

**AIR QUALITY ANALYSIS  
AND  
CONFORMITY DETERMINATION  
FOR  
BELMONT, OHIO AND MARSHALL COUNTIES**

**December, 2007**

**Prepared by:**

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## INTRODUCTION

As per the EPA's final rule published in the Federal Register Vol. 69, No. 126 on July 1, 2004, "Transportation Conformity is required under the Clean Air Act section 176(c) (42 U.S.C. 7506(c)) to ensure that federally supported highway and transit project activities are consistent with ("Conform to") the purpose of the state air quality implementation plan (SIP). Conformity currently applies under EPA's rules to areas that are designated nonattainment or maintenance." Areas are designated "nonattainment" for violating the National Ambient Air Quality Standards (NAAQS). Final Rules published in the Federal Register Vol. 69, No. 84 on April 30, 2004 state "CAA definition of the nonattainment area that is defined in Section 107(d)(1)(A)(I) as an area that is violating the standard. If an area meets this definition, EPA is obligated to designate the area as nonattainment." The nonattainment areas can be redesignated as attainment/maintenance as per section 107(d)(3) of the Clean Air Act.

Nonattainment designations are based on violating the NAAQS for any one or more criteria pollutants. Six (6) common air pollutants that are harmful for our health and for which specific standards are established by the EPA, are Nitrogen Dioxide, Ozone, Carbon Monoxide, Sulfur Dioxide, Particulate Matter and Lead. The area is designated nonattainment for particulate matter (PM 2.5) and was designated nonattainment for Ozone. Effective June, 2007 all three counties have been redesignated as attainment for Ozone.

The ozone nonattainment designation of Belmont County, Ohio and Ohio and Marshall Counties in West Virginia was effective June 15, 2004 and the attainment was required by the year 2009. The ozone standard is exceeded if the three year average of the 4<sup>th</sup> highest ozone reading is greater than 0.084 ppm (84 ppb). This value is also referred to as "design value." Both states based on the monitor readings from 2002 - 2004 and 2003 - 2005 requested the redesignation of their portion of the metropolitan area from nonattainment to attainment of Ozone NAAQS. The 2002 - 2004 and 2003 - 2005 design values were 78 ppb and 76 ppb respectively. The reductions are generally attributed to substantial reductions at point sources and reductions due to new diesel fuel standards and diesel engine rules. USEPA approved the redesignation request of both states. The Ohio and Marshall County ozone redesignation approval was published in the Federal Register Vol. 72, No. 93 on May 15, 2007 and is effective June 14, 2007. Belmont County's approval was published a day later, in Federal Register Vol. 72, No. 94 on May 16, 2007. Belmont County redesignation for ozone is effective June 15, 2007. The area is redesignated to attainment ahead of required ozone attainment year of 2009.

As part of the redesignation process, OEPA and WVDEP were required to submit a SIP revision including maintenance plan for their respective area. Both agencies were able to demonstrate that the area will continue to be in attainment of the 8-hour Ozone NAAQS for the next 12 years until 2018. In doing so, emission budgets were established in the maintenance plan and were found to be adequate by USEPA. As a maintenance area, it is Bel-O-Mar's responsibility to make a conformity determination based on established budgets for ozone precursors NO<sub>x</sub> and VOC.

In April, 2005 the area was designated nonattainment for the Particulate Matter (PM 2.5). PM 2.5 refers to the very fine particles (less than 2.5 microns in diameter), smaller than the human hair, that can lodge permanently in the lungs. The required date for PM 2.5 attainment is no later than the year 2010. For PM2.5, EPA has a 24-hour standard and annual standard. The three counties in the region are found to violate the annual standard only. The annual standard is exceeded if the

three year average of annual mean concentration of PM<sub>2.5</sub> is greater than 15 micrograms per cubic meter. The area can be redesignated as attainment prior to the required attainment year, if it can be demonstrated that the standards are met and will continue to be met for at least 10 years beyond the redesignation year.

Ozone conformity for the Long Range Transportation Plan and Transportation Improvement Program is required since June 15, 2005 and PM 2.5 conformity is required starting April 15, 2006. The most recent conformity determination for both pollutants was made in May 2007. The conforming long range plan has expired and Bel-O-Mar has prepared a new Long Range Transportation Plan for the year 2035. As per EPA's final rule 40 CFR Part 93 "Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant national ambient air quality standards." The metropolitan planning organization (MPO) is charged with the responsibility to demonstrate conformity. Thus, the MPO is making a conformity determination for the Long Range Plan for 2035.

As part of the maintenance plan for the area, budgets have been established for the ozone precursors VOC and NO<sub>x</sub>. USEPA as part of the redesignation process has issued an adequacy finding for the ozone budgets for the years 2009 and 2018. The established budgets will be used for ozone conformity determination. The PM 2.5 conformity will continue to be based on the baseline emissions for 2002 til PM 2.5 budgets are developed and found to be adequate.

### **Transportation Conformity Process**

The regulatory requirements that govern this process, require that a locally relevant conformity process be developed through interagency consultation. An initial interagency meeting was held on August 31, 2004 in Marietta, Ohio to establish a process for addressing ozone conformity. Another interagency meeting was held on August 31, 2005 in Parkersburg, West Virginia to address PM 2.5 conformity issues. The most recent interagency meeting was via a conference call on August 28, 2007. The purpose of this meeting was to revisit/reaffirm previously agreed upon conformity process for the new Long Range Plan for 2035. In this meeting, it was decided to add 2025 as the new analysis year and the horizon year was moved up from 2025 to 2035. The previously agreed upon conformity process was also reaffirmed. The Bel-O-Mar conformity process involves budget tests for ozone and baseline test for PM 2.5. The interagency consultations, conflict resolution, public participation and conformity procedures are described in a Memorandum of Understanding prepared by WVDEP and signed after review by all participating agencies.

The conformity determination will be done separately for Belmont County, Ohio and Ohio and Marshall Counties in West Virginia. The ozone conformity will be based on estimated plan emissions being less than the established budgets. The PM 2.5 conformity will be based on the estimated emissions being less than the 2002 baseline emissions.

In developing emissions a Travel Demand Model<sup>1</sup> (TDM) and Mobile 6.2 software is used. The TDM inputs the 2002 roadway network and landuse data. All roadways classified collectors and up are included in this network. The TDM outputs vehicle miles of travel (VMT). The VMT

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<sup>1</sup>The TDM is developed, validated and maintained by ODOT with MPO input and assistance.

and latest available Mobile 6.2 emission factors for Ozone precursors and ODOT developed factor for PM<sub>2.5</sub> were used to generate emissions. For the base year TDM, all latest available data or extrapolation from the most recent data was utilized. For ozone, a typical summer day was used for generating daily emissions. For PM<sub>2.5</sub> the two season approach as per EPA guidance was used. This approach was selected during the interagency consultation meeting. The annualized emissions are representative of winter and summer conditions. An average summer day emissions are multiplied by 183 and an average winter day emissions are multiplied by 182. The winter and summer emissions are then added to give annual emissions. As per the interagency decision, the PM<sub>2.5</sub> precursors included are direct PM<sub>2.5</sub> (exhaust, brakes and tire wear) and NO<sub>x</sub>. The horizon year of the new long range plan is 2035. To meet regulatory requirements, three additional benchmark years are selected. They are 2009, 2018, and 2025. Even though PM<sub>2.5</sub> attainment year is 2010, the benchmark years are the same for both pollutants. For ozone, the years 2009 and 2018 represent budget years and for PM<sub>2.5</sub> they are analysis years. In forecasting demographic and landuse variables for the benchmark years and LRP horizon year, the latest planning assumptions and available data were used.

### **Latest Planning Assumptions**

The latest available base year data for TAZs is still the block level data from the 2000 decennial census Summary File1 (SF1). Population and households at block level are aggregated for TAZs. Benchmarked to this data is the geocoded employment data (ES202) and vehicle registration data. The base year 2002 remains the same and will change after the 2010 census. The 2000 TAZ data was interpolated to meet the 2002 base year requirement for the Clean Air Act. The TDM was validated using this socio-economic data. The 2035 projections were prepared from Woods and Poole Economics projections in the “2005 Data Pamphlets.”

### **Land Use Data**

Travel analysis zones (269 in the 3-county area) and external roadway “stations” (31) are the basic geographic units for estimating travel patterns. Socioeconomic data used to forecast future travel patterns include population, households, school enrollment, vehicle registrations, and employment by category and location. Sources for year 2000 data include the 2000 Census (primarily SF1 block data), state vehicle registration files, and ES202 employment data. All data sources were geocoded and aggregated to the zone level. Future year data for each variable were projected through various methods. More detailed explanation of base year and future year data generation follows.

