

APPENDIX E
EMISSIONS ESTIMATE FOR GENERAL CONFORMITY



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Memorandum

To: Irene Chang, LMDC
From: Hillel Hammer
Subject: East River Waterfront Esplanade and Piers Project—General Conformity
Date: Monday, May 14, 2007
cc: William Kelley, NYCEDC

A. INTRODUCTION

The Lower Manhattan Development Corporation (LMDC) is the recipient of Community Development Block Grant funds from the U.S. Department of Housing and Urban Development (HUD). Because the East River Esplanade and Piers Project (“project” or “Proposed Action”) would receive federal funds, it is subject to the Clean Air Act general conformity rules. The project would not create any permanent sources of emissions, but construction-related emissions would be expected. Therefore, construction-related emissions were estimated, as described below, in order to determine if the federal funding of portions of the project would require a conformity analysis under the federal general conformity rules.

Based on the estimates of construction related emissions, LMDC has concluded that a conformity analysis is not required at this time. Nonetheless, since the maximum predicted annual nitrogen oxides emissions would exceed the *de minimis* threshold previously in effect based on New York City’s former status as a severe nonattainment area for the 1-hour ozone standard, LMDC has decided to prepare a draft determination of general conformity to the ozone State Implementation Plan (SIP), subject to public review. As noted in the analysis, projected future construction-related emissions, such as the projected emissions from the construction of the Proposed Action, are included in the ozone SIP budget, and therefore, the Proposed Action is presumed to conform to the ozone SIP.

B. BACKGROUND

The Clean Air Act (CAA), as amended in 1990, defines a non-attainment area (NAA) as a geographic region that has been designated as not meeting one or more of the National Ambient Air Quality Standards (NAAQS). The Proposed Action is located in New York County, which has been designated by the EPA as a moderate NAAQS NAA for PM₁₀, a NAA for PM_{2.5}, and a moderate NAA for ozone. The area is in attainment for all other criteria pollutants:

nitrogen dioxide (NO₂), lead, sulfur dioxide (SO₂), and carbon monoxide (CO). EPA had re-designated New York City as in attainment for CO on April 19, 2002 (67 FR 19337); the CAA requires that a maintenance plan ensure continued compliance with the CO NAAQS for former NAAs.

A State Implementation Plan (SIP) is a state's plan on how it will meet the NAAQS under the deadlines established by the CAA. In November 1998, New York State submitted its *Phase II Alternative Attainment Demonstration for Ozone*, which addressed attainment of the 1-hour ozone NAAQS by 2007 (New York submitted subsequent filings to EPA in subsequent years). On February 4, 2002, EPA approved New York's 1-hour ozone SIP (67 FR 5170).

If the overall predicted increase in emissions of a criteria pollutant due to a federal action in a nonattainment area (NAA) exceeds the *de minimis* rate defined in the Clean Air Act regulations at 40 CFR § 93.153(b), the lead federal agency is required to make a conformity determination. The purpose of such a determination is to prevent the air quality impacts of the action from causing or contributing to a violation of the National Ambient Air Quality Standards or interfering with the purpose of a State Implementation Plan (SIP). In the case of New York County, the prescribed *de minimis* annual rates are 50 tons of volatile organic compounds (VOC) and 100 tons of nitrogen oxides (NO_x) (moderate ozone NAA, based on currently applicable law, in an ozone transport region, and PM_{2.5} precursor in a PM_{2.5} NAA), 100 tons of carbon monoxide (CO) (maintenance area), 100 tons of fine particulate matter (PM_{2.5}) (PM_{2.5} NAA), 100 tons of respirable particulate matter (PM₁₀) (moderate PM₁₀ NAA), and 100 tons of sulfur dioxide (SO₂) (PM_{2.5} precursor in a PM_{2.5} NAA).

