

The applicant will utilize Best Management Practices for rock crushing operations, including wet suppression and placement of crushing equipment below grade to help minimize impacts associated with airborne dust. To further mitigate adverse impacts, rock and other material stockpiles will be tarped and properly maintained in a wet condition. The rock crusher will be operated in accordance with any required permits, and will be kept full to avoid air gaps to additionally help mitigate dust impacts.

No other air quality mitigation measures are required or proposed.