Base Year Data: The base year household and population data is derived from the 2000 Census of Population and Housing. Utilizing GIS software (TransCad), base year population data at the zonal level for 2000 was derived from allocation of block level population to zones. ES202 (unemployment coverage) data for 2000 adjusted to U.S. BEA county control totals was utilized as the primary tool to calculate employment at the zonal level. Individual business records containing physical location, number of employees and SIC code were geocoded and aggregated to the TAZ level. Each zone’s employment was divided according to SIC code, area type, and degree of agglomeration into thirteen classes based upon trip generation characteristics.

Horizon Year Data: Projections from Woods and Poole Economics (W & P) were purchased by Bel-O-Mar. These projections among other variables include population, households and employment. The projections are at county level and for the year 2030. The 2035 projections were developed from the 2030 projections by interpolation (employment) and assuming no change (population) for the last five years. These projections were compared to other available projections. All projections show a slow decline in population. Previously, population numbers similar to the 2000 Census numbers were used for the 2025 plan. In light of recent available projections, the 2035 population is revised to reflect a 4% decrease over 35 years. The proportion of persons sixty-five years and older will continue to increase. At the same time, the person per household rate will continue to decline. It is expected that the proportion of younger persons (5 - 15 yrs.) will also increase with the increase in economic activity. Regionwide, the employment is projected to grow at a rate of approximately 1% per year. This is the local share of nationwide growth. Woods and Poole's projection at the county level is disaggregated from a national level of employment projection. The national projection is developed using an export base approach. Regional differences are considered before county level employment is disaggregated. The number of households and vehicle registration are based on historical persons per household and vehicles per household rates. These projections will be revisited after the 2010 Census.

The countywide projection totals were disaggregated for TAZ level data. A survey of local elected and appointed officials and economic development agencies in the region was conducted to determine areas of future growth and known loss of jobs and housing. The previous (2025) TAZ data was revised to include survey results. The remaining difference between 2035 county totals and revised 2025 TAZ totals was assigned to TAZs based on developmental potential of each TAZ, planned and committed developments and local knowledge. In assigning growth in TAZs, it was assumed that new sites with developed infrastructure or in close proximity to one, will have a larger share of future growth. Given the topography of the region, it is assumed generally that new economic development will mostly occur in one east-west corridor (I-70/US40) and one north-south corridor (Ohio Route 7 and US250/WV Route 2 along the Ohio River). In Belmont County, however, additional development is expected along SR331 and in areas surrounding the urban core. Due to a scarcity of developable land in Ohio County, development will occur on sites that are generally flat and can be adequately serviced. In addition, over time, generally flat land in the valley will selectively go through planned landuse changes to optimize economic development.

### **Transit Use and Modal Split**

Transit trips are significantly low in relation to the auto trips for the area. On an average, there are less than 2,500 transit trips/day. Therefore, it was mutually agreed upon by the participating agencies not to use modal split in the modeling process.

### **Travel Modeling**

The five digital roadway networks specifically developed for use in the conformity process represent the base year (2002), initial attainment year (2009) condition, interim years (2018 and 2025) and the Regional Transportation Plan horizon year (2035). All projects identified in the Plan having an impact on travel time and/or vehicle carrying capacity regardless of funding source were

included in the air quality analysis. Table I shows which Plan projects are included in which time periods. Trip generation figures by zone, with some exceptions, were assumed to change linearly with time between 2000 and 2035. One of the exceptions is The Highlands development, which is projected to be fully built by 2009.

Transportation system performance was estimated using the Bel-O-Mar travel demand model utilizing the QRSII software program and developed for Bel-O-Mar by Ohio DOT staff. It uses an iterative sequential modeling approach of trip generation, distribution, and assignment. The model uses demographic/land use data and roadway performance characteristics to produce forecasted traffic volumes and travel times by road segment.

The Bel-O-Mar travel model network covers the entire 3-county metro area boundary and has been validated to observed traffic volumes for the model base year 2000, based on counts from 397 geocoded traffic count stations maintained by the Ohio and West Virginia Departments of Transportation. In a report titled “Bel-O-Mar Region Air Quality Conformity Analysis - Technical Memo” dated September, 2007 prepared by ODOT’s Modeling and Forecasting Section, further detail on Travel Demand inputs and outputs is provided. This report is included as Attachment B.

The applicable digital networks were then converted to shape files for post-processing of model data, which involve overlaying or calculation of added data fields for use in the ODOT emissions model described below along with needed file format conversions.

### **Emissions Factor Model**

ODOT staff utilizes USEPA’s emissions model MOBILE6.2 to develop emission factors for applicable years for both direct PM2.5, VOCs and NOx. ODOT developed emissions factors were used for particulate matter. The MOBILE6.2 input file contains local parameters, developed through consultation with OEPA, for temperature, humidity, vehicle inspection and maintenance programs, and fuel characteristics. These and other factors are documented in the ODOT report included as Attachment B.

### **Public Involvement**

A conformity determination for the Transportation Plan for 2035 for Ozone and PM2.5 was made. The Transportation Plan and Air Quality Analysis and Conformity Determination document were made available for public comments as per Bel-O-Mar’s Participation Plan. The comment period ran from November 28, 2007 through December 13, 2007. Both documents were posted on the agency’s website, placed in five local libraries and made available in an open house held at Bel-O-Mar’s office on December 6, 2007. Public notices announcing the comment opportunity and availability of documents for review were placed in major newspapers in the region. The Times Leader, The Intelligencer and Wheeling News Register printed public notices on November 19, 2007 and November 26, 2007. A copy of the public notice is included as Attachment C.

Only one comment was received from a New Jersey resident, whose property in Ohio County is affected by the new interchange on I-70. His comment states, “increasing the capacity of

the highway would increase the concentration of Ozone, particulate matter and other pollutants along I-70. This would be a particular problem in the study area which is a non-attainment area for particulate matter and a maintenance area for Ozone.” The comment was considered and has been addressed. The I-70 upgrade project, as well as the new interchange project in Ohio County, have been analyzed. The emissions analysis including these projects does not support the commentor’s argument as the Transportation Plan for 2035 meets the conformity tests for both pollutants.

Both documents, the Transportation Plan for 2035 and the Air Quality Analysis and Conformity Determination, were adopted on December 19, 2007.

**TABLE 1**

<b>HIGHWAY PROJECT RECOMMENDATIONS</b>	
Belmont County	
<b>Year</b>	<b>Description</b>
26-35	Upgrade I-70 to six lanes from Mall Rd. to SR9
09-18	Upgrade Modify Mall Rd. Interchange to improve access to I-70
09-18	I70/SR331 interchange modification
02-09	SR149 Relocation through Bellaire
09-18	Install signals at SR149 and US40 intersection
09-18	I-70 WB off Ramp at SR149 interchange, install signals and mark right and left turn lanes

<b>HIGHWAY PROJECT RECOMMENDATIONS</b>	
Ohio County	
<b>Year</b>	<b>Description</b>
18-25	Upgrade I-70 to six lanes from Elm Grove Interchange to Cabela Dr.
09-18	Construct a new interchange on I-70 between Elm Grove and Cabela Drive interchanges
09-18	Install signals at intersection of I-70 EB on/off Ramps with US40 east of Kruger St.
09-18	Add a right turn lane on Kruger St. approach at intersection with US40

**TABLE I (Cont'd.)**

<b>HIGHWAY PROJECT RECOMMENDATIONS</b>	
Marshall County	
<b>Year</b>	<b>Description</b>
09 - 18	WV2 upgrade to 4 lanes from south of CR29 (MP 6.46) to south of CR27 (MP 7.41)
09 - 18	WV2 upgrade to 4 lanes from 0.95 mile south of CR 2/8 (MP 12.25) to 0.38 miles north of CR74 (MP 13.46)
09 - 18	WV2 upgrade to 4 lanes from south of CR78 (MP 4.50) to south of CR29 (MP 6.46)
25 - 35	WV2 upgrade to 4 lanes from 1.1 mile north of CR2/2 (MP 1.92) to 0.18 mile south of CR78 (MP 4.50)
09-18	Replace CR5 one lane bridge over Big Wheeling Creek south of CR21 with two lane bridge
09-18	US250 and Jefferson St. (CR250/88) intersection radii improvements
09-18	Replace Shephard Bridge on CR74 (MP 16.8)
09-18	Replace Rude Bridge on CR5 (MP 3.98)

## Transportation Conformity Test

The ozone conformity tests are based on the data in Table II. In this table, the 2009 and 2018 budgets are USEPA approved budgets and emissions are estimated using a Travel Demand Model, maintained and run by ODOT. The table is reproduced here from the report “Bel-O-Mar Region Air Quality Conformity Analysis - Technical Memo” prepared by ODOT. This report is included as Attachment B.