Since the details of the project construction are not yet available, a conservative estimate of emissions has been prepared based on other information, as allowed for under the conformity regulations. Emissions were estimated by comparing the expected federal spending for the project construction with the predicted overall spending on construction in New York City, and by analogy, comparing predicted overall construction emissions in New York City with that of the project. The concept of estimating construction related emissions based spending is employed by EPA for construction fleets in the NONROAD model and is used for other similar emissions inventory estimates.

VOC and NO_x emissions throughout New York City in 2005 have been estimated by the New York State Department of Environmental Conservation (NYSDEC). City-wide emissions for all other pollutants were calculated using the NONROAD engine emissions model, based on information from NYSDEC¹ on methods it's using for the SIP estimates the Agency is currently preparing, which are not yet available. City-wide construction spending in 2005 was 18,800 million dollars according to the New York State Department of Labor; peak annual project spending is expected to be 91.5 million dollars in 2008.² Annual project emissions were calculated by multiplying the city-wide emissions by the ratio of project spending to city-wide spending, which is \$91.5 million : \$18,800 million = 0.487%. This is based on the assumption that the ratio between project and city-wide emissions would be the same as project and city-wide construction spending. This assumption is similar to the assumption made by EPA as the basis for regional inventories of nonroad emissions in the NONROAD model. (This assumption is also a conservative one, leading to high estimates of project emissions, as described in detail below.)

¹ Personal communication and sample data, Bureau of Air Quality Planning, NYSDEC, January 2007.

² Project federal construction spending includes half of the BMB plaza, which may or may not be federally funded to some extent, and excludes the New Market Building, which would not be federally funded.

For example, NYSDEC predicted that city-wide construction would emit 2,605 tons of VOC in 2005; therefore, estimated project emissions in 2008 would be:

$$2,605 \text{ tons VOC} \times 0.487\% = 12.7 \text{ tons VOC per year.}$$

The project non-road engine emissions estimates for all pollutants in 2008 are presented in the Table below. Annual federal spending on the project in 2007 and 2009 are expected to be 13.0 and 39.5 million dollars, respectively, and therefore, emissions in those years would be proportionally lower. There would also be some emissions from tug boats and construction delivery trucks, but since this would only include up to 21 barge trips per year, and approximately 5 to 15 truck trips per day at most, these would be minimal.

Estimated Emission Rates (tons/year)

Pollutant	New York City (2005)**	Project (2008)	Conformity De minimis*
VOC	2,605.0	12.9	50
PM ₁₀	1113.8	5.5	100
NO _x (PM _{2.5} and ozone precursor)	14,200.0	70.5	100
CO	18,622.8	92.4	100
Direct PM _{2.5}	1,080.4	5.4	100
SO ₂ (PM _{2.5} precursor)	1,545.1	7.7	100
Notes:			
* New York City is a moderate nonattainment for ozone in an ozone transport region, nonattainment for PM _{2.5} , and CO maintenance area.			
** Estimates of VOC and NO _x emissions for New York City were taken from the SIP. This is expected to be conservatively high, since NYSDEC is currently preparing new estimates with the new NONROAD model. Other pollutants were calculated by AKRF based on information obtained from NYSDEC on the NONROAD modeling approach.			

Note that the comparison of spending with general construction emissions is conservative for the following reasons:

1. The analysis compares predicted emissions from the SIP, which are known to be a conservatively high estimate, with actual dollars spent in 2005. This yields a high estimate of tons/\$.
2. The esplanade construction would have lower emissions per spending than general construction, which is mostly driven by building and roadway construction. The federally funded portion of the project, which is included in the conformity analysis, does not include much heavy construction.
3. The esplanade construction would have lower PM emissions per spending than general construction, because all project construction would be subject to LMDC's environmental performance commitments (EPC) which require a high level of PM emissions controls. Some of those provisions would also reduce the emission rate of other pollutants in some cases. For example, the use of ULSD fuel would reduce SO₂ emissions significantly; the use of diesel particle filters (DPF) would also reduce CO and VOCs, and in some cases NO_x; and the use of grid power and electric engines where possible would reduce emissions of all pollutants.
4. The project peak is 2008; since emissions will generally be lower in 2008 than in 2005 due to engine fleet improvements, the ton/\$ estimate is higher than that which would be expected in 2008.