TABLE II

<b>Ozone</b>							
	<b>Tons/Day</b>						
<b>Belmont Co.</b>	2002 Baseline	2009 Budget	2009 Emissions	2018 Budget	2018 Emissions	2025 Emissions	2035 Emissions
VOC		2.60	2.22	1.52	1.36	1.09	1.09
NOx		4.69	4.01	1.91	1.71	1.19	1.01
<b>MAR &amp; OHI Cos.</b>	2002 Baseline	2009 Budget	2009 Emissions	2018 Budget	2018 Emissions	2025 Emissions	2035 Emissions
VOC	3.36	2.5	2.09	1.4	1.33	1.08	1.02
NOx	5.45	4.3	3.59	1.7	1.59	1.12	0.90

The PM 2.5 emissions are shown in Table III. This table is imported from the ODOT report included as Attachment B. Unlike ozone conformity tests, the PM 2.5 tests will be based on the baseline emissions. No budgets for the PM 2.5 precursors are developed at present. Therefore, an interim emissions test will be used.

TABLE III

<b>PM<sub>2.5</sub></b>					
	<b>Tons/Year</b>				
<b>Belmont Co.</b>	2002 Baseline	2009 Emissions	2018 Emissions	2025 Emissions	2035 Emissions
Direct PM	42.1	22.9	13.2	12.5	12.1
NOx Precursor	2587.9	1420.7	608.4	417.0	353.2
<b>MAR &amp; OHI Cos.</b>	2002 Baseline	2009 Emissions	2018 Emissions	2025 Emissions	2035 Emissions
Direct PM	32.0	20.6	12.4	11.9	10.7
NOx Precursor	1917.4	1271.1	563.5	393.4	312.5
<b>Area Totals</b>	2002 Baseline	2009 Emissions	2018 Emissions	2025 Emissions	2035 Emissions
Direct PM	74.1	43.5	25.5	24.4	22.9
NOx Precursor	4505.3	2691.8	1171.9	810.3	665.7

## Conformity Determination

A fiscally constrained 2035 Transportation Plan is prepared by the Bel-O-Mar Regional Council in accordance with the provisions of SAFETEA-LU. The financial constraint determination is made by Bel-O-Mar based on the project cost estimates and future revenue stream estimates provided by ODOT and WVDOT. All plan projects by anticipated year of completion were included in the emissions analysis.

Since the area has been redesignated as attainment/maintenance for ozone by USEPA and separate ozone budgets for the Ohio and West Virginia side have been established, the ozone conformity test is based on approved budgets. Conformity determination is made separately for Belmont County, Ohio and Ohio and Marshall Counties, West Virginia.

As per Table II for ozone in Belmont County, the VOC and NO<sub>x</sub> emissions for each budget year are less than the budget for that year. Also the emissions for the interim year 2025 and the horizon year (2035) are less than the budget for 2018. Therefore, the conformity test for ozone is met for Belmont County, Ohio. Similarly, in Ohio and Marshall Counties the emissions are less than the respective budget year and 2025 and 2035 emissions are less than the 2018 budget. Therefore, the conformity test for ozone is met for Ohio and Marshall Counties in West Virginia.

The PM 2.5 emissions are shown in Table III. The interim emissions test, of future year emissions no greater than the base year (2002), still applies as budgets have not been developed. The areawide total emissions for each analysis year are less than the base year (2002) emissions. The horizon year emissions are also less than the base year emissions. Therefore, the PM 2.5 conformity test is met. The areawide emissions are also disaggregated by Ohio and West Virginia portions in Table III. The disaggregated totals for Belmont County, Ohio and Marshall and Ohio Counties, West Virginia also demonstrate conformity.

Since the conformity for both criteria pollutants ozone and PM 2.5 is determined, the 2035 Transportation Plan is in conformity with the requirements of the CAAA, Ohio SIP and West Virginia SIP.

Transportation Improvement Program (TIP) for 2008-2011 includes projects derived from the conforming plan. Only the analyzed plan projects and plan consistent exempt projects are included in this TIP. Therefore, the TIP for 2008-2011 is in conformity with the requirement of the CAAA, Ohio SIP and West Virginia SIP.

The TIP is financially constrained and this determination is made by Bel-O-Mar in cooperation with the WVDOT and ODOT.

**ATTACHMENT A**

**Interagency Consultation Documents**

## Interagency Consultation Conference Call Minutes August 28, 2007

### Participants:

Robert Muransky, BELOMAR  
Rakesh Sharma, BELOMAR  
Pat Morris, USEPA Region 5  
Martin Kotsch, USEPA Region 3  
Jeff Blanton, FHWA – WVA  
Sam Granato, ODOT  
Fred Durham, WVDEP  
Sam McDonald, OEPA

Richard Warner, WVDOT  
Robert Watson, WVDOT  
Perry Keller, WVDOT  
Mark White, WVDOT  
Don Bailey, WVDOT  
Dave Moore, ODOT  
Sharon Bennett, ODOT  
Frank Burkett, FHWA - OH

An interagency consultation meeting was held on August 28th, 2007 via a conference call. The meeting was requested by Belomar Regional Council to seek consensus on the change of analysis year and revisiting/reaffirming the previously agreed upon transportation conformity procedures for the new Long Range Plan for 2035.

Participants agreed to change the 2025 as the analysis year (previously 2025 was the horizon year) and the addition of 2035 as the horizon year. Previously agreed upon conformity process was reaffirmed.

In light of the tight time schedule for the adoption of long range plan, Belomar inquired if an accelerated review was feasible. Mr Kotsch informed that such a review has happened in the past and it depended on when the draft document will be available for review. Mr. Durham noticed a typo in the preliminary emissions table that was previously emailed to the participants. He also inquired about variation in emissions in comparison to other tables provided to him for initial review and comments. Mr. Granato provided possible reasons for the variations.

In another matter, WVDOT wanted to know if a new conformity analysis will be needed for a TIP amendment to move back a WV2 section upgrade from 2 lanes to 4 lanes. The project amendment transcends the analysis years. There was discussion on what was the assumption on selecting the current analysis year for the project. Mr. Kotsch informed the group that the analysis year should be the year when the project is anticipated to be fully operational and open for service. It was agreed that the change would trigger a new conformity. However, due to a new conformity for the 2035 LRP to be adopted by 11/15 no separate conformity was suggested at this time.

Mr. Moore suggested that the AQ document should state that the information was made available during the public comment period.

Issues pertaining to WVDOT STIP submission and the status of LRPs of two WV MPOs was also discussed.

**West Virginia / Ohio Bi-state MPOs PM<sub>2.5</sub> Transportation Conformity Interagency  
Consultation Meeting Minutes  
August 31, 2005**

Participants:

Fred Rader, WWW  
Steve Folk, WVDOT  
Donald Bailey, WVDOT Planning  
Dave Moore, ODOT Planning  
Jeff Blanton, FHWA – West Virginia  
Nino Brunello, ODOT Technical Services  
Fred Durham, WVDEP, DAQ  
Kevin Burgess, FHWA – West Virginia  
Jack Pascoli, WVDOT  
Sam Granato, ODOT Technical Services  
Sreevaka Nipponi, WWW

Tom Myers, WVDOT Traffic  
John Wiseman, WVDOT Planning  
Vincent Post, WWW  
Bob Muransky, Bel-O-Mar  
Rakesh Sharma, Bel-O-Mar  
Frank Burkett, FHWA – Ohio  
Tashia Clemons, FHWA – Ohio  
Mike Paprocki , BHJ  
Larry Budney, USEPA Region 3  
Pat Morris, USEPA Region 5

Mr. Fred Duram, WV DEP, welcomed the participants to this interagency consultation meeting/conference call. He explained that the purpose of this meeting was to establish the parameters by which PM<sub>2.5</sub> transportation conformity will be established for the Ohio/West Virginia bi-state MPOs. The affected MPOs cover the Steubenville/Weirton (BHJ), Wheeling/Bridgeport (Bel-O-Mar), and Parkersburg/Belpre (WWW) urbanized areas/PM<sub>2.5</sub> Nonattainment areas.

The first order of business was to clarify that the conformity determinations for each of these areas will be based on the no greater than ( $\leq$ ) 2002 baseline interim conformity tests.

The next topic of discussion was to define the methodology for establishing the PM<sub>2.5</sub> annual inventories for use in the MPOs' conformity processes. Following discussion of the merits of the single, 2 season, or monthly approaches for establishing the inventories, the group consensus was to develop the inventories using the 2 season approach. Separate summer and winter season input files will be developed to generate the annual inventories. VMT estimates for the seasonal runs will be factored based on ODOT and WVDOT supplied/developed seasonal traffic count factors. Temperature and humidity inputs for the summer runs will be consistent with those used for the Ozone analyses prepared for the June 15, 2005 conformity findings. ODOT and WV DEP will coordinate on establishing season temperature/humidity inputs for the winter run. Because there is no current US EPA guidance on developing winter inputs, the consensus of the group was that documentation will be developed describing the methodology and resulting data for establishing the winter inputs. This documentation will be submitted for review by the Bi-state interagency consultation partners.

Additional discussion confirmed that annual emission inventories will be developed for direct PM<sub>2.5</sub> and NO<sub>x</sub> pre-cursors. US EPA representatives confirmed that no additional pollutant or pre-cursors need to be addressed.

Establishing the analysis years for the bi-state MPOs' PM<sub>2.5</sub> conformity determinations was discussed next. All parties agreed that using consistent methodology for each of the analysis scenarios is key to preparing valid conformity determination findings. The group's decision was to use the same analysis years as were used for the June 15, 2005 8-hour Ozone conformity determinations. The advantage to this approach is that the travel demand networks are all currently in place. The specific years by MPO are:

#### BHJ

- 2002 baseline
- 2009 interim year
- 2015 interim year
- 2025 T-Plan horizon year

#### Bel-O-Mar

- 2002 baseline
- 2009 interim year
- 2019 interim year
- 2025 T-Plan horizon year

Note, Bel-O-Mar's April 5, 2006 conformity determination will include a T-Plan amendment. The Plan will be amended to include the project design concept and scope decisions from recently completed regional planning studies. The Plan amendment includes nonexempt projects. As a result, the Bel-O-Mar April 5, 2006 conformity determination will address both PM<sub>2.5</sub> and 8-hour Ozone.

#### WWW

- 2002 baseline
- 2009 interim year
- 2015 interim year
- 2025 T-Plan horizon year

Discussion continued regarding latest planning assumptions. The group agreed that the planning assumptions and associated documentation prepared for the June 15, 2005 8-hour Ozone conformity determinations is still current and reflect the "planning assumptions of record" for each of these MPO areas. The group further agreed that the conformity documentation for the April 5, 2006 should record/summarize use of these planning assumptions. Note, the planning assumptions developed in association with the Bel-O-Mar T-Plan amendment include minor land use and socio-economic data to the travel demand model independent variables. Bel-O-Mar's conformity documentation will include discussion regarding its updated planning assumptions. Although this issue was not specifically addressed during these interagency consultation discussions, development of the PM<sub>2.5</sub> baseline and inventory emissions will obviously be generated from US EPA's MOBILE6.2 software.

The next discussion issue concerned roles and responsibilities. The group determined that the conformity process would proceed as follows:

- ODOT will prepare emissions inventories for BHJ and Bel-O-Mar. Baseline and analysis year VMT data will be from the respective MPO models
- WWW will prepare emissions inventories for its nonattainment area geography WWW will also confirm that the donut area portion of its nonattainment area (and associated area VMT) is included in the WWW travel demand model geography
- The MPOs will prepared/compile the conformity documentation for their areas
- The MPOs will conduct PM<sub>2.5</sub> transportation conformity public involvement processes
- Consistent with approach used for the 8-hour ozone determinations, the lead state federal review agencies will coordinate the review and approval processes for the respective MPOs' conformity determinations.

Discussion next reviewed schedules for accomplishing the PM<sub>2.5</sub> conformity process. A generalized schedule is as follows:

- September-October 2005 - Interagency consultation
- October-November 2005 - Emission inventory modeling runs and associated methodology documentation
- November-December 2005 – MPOs prepare/compile complete PM<sub>2.5</sub> conformity process documentation
- January 2006 – MPO Public involvement effort / concurrent submission of draft conformity documentation to federal review agencies
- February 2006 - MPO Board T-Plan/2006-2009 TIP conformity determination resolutions
- March 1, 2006 - Conformity documentation/MPO Board resolution submission to ODOT and WVDOT
- April 5, 2006 - US DOT conformity determination

The final discussion topic concerned establishing conformity process MOUs among the Bi-state conformity partners. A sample document, prepared by the WV DEP was distributed for review. It was noted that OEPA was inadvertently not included in the not included in the draft document. Discussion confirmed that MOUs for each of the Bi-state nonattainment areas/MPOs were merited pending future SIP development guidance from US EPA.

Note, to assure all interagency consultation partners are included in Bi-state conformity decision making process, a copy of these minutes is being send to Bill Spires, OEPA.

Ohio/West Virginia 8-hour ozone nonattainment areas' transportation conformity interagency consultation.

This paper will record the results of an August 31, 2004 interagency consultation meeting to establish the parameters for the initial 8-hour ozone nonattainment transportation conformity determinations for the Parkersburg-Marietta, Steubenville-Weirton, and Wheeling 8-hour conformity determinations. Three bi-state (Ohio/West Virginia) MPOs, WWW, BHJ, and Bel-O-Mar cover the respective nonattainment areas. Conformity determinations are due by June 15, 2005.

The meeting participants included representatives from W. Va. DOT, US EPA, FHWA, the MPOs, OEPA and W. Va. DEP, ODOT (see attached sign in list).

The meeting kicked off with a discussion of the appropriate data source for the  $\leq$  2002 base line emissions for use in the  $\leq$  2002 interim tests (93 CFR 119). Mr. Fred Durham, W. Va. DEP, questioned whether the National Emissions Inventory (NEI) 2002 emissions inventory data was the best available data for the  $\leq$  2002 interim 8-hour conformity tests. Mr. Durham suggested that the urban transportation demand models, maintained by the MPOs, provided a better data set for establishing 2002 base line emissions. The MPO models and associated emissions calculations reflect current land use, vehicle fleet, and travel patterns and speeds, and accordingly reflect more recent planning assumptions than does the NEI data. The meeting participants generally agreed with this perspective. Discussion continued regarding the potential for approving model derived 2002 base line emissions through this interagency consultation process and using these emissions in the 8-hour interim conformity tests. US EPA representatives indicated approval with this approach. We request written US EPA confirmation that the 2002 base line emissions for the upcoming 8-hour conformity tests for the Parkersburg-Marietta, Steubenville-Weirton, and Wheeling nonattainment areas can established using VMT data from the respective MPOs' travel demand models. In subsequent discussions among ODOT and OEPA staff engaged in subsequent discussion on this matter. OEPA confirmed that the current Ohio "1<sup>st</sup> draft" 2002 NEI inventory is based on HPMS data and MOBILE6 defaults. This 1<sup>st</sup> draft NEI 2002 inventory will soon be reviewed and updated with more state specific data. OEPA staff agreed with W. Va. DEP and ODOT that the VMT inputs derived from each of the MPO travel demand models will be acceptable for establishing 2002 inventories for these initial 8-hour conformity analyses. This approach will facilitate use of the same VMT data base source for generating 2002 base line emissions and the conformity test scenario emissions burdens.

The next discussion topic focused on defining/establishing the conformity tests and scenario years for each three MPO areas. The resulting decisions are recorded on the attached files. See below:  
< Pburg 8 hour conformity sum.doc>  
< Steub 8 hour conformity sum.doc>  
< Wheeling 8 hour conformity sum.doc>

Discussion next focused on agency responsibilities for completing the conformity analysis emissions data and documentation. ODOT agreed to prepare and document the process for establishing 2002 base line and conformity test scenario emissions for the Steubenville and Wheeling air quality areas. WWW staff will produce and document the process for establishing the base line emissions for the Parkersburg area. ODOT staff is available to assist WWW staff as needed. The MPOs will be responsible for compiling documentation recording the conformity analysis process and results

for their respective nonattainment areas. This documentation will address latest planning assumptions, latest emissions modeling, interagency consultation, status of 1-hour SIP TCM implementation, conformity public involvement process, and conformity test results, and an MPO Board Transportation Plan and 2004-2007 TIP conformity determination resolution.

ODOT will be the “lead” for the Steubenville air quality area. The BHJ will submit all transportation conformity documentation to the ODOT for further coordination with USEPA Region V. The Region V office will then coordinate with Region III for final review. WVDOT will accept all documentation from the Wheeling and Parkersburg MPOs. The WVDOT will then submit the documentation to the USEPA Region III and coordinate all review activities with USEPA Region V. The MPOs need to submit all transportation conformity material to their respective “lead” by no later than April 15, 2005.

Discussion continued regarding the appropriate MPO public involvement actions for the 8-hour conformity determinations. US EPA staff stated that the MPOs are to follow the approved Agency public involvement processes.