Therefore, the annual emissions from the project construction are overstated. Since all of the peak-year pollutant emissions are predicted to be lower than the currently applicable *de minimis* levels defined for general conformity, the project would conform to the SIP and no further analysis or determination is required.

C. DRAFT DETERMINATION BASED ON FORMER 1-HOUR OZONE STANDARD

Since the maximum predicted annual nitrogen oxides emissions would exceed the *de minimis* threshold previously in effect based on New York City's former status as a severe nonattainment area for the 1-hour ozone standard, which was 25 tons, LMDC has decided to prepare a draft determination of general conformity to the ozone State Implementation Plan (SIP), subject to public review.

The ozone SIP currently contains projected emissions from construction which were projected to expand in future years, including unknown future projects such as this one. Furthermore, growth projected in the SIP was beyond what has actually occurred to date (as was demonstrated by NYSDEC in the general conformity determination for the World Trade Center Memorial and Redevelopment Plan). Therefore, since the construction emissions were included in the ozone SIP budget, the project would be considered to conform to the ozone SIP in accordance with 40 CFR § 93.158(a)(1).

REQUIREMENTS OF THE CONFORMITY DETERMINATION

The purpose of the conformity analysis is to establish that the Proposed Action would conform to the New York ozone SIP, thereby demonstrating that total direct and indirect emissions of the ozone precursors, in this case NO_x, from the project, would not:

- cause or contribute to any new violation of any standard in the area,
- interfere with provisions in the applicable SIP for maintenance of any standard,
- increase the frequency or severity of any existing violation of any standard in any area, or
- delay timely attainment of any standard or any required interim emission reductions or other milestones in the SIP for purposes of—
 1. a demonstration of reasonably further progress (RFP),
 2. a demonstration of attainment, or
 3. a maintenance plan.

For the purposes of a general conformity determination, direct and indirect emissions are defined as follows (40 CFR § 93.152):

- Direct Emissions: Those emissions of a criteria pollutant or its precursors that are caused or initiated by the Federal action and occur at the same time and place as the action;
- Indirect Emissions: Those emissions of a criteria pollutant or its precursors that—
 4. are caused by the Federal action, but may occur later in time and/or may be further removed in distance from the action itself but are still reasonably foreseeable; and
 5. the Federal agency can practicably control and will maintain control over due to a continuing program responsibility of the Federal agency.

LMDC has determined that the predicted emissions due to the Proposed Action during construction that should be subject to its general conformity review would include direct emissions from (1) non-road engines operating on-site during construction and (2) marine vessels carrying materials to and from the site and conducting other work along the waterfront, and (3) emissions from construction-related vehicles traveling to and from the site.

PRESUMPTION OF CONFORMITY

The Proposed Action would be located in an area previously designated as a severe ozone non-attainment area under the 1-hour ozone NAAQS. The direct and indirect NO_x emissions during two years of construction were predicted to potentially exceed the prescribed level for severe ozone non-attainment areas (25 tons per year). Therefore, LMDC has determined the following:

- The methods for estimating direct and indirect emissions from the Proposed Action meet the requirements of 40 CFR § 93.159.
- The Proposed Action was predicted to result in the emission of up to 70.5 tons and 31.2 tons of NO_x per year in 2008 and 2009, respectively.
- All construction-related NO_x emissions, including those from the Proposed Action, are included in the emissions budget specified in the New York State Implementation Plan for Ozone—Phase II Alternative Attainment Demonstration.
- The Proposed Action does not cause or contribute to any new violation, or increase the frequency or severity of any existing violation, of the standards for the pollutants addressed in 40 CFR § 93.158.
- The Proposed Action does not violate any requirements or milestones in the ozone SIP.

Based on these determinations, the Proposed Action is presumed to conform to the ozone SIP for the project area. The activities that are presumed to conform include all construction-related activities that will receive federal funding for the East River Waterfront Esplanade and Piers Project.

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