## A2 CONFORMITY MEETING

August 31, 2004  
(WV/A2 Bi-State MPOs)

<u>Name</u>	<u>Agency</u>
1. Dave Moore	ODOT, Central Office
2. Nino Brunello	ODOT, Central Office
3. Sam Granato	ODOT, Central Office
4. Fred Durham	WV DEP-DAQ
5. Don Bailoy	WVDOH Planning
6. Jack Pascoli	WVDOH Planning
7. Fred Rader	WWW
8. Debra Fought	ODOT D10, Marietta
9. Wes Clarke	ODOT D10, Marietta
10. Steve Marshall	ODOT D10, Marietta
11. Rakesh Sharma	Belomar
12. Shawn Price	BHJ
13. Mike Paprocki	BHJ
14. Randy Durst	WWW
15. Jeff Blanton	FHWA- WV Division
16. Dick Warner	WV DOT Planning
17. John Wiseman	WV DOT Planning
18. Pat Morris (teleconference)	USEPA
19. Bill Spires (teleconference)	OEPA
20. Larry Budney (teleconference)	USEPA

Subject: Re: Fw: Wheeling 8-Hour Ozone Conformity  
Date: Tue, 01 Feb 2005 12:33:03 -0600  
From: Morris.Patricia@epamail.epa.gov  
To: Dave Moore <[Dave.Moore1@dot.state.oh.us](mailto:Dave.Moore1@dot.state.oh.us)>  
CC: fdurham@wvdep.org, rsharma@belomar.org, Sam Granato  
<[Sam.Granato@dot.state.oh.us](mailto:Sam.Granato@dot.state.oh.us)>

Dave,

I have finished reviewing the documentation for the Wheeling area and everything looks fine.

I took me a while because I wanted to review the M6.2 inputs. Thanks for the opportunity to review this. Everyone on your staff has been very helpful in answering my questions.

Pat

Dave Moore  
<[Dave.Moore1@dot.state.oh.us](mailto:Dave.Moore1@dot.state.oh.us)>

01/24/2005 12:08  
PM

To  
To  
Patricia Morris/R5/USEPA/US@EPA,  
[fdurham@wvdep.org](mailto:fdurham@wvdep.org)  
cc  
[rsharma@belomar.org](mailto:rsharma@belomar.org), Sam Granato  
<[Sam.Granato@dot.state.oh.us](mailto:Sam.Granato@dot.state.oh.us)>  
[rsharma@belomar.org](mailto:rsharma@belomar.org), Sam Granato  
<[Sam.Granato@dot.state.oh.us](mailto:Sam.Granato@dot.state.oh.us)>  
bcc



Subject: Fw: EPA responsibilities for Steubenville and Wheeling areas  
Date: Mon, 14 Mar 2005 09:04:40 -0500  
From: Dave Moore <Dave.Moore1@dot.state.oh.us>  
To: frank.burkett@fhwa.dot.gov  
CC: mikepap@bhjmpc.org, rsharma@belomar.org, jeffrey.blanton@fhwa.dot.gov,  
herman.rodrigo@fhwa.dot.gov, rwarner@mail.dot.state.wv.us

Frank,

FYI, see below. Please coordinate with your counter parts in W. Va. toward June 15, 2005 conformity determinations for the Wheeling and Steubenville areas. Both MPOs have submitted draft conformity documentation. Please advise if there are any outstanding issues that need addressed prior to the MPOs formal submission of the 8-Hour Ozone conformity documentation and MPO Transportation Plan and TIP conformity determination resolutions.

Thanks  
DM

----- Forwarded by Dave Moore/UrbPlanning/CEN/ODOT on 03/14/2005 08:57 AM

Morris.Patricia@epamail.epa.gov  
03/11/2005 09:53 AM

To  
Dave.Moore1@dot.state.oh.us, bill.spires@epa.state.oh.us  
cc

Subject Fw: EPA responsibilities for Steubenville and Wheeling areas

Dave and Bill,

Region 3 and 5 USEPA have had discussions about the areas of shared responsibility. Here is the conclusion about the division of responsibility.

Pat

----- Forwarded by Patricia Morris/R5/USEPA/US on 03/10/2005 01:34 PM

Larry  
Budney/R3/USEPA/US

03/10/2005 01:30 PM

To: Patricia Morris/R5/USEPA/US@EPA  
cc  
Martin Kotsch/R3/USEPA/US@EPA,  
Carol Febbo/R3/USEPA/US@EPA,  
fdurham@wvdep.org,  
jpascoli@dot.state.wv.us,  
jeffrey.blanton@fhwa.dot.gov  
Martin Kotsch/R3/USEPA/US@EPA,  
Carol Febbo/R3/USEPA/US@EPA,  
fdurham@wvdep.org,  
jpascoli@dot.state.wv.us,  
jeffrey.blanton@fhwa.dot.gov

Subject

EPA responsibilities for  
Steubenville and Wheeling areas

Hello, Pat,

This documents the outcome of our discussion on March 1 (following WV's inquiry about this) and a discussion I had today with Jeff Blanton of the WV division office of FHWA. WV was asking which EPA region will represent EPA (for 8-hour ozone conformity) for the Wheeling area (Belmont Co., OH and Ohio and Marshall Counties in WV) and for the Weirton-Steubenville area (Brooke and Hancock Counties in WV and Jefferson County, OH).

Regarding the Wheeling area, WV had pointed out that the MPO (BEL-O-MAR) is in WV and the WV division office of FHWA has traditionally had the FHWA lead for that area (and will continue in that role as confirmed by Jeff Blanton in the phone discussion today). As I understand it, you and I agree that EPA Region 3 should represent EPA for 8-hour ozone conformity determinations for that entire 8-hour area, including taking over EPA's responsibilities from here on for the on-going 8-hour efforts for the initial conformity determination for that area. Thank you, Pat, for your involvement up to this point regarding those on-going efforts.

Regarding the Weirton-Steubenville area, since the MPO (BHJ) is located in Ohio and the Ohio division office of FHWA has had the FHWA lead for that area (and will continue in that role as confirmed by Jeff Blanton today), we agreed that your EPA Region 5 office would represent EPA in that 3-county area.

I'm not aware of the people you coordinate with regarding conformity in Ohio, so (if you're OK with what I stated above) would you please forward this to your contacts for their information?

Thanks,

Larry

**ATTACHMENT B**

**Bel-O-Mar Region Air Quality Conformity Analysis -  
Technical Memo**

# Belomar Region Air Quality Conformity Analysis - Technical Memo

## Ohio DOT, Modeling & Forecasting Section September 2007

Wheeling Area Air Quality Analysis

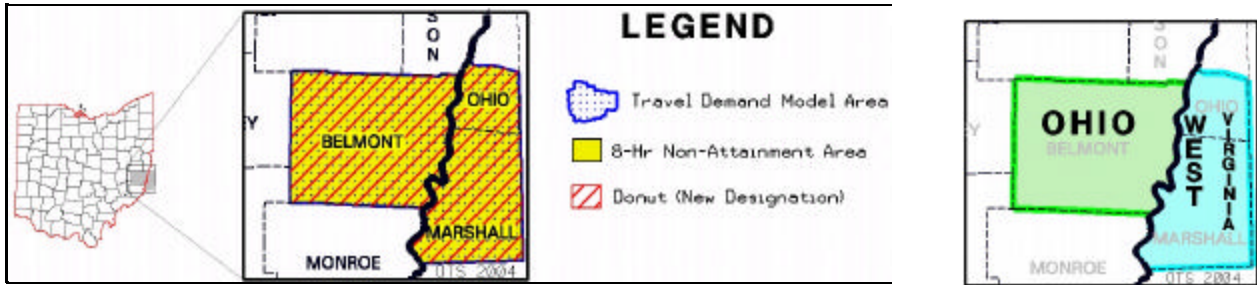
States of Ohio and West Virginia

### A. Eight-hour (summer) Ozone

Emission factors were generated using EPA’s MOBILE6.2 software. Wheeling area travel demand model run volumes were obtained using the QRS II travel demand model software. Travel demand model area coverage matches the nonattainment area as shown in Figure 1. The emission factors were combined with the model volumes using ODOT’s standard congestion management/air quality (CMAQ) process (see <http://www.dot.state.oh.us/urban/Download/cmaqrl.doc>) to compute total emissions for a typical summer day.

Table 2.1 shows the county total daily HC and NOX emissions estimates for all three counties for years 2009, 2018, 2025, and 2035. Table 2.2 shows the regional total emissions. The comparison to regionwide budget figures is shown below in Table 1.

Figure 1 – Nonattainment Area Analyzed



<b>Table 1 – Ozone budget and emissions summary</b>							
<b>Belmont Co.</b>	<b>Tons/Day</b>						
	2002 Baseline	2009 Budget	2009 Emissions	2018 Budget	2018 Emissions	2025 Emissions	2035 Emissions
VOC		2.60	2.22	1.52	1.36	1.09	1.09
NOx		4.69	4.01	1.91	1.71	1.19	1.01
<b>MAR &amp; OHI Cos.</b>							
2002 Baseline	2009 Budget	2009 Emissions	2018 Budget	2018 Emissions	2025 Emissions	2035 Emissions	
VOC	3.36	2.54	2.09	1.43	1.33	1.08	1.02
NOx	5.45	4.30	3.59	1.69	1.59	1.12	0.90

**Table 2.1 – HC and NOX Summer Emissions by County**

Year	Belmont County OH		Marshall County WV		Ohio County WV		WV Total	
	HC	NOX	HC	NOX	HC	NOX	HC	NOX
2009	2.22	4.01	0.61	0.84	1.48	2.75	2.09	3.59
2018	1.36	1.71	0.37	0.37	0.96	1.22	1.33	1.59
2025	1.09	1.19	0.30	0.27	0.78	0.85	1.08	1.12
2035	1.09	1.01	0.30	0.23	0.72	0.67	1.02	0.90

Note: Emissions are expressed in tons

**Table 2.2 Three-County Region Total Emissions**

Year	HC	NOX
2009	4.31	7.60
2018	2.69	3.30
2025	2.17	2.31
2035	2.11	1.91

Note: Emissions are expressed in tons

### **Travel Demand Model Runs**

For this analysis the latest planning assumptions available for the Wheeling metro area were used. West Virginia DOT has standardized on QRSII as the travel demand model package and since West Virginia is the lead state for administering the Wheeling MPO area work program, Wheeling’s travel demand model is a QRSII model. Ohio DOT assisted the MPO by building and validating the travel demand model. The model was validated in 2003 following DOT standards. Validation information may be obtained through the Wheeling MPO upon request.

Transportation system performance was estimated using the metro area travel demand model utilizing the QRSII software program which uses an iterative sequential modeling approach of trip generation, distribution, and assignment to the digital network (more fully described at <http://my.execpc.com/~ajh/> ). The model uses demographic/land use data and roadway performance characteristics to produce forecasted traffic volumes and travel times by road segment. The applicable digital networks are then converted to shape files for post-processing of model data, which involve overlaying or calculation of added data fields for use in the Ohio DOT’s emissions model program described below along with needed file format conversions.

### **Networks**

The travel model network covers the entire three-county metro area boundary and has been validated to observed traffic volumes for the modeling base year of 2000. The Long Range Plan project listings were used to create digital networks for the Years 2009, 2018, 2025 and 2035. This includes all projects identified in the plan having an impact on travel time and/or vehicle carrying capacity regardless of funding source, and is included in Attachment A.

**Independent Variables**

Socioeconomic data used to forecast future travel patterns include household population, school enrollment, vehicle registrations, labor force participation, and employment by category and location. Sources for year 2000 data include the 2000 Census (primarily SF1 block data), state vehicle registration files, and ES202 employment data. Table 3 below provides a summary of forecasted growth in metro area population and employment. The land use forecasts for the three-county area (including sources and rate of change over time) were previously documented in the Air Quality PM2.5 Conformity report prepared by Bel-O-Mar staff (see [http://www.belomar.org/air\\_quality\\_analysis\\_conform\\_deter\\_bomts\\_revision.pdf](http://www.belomar.org/air_quality_analysis_conform_deter_bomts_revision.pdf)).

**Table 3 – Summary of Key Metro Area Land Use and Forecasted Growth Assumptions**

	<b>2000</b>	<b>2035 Projected</b>
Population	152,200	146,000
Households	61,800	64,000
Vehicle Registrations	112,700	125,600
Employment	81,900	107,000
K-8 School Enrollment	17,598	18,000
High School Enrollment	8,587	7,900
Post Secondary/College	7,605	8,100

Table 4 – Forecasted daily vehicle-miles of travel (VMT)

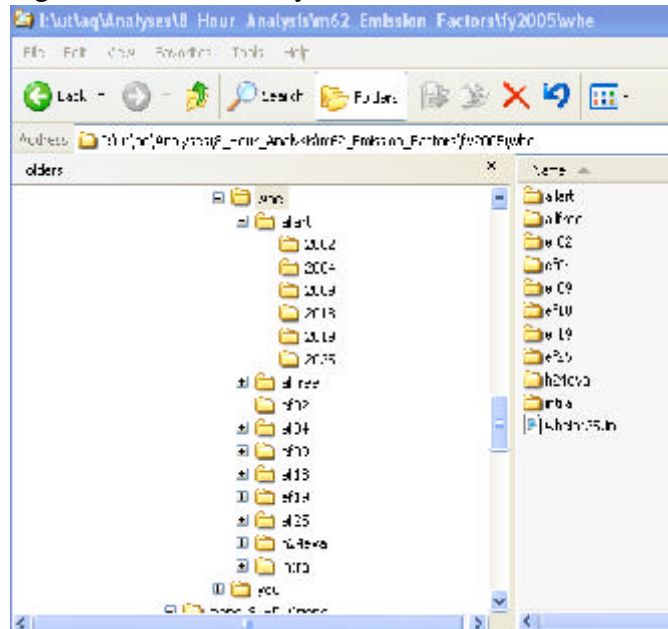
<b>County</b>	<b>Est. Travel Model VMT by County</b>			
	<b>Yr 2009</b>	<b>Yr 2018</b>	<b>Yr 2025</b>	<b>Yr 2035</b>
Ohio	1,429,000	1,637,000	1,683,000	1,624,000
Marshall	689,000	751,000	774,000	798,000
Belmont	2,267,000	2,472,000	2,516,000	2,619,000
<b>Total</b>	<b>4,385,000</b>	<b>4,860,000</b>	<b>4,973,000</b>	<b>5,041,000</b>

**Emission Factors**

ODOT staff utilizes U.S. EPA’s emissions model MOBILE6.2 to develop emission factors for applicable years for both VOCs and NOX. The MOBILE6.2 input file contains local parameters, developed through consultation with OEPA, for temperature, humidity, vehicle inspection and maintenance programs, and fuel characteristics.

Total emissions were computed as described in the CMAQ report prepared by ODOT staff and available on the World Wide Web at <http://www.dot.state.oh.us/urban/Download/cmaqr1.doc>. (The network format used, as described in the report, is that of the Ohio statewide model.) Unless cited otherwise in this report, U.S. EPA default values are utilized. For the three-county Wheeling metro area, this includes the distribution of vehicles by age and type by functional class. Emission factor files were generated for each year of analysis. Each emission factor file involves multiple runs of MOBILE6.2, one for arterials, one for freeways, one for evaporative factors, and one for intrazonal trips. Figure 2 below shows the file directory structure.

Figure 2 – File Directory Structure



Emission factor results from the MOBILE6.2 runs are extracted and reformatted using a DOS batch file to run a set of FORTRAN PROGRAMS, M6FOR8A, M6FOR8B, M6FOR8C, M6FOR8D, M6EF24A, M6EF24B, M6EF24C, M6FOR8I, and M6FOR8J.

Table 5 below shows the MOBILE 6.2 inputs agreed upon by interagency consultation. Table 6 shows a partial listing of the MOBILE6.2 input file for arterials that is used to generate emission factors by hour of day temperatures and by speed in 1 mph increments. A similar file is used for freeways. Tables 7 and 8 show the MOBILE6.2 input files for evaporative and intrazonal trip emissions, respectively, and show concisely the summer day temperatures by hour of day used in all emission calculations. A partial listing of the 2002 final emission factor file is shown in Table 9.

**Table 5 – Wheeling Area Non-default MOBILE 6.2 Inputs**

Evaluation Month	Max/Min Temp	Gasoline RVP
July	58/88	9

**Table 6 – Partial Listing of MOBILE 6.2 input file for 2002 Arterial Emission Factors**

```
MOBILE6 INPUT FILE :
RUN DATA
EXPRESS HC AS VOC :
EXPAND EVAPORATIVE :
EXPAND EXHAUST :
HOURLY TEMPERATURES: 65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3
65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3 65.3

FUEL RVP : 9.0

SCENARIO REC : WHEELING 2002 MODEL RUN - VOC - ARTERIAL h0 - SPEED 5.0
CALENDAR YEAR : 2002
EVALUATION MONTH : 7
AVERAGE SPEED : 5 ARTERIAL 92.0 0.0 0.0 8.0

SCENARIO REC : WHEELING 2002 MODEL RUN - VOC - ARTERIAL h0 - SPEED 6.0
CALENDAR YEAR : 2002
EVALUATION MONTH : 7
AVERAGE SPEED : 6 ARTERIAL 92.0 0.0 0.0 8.0

SCENARIO REC : WHEELING 2002 MODEL RUN - VOC - ARTERIAL h0 - SPEED 7.0
CALENDAR YEAR : 2002
EVALUATION MONTH : 7
AVERAGE SPEED : 7 ARTERIAL 92.0 0.0 0.0 8.0
```

**Table 7 – MOBILE 6.2 input file for 2002 Evaporative Emission Factors**

```
MOBILE6 INPUT FILE :
RUN DATA
EXPRESS HC AS VOC :
EXPAND EVAPORATIVE :
EXPAND EXHAUST :
HOURLY TEMPERATURES: 57.8 61.8 66.9 72.3 77.0 80.4 83.1 84.8 87.3 87.7 87.8
87.4 85.5 82.4 76.7 71.9 69.9 67.6 65.3 63.5 62.0 60.3 58.9 58.8

FUEL RVP : 9.0

SCENARIO REC : Wheeling 2002 MODEL RUN - VOC - FREEWAY H24 - SPEED 30.0
CALENDAR YEAR : 2002
EVALUATION MONTH : 7
AVERAGE SPEED : 30 FREEWAY 92.0 0.0 0.0 8.0

SCENARIO REC : Wheeling 2002 MODEL RUN - VOC - ARTERIAL H24 - SPEED
30.0
CALENDAR YEAR : 2002
EVALUATION MONTH : 7
AVERAGE SPEED : 30 ARTERIAL
end of run
```

**Table 8 – MOBILE 6.2 input file for 2002 Intrazonal Emission Factors**

```

MOBILE6 INPUT FILE :
RUN DATA
EXPRESS HC AS VOC :
EXPAND EVAPORATIVE :
EXPAND EXHAUST :
HOURLY TEMPERATURES: 57.8 61.8 66.9 72.3 77.0 80.4 83.1 84.8 87.3 87.7 87.8
87.4 85.5 82.4 76.7 71.9 69.9 67.6 65.3 63.5 62.0 60.3 58.9 58.8

FUEL RVP : 9.0

SCENARIO REC : Wheeling 2002 INTRA - CENTROID H24 - SPEED 20.0
CALENDAR YEAR : 2002
EVALUATION MONTH : 7
AVERAGE SPEED : 20 ARTERIAL
end of run

```

**Table 9 – Partial Listing of 2002 Final Emission Factor File**

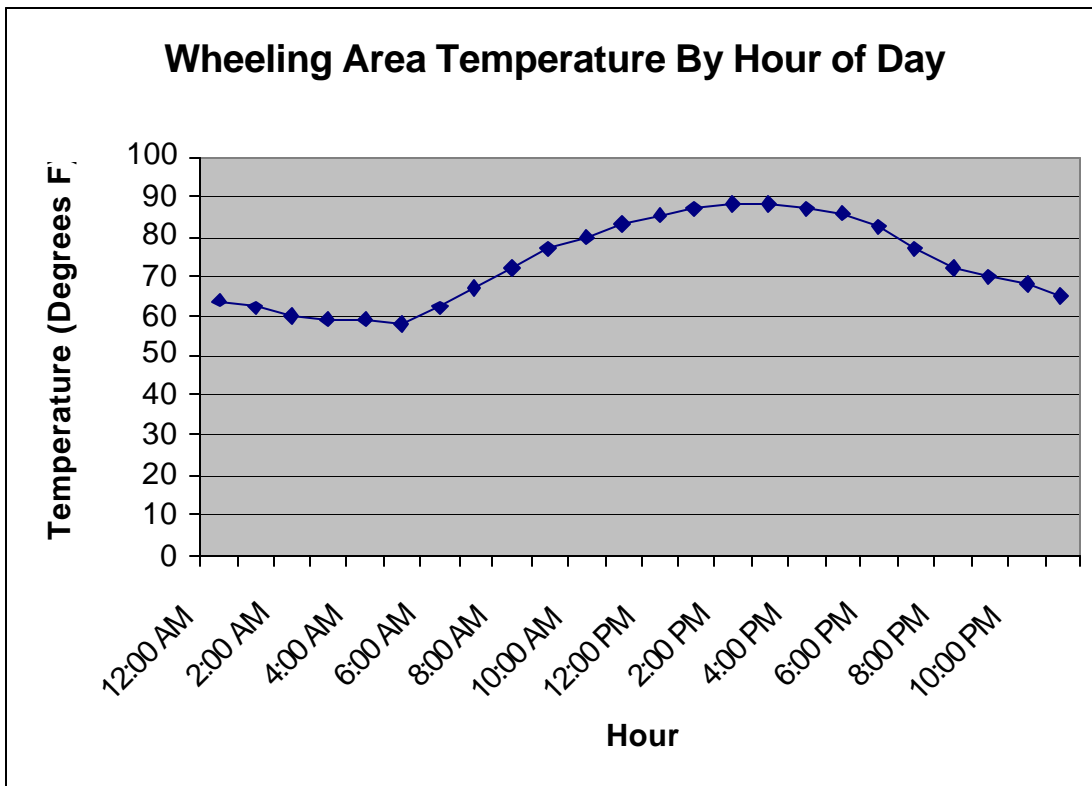
11 0	5.0	62.6	EXHAUST HC:	2.434
11 0	5.0	62.6	RUNING L HC:	2.147
11 0	5.0	62.6	RSTING L HC:	0.111
11 0	5.0	62.6	EXHAUST CO:	35.174
11 0	5.0	62.6	EXHAUST NOX:	3.851
11 0	6.0	62.6	EXHAUST HC:	2.167
11 0	6.0	62.6	RUNING L HC:	1.557
11 0	6.0	62.6	RSTING L HC:	0.111
11 0	6.0	62.6	EXHAUST CO:	31.350
11 0	6.0	62.6	EXHAUST NOX:	3.674
11 0	7.0	62.6	EXHAUST HC:	1.951
11 0	7.0	62.6	RUNING L HC:	1.275
11 0	7.0	62.6	RSTING L HC:	0.111
11 0	7.0	62.6	EXHAUST CO:	28.523
11 0	7.0	62.6	EXHAUST NOX:	3.493
11 0	8.0	62.6	EXHAUST HC:	1.789
11 0	8.0	62.6	RUNING L HC:	1.063
11 0	8.0	62.6	RSTING L HC:	0.111
11 0	8.0	62.6	EXHAUST CO:	26.404
11 0	8.0	62.6	EXHAUST NOX:	3.358
11 0	9.0	62.6	EXHAUST HC:	1.664
11 0	9.0	62.6	RUNING L HC:	0.899
11 0	9.0	62.6	RSTING L HC:	0.111
11 0	9.0	62.6	EXHAUST CO:	24.755
11 0	9.0	62.6	EXHAUST NOX:	3.252
11 0	10.0	62.6	EXHAUST HC:	1.563
11 0	10.0	62.6	RUNING L HC:	0.767
11 0	10.0	62.6	RSTING L HC:	0.111
11 0	10.0	62.6	EXHAUST CO:	23.436
11 0	10.0	62.6	EXHAUST NOX:	3.168

## Temperatures

The base year for current state implementation work for both PM2.5 and ozone is 2002. This was also a significant ozone year with several 1-hour and 8-hour episodes of elevated ozone within the state of Ohio. For the ozone day maximum and minimum temperatures, three episodes with statewide elevated ozone concentrations were chosen to determine the average maximum and minimum temperatures for these episode days.

June 21, July 8 and August 10, 2002 were the three episodes chosen. Local Climatic Data summaries from the National Climatic Data Center for National Weather Service sites in and around Ohio were reviewed to obtain the individual temperature values. The three day average maximum and minimum temperatures were developed for each of these sites. Each county in the state was then assigned one of these surface stations in a manner consistent with the assignment of meteorological data sets for use in air quality modeling in the Division of Air Pollution Control Engineering Guide 69 (EG69) which provides guidance on the application of air quality models within Ohio. In cases where the surface station data were not available, the upper air station identified in EG69 was assigned for those counties. For the Wheeling metro area, temperature data from the Pittsburgh, PA weather station was used, with a three-day average high temperature of 88 degrees and a three-day average low of 58 degrees as shown in the graph in Figure 3.

Figure 3 – Summer Temperature by Hour of Day



## CMAQ Process

Total emissions were computed with ODOT's new CMAQ process. This process produces the same outputs as the old CMAQT, but uses newer data on daily and directional traffic distributions as well as more up to date volume/delay functions from the 2000 Highway Capacity Manual (HCM). This process also uses rewritten code able to handle the newer model network formats.

The process uses a combination of the MOBILE6.2 emission factors and the daily link volumes that come out of the travel demand model. Emissions are calculated for each link for each hour of the day.

The hourly volumes are multiplied by the MOBILE6.2 emission factor for the corresponding hour of day and speed to calculate emissions for every link for each hour. The final total emissions for the area are the sum of all individual link-hour emissions.

## **B. PM 2.5 Analysis**

In December 2004, the US EPA issued air quality designations regarding the fine particulate (or PM 2.5) standard. All three counties in the metro area were designated non attainment for PM 2.5 and federal rules require a new conformity determination within a year of the effective date of a new standard. The effective date for the PM 2.5 standard is April 5, 2006. Belomar, in cooperation with state and federal Departments of Transportation and Environmental Protection, has updated the regional air quality emissions analysis for Plans and Transportation Improvement Programs (TIPs) to include PM 2.5 related emissions.

### PM 2.5 Standard

The U.S. EPA has established two standards for PM 2.5, annual and 24-hour. The annual standard is exceeded if the 3-year average of annual mean PM2.5 concentrations is greater than 15 micrograms per cubic meter, the 24-hour standard is exceeded if the 3-year average of the annual 98th percentile concentrations is greater than 65 micrograms per cubic meter. Currently, the metro area only violates the annual standard and to be consistent with the standard, regional emission estimates used to determine transportation conformity must also have annual units.

In urban areas regional emissions analyses typically rely on the results of travel demand models, which replicate average daily travel conditions. Therefore there is a need to develop annual emission estimates from daily travel demand model outputs, primarily vehicle miles of travel. In August 2005, US EPA issued a Guidance Document for Creating Annual On-Road Mobile Source Inventories for PM 2.5 Non-Attainment Area for Use in SIPs and Conformity, outlining several acceptable approaches. In the Wheeling metro area the **two season approach** (Winter/Summer) was selected to develop annual emission estimates, therefore travel demand and emission factors are seasonally adjusted as described on the following pages.

## Regional Emissions Test and Analysis Years

In the absence of budgets the **No-greater-than-2002 Baseline year test** is being used to demonstrate conformity. Emissions were generated for three interim years (2009, 2018, and 2025) as well as the plan horizon year (2035).

## Analysis Components

The regional emissions analysis will include emissions for **Direct PM 2.5** (exhaust, brake, and tire wear) and **Nitrogen Oxides** (NOx). Thru the interagency consultative process, Volatile Organic Compounds, Sulfur Oxides, and Ammonia were presumed insignificant.

## Seasonal Factoring of Travel Demand Model Output

Four digital networks are used in the Long Range Plan analysis to estimate average daily traffic volume in the years 2009, 2018, 2025, and 2035. Projected average daily traffic volumes by link are then seasonally factored by functional class to create seasonal volumes: Average Daily Winter and Average Daily Summer. The seasonal factors were developed using both the WVDOT and ODOT traffic counting programs.

Seasonal VMT factors are estimated as an average of monthly VMT factors. For each month, the VMT factor is the inverse of the factor applied to short-term traffic counts that converts them into an estimate of Annual Average Daily Traffic (AADT). The 2005 count factors for Ohio shown in Table 10 below are available on the Ohio DOT web site at:

[http://www.dot.state.oh.us/techservsite/availpro/Traffic\\_Survey/Seasonal/Sea\\_Adj\\_Fctrs.htm](http://www.dot.state.oh.us/techservsite/availpro/Traffic_Survey/Seasonal/Sea_Adj_Fctrs.htm)

The winter season is defined as months October thru March and summer is defined as months April thru September. The seasonal factors are applied to the travel demand model average daily volumes and intra-zonal trips that are input to CMAQT creating two independent PM2.5 air quality runs by season (summer/winter) for each analysis year.

Table 10 - Seasonal VMT Factors (ADT to Winter and Summer)

Federal Functional Class	Ohio Winter Oct-Mar	Ohio Summer Apr-Sep	WV Winter Oct-Mar	WV Summer Apr-Sep
01 – Rural Interstate	0.917	1.083	0.920	1.080
02 – Rural Principal Arterial	0.929	1.071	0.914	1.086
06 – Rural Minor Arterial	0.939	1.061	0.950	1.050
07-09 – Rural Collectors and Local	0.935	1.065	0.950	1.050
11 – Urban Interstate	0.959	1.041	0.932	1.068
12 –Urban Freeway/Expressway	0.956	1.044	0.947	1.053
14 – Urban Other Principal Arterial	0.929	1.071	0.947	1.053
16-19 – Urban Minor Arterials, Collectors and Local	0.955	1.045	0.947	1.053

Emission Factors and Seasonal Temperatures

Two emission factor files were generated for each year of analysis, one for the summer half of the year and one for the winter half of the year. Each emission factor file involves multiple runs of MOBILE 6.2, one for arterials, one for freeways, one for evaporative factors, and one for intra-zonal trips.

Six month average minimum and average maximum temperatures were used to generate two sets of emission factors (winter & summer). Summer temperatures that match ozone conformity determinations for the area are used. The winter day minimum and maximum temperatures (29 and 47 degrees F) were provided by West Virginia DEP staff. Winter temperatures for each hour of day for 24 hours were estimated using these minimum and maximum temperatures and an average day temperature profile.

**Table 11.1 – PM 2.5 and NOX Annual Emissions by County**

Year	Belmont County OH		Marshall County WV		Ohio County WV		WV Total	
	PM	NOX	PM	NOX	PM	NOX	PM	NOX
2002	42.1	2587.9	10.4	564.3	21.7	1353.1	32.0	1917.4
2009	22.9	1420.7	5.3	297.5	15.3	973.6	20.6	1271.1
2018	13.2	608.4	3.1	131.6	9.3	431.9	12.4	563.5
2025	12.5	417.0	3.0	94.1	8.9	299.3	11.9	393.4
2035	12.1	353.2	2.8	79.0	7.9	233.5	10.7	312.5

**Table 11.2 Three-County Region Total Emissions**

Year	PM	NOX
2002	74.1	4505.3
2009	43.5	2691.8
2018	25.5	1171.9
2025	24.4	810.3
2035	22.9	665.7

Note: Emissions are expressed in tons

## ATTACHMENT A – PROJECTS IN THE 2035 MPO LONG-RANGE PLAN

### BELMONT COUNTY

YEAR	PROJECT
26-35	Upgrade I-70 to six lanes from Mall Rd to SR9
09-18	Upgrade Modify Mall Rd interchange to improve access to I-70
09-18	I70/SR331 interchange modification
02-09	SR149 Relocation through Bellaire
09-18	Install signals at SR149 and US40 intersection
09-18	I-70 WB off Ramp at SR149 interchange, install signals and mark right and left turn lanes

### OHIO COUNTY

18-25	Upgrade I-70 to six lanes from Elmgrove Interchange to Cabela Dr
09-18	Construct a new interchange on I-70 between Elmgrove and Cabela Dr interchanges
09-18	Install signals at intersection of I-70 EB on/off Ramps with US 40 east of Kruger St.
09-18	Add a right turn lane on Kruger St approach at intersection with US40

### MARSHALL COUNTY

09-18	WV 2 upgrade to 4 lanes from south of CR 29 (MP 6.46) to
09-19	South of CR 27 (MP 7.41)
09-18	WV 2 upgrade to 4 lanes from 0.95 mile south of CR 2/8
09-19	(MP 12.25) to 3.8 miles north of CR 74 (MP 13.46)
09-18	WV 2 upgrade to 4 lanes from south of CR 78 (MP 4.50) to
09-19	South of CR 29 (MP 6.46)
25-35	WV 2 upgrade to 4 lanes from 1.1 mile north of CR 2/2
	(MP 1.92) to 0.18 mile south of CR 78 (MP 4.50)
09-18	Replace CR 5 one lane bridge over Big Wheeling Creek south of
09-19	CR 21 with two lane bridge
09-18	US 250 and Jefferson St (CR 250/88) intersection radii improvements
09-18	Replace Shephard Bridge on CR 74 (MP 16.8)
09-18	Replace Rude Bridge on CR 5 (MP 3.98)

**ATTACHMENT C**

**Public Involvement Documents**

## **PUBLIC NOTICE**

Notice is hereby given that the Bel-O-Mar Regional Council has prepared a draft Transportation Plan for 2035 for Belmont, Ohio and Marshall Counties. The Plan has been prepared pursuant to federal regulations and addresses transportation issues of the local area through 2035..

The Transportation Plan for 2035 will be available for review and comment from November 28, 2007 through December 13, 2007 at the office of the Bel-O-Mar Regional Council, at the address shown below. The Plan will also be available for review at the following website: [www.belomar.org](http://www.belomar.org).

Notice is also given that, pursuant to the provisions of the Clean Air Act, the Bel-O-Mar Regional Council has prepared an Air Quality Analysis and Conformity Determination document in conjunction with the Transportation Plan for 2035. This analysis is undertaken to determine the impacts of implementing the Transportation Plan for 2035 on air quality, specifically ozone and PM2.5 (fine particulates). The document will be available for review and comment concurrently with the Transportation Plan for 2035, as noted above.

The Transportation Plan and the Air Quality Analysis and Conformity Determination document will also be available for review at the following locations during the time period noted above: Ohio County Public Library, the Moundsville Marshall County Public Library, the St. Clairsville Public Library, the Bellaire Public Library and the Martins Ferry Public Library.

An open-house type of public meeting regarding the Transportation Plan for 2035 will be held at the office of the Bel-O-Mar Regional Council, at the address shown below, on December 6, 2007 from 1:00 p.m. to 5:00 p.m.

Interested parties, including representatives of the affected public and transportation agencies, private providers of transportation, freight shippers, providers of freight transportation services and other transportation stakeholders who desire to present their views on the Transportation Plan for 2035, or the Air Quality Analysis and Conformity Determination document, and/or submit written comments, should contact:

Bel-O-Mar Regional Council  
105 Bridge Street Plaza  
P.O. Box 2086  
Wheeling, WV 26003  
(304) 242-1800

Written comments should be directed to the Transportation Director, at the above address and must be received by December 14, 2007.

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