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A GIS-Based Emission And Air Quality Impact Assessment For Evaluating Transportation Mitigation Measures

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Abstract

The research presented here develops a framework that assesses a transportation project's air quality impact. The framework not only integrates transportation and emission modeling but also improves the accuracy of the emission estimates. In order to do this, the framework makes use of six modules: environmental conditions data input, GIS database, emission modeling, transportation network, post-processing, and graphical presentation. Each module aims to improve the quality and accuracy of the inputs used by MOBILE6.2. In addition, the framework has the capability, among other features, of presenting the emission estimates in a GIS-based modeling platform that enables the analyst to spatially locate the highest emissions on the transportation network.

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Chapter 1: Introduction

This chapter discusses the current practice of transportation planning and air quality assessment, particularly the limitations and current efforts toward solving these limitations. This chapter also describes the objectives of the research conducted and the research tasks performed in this study.

1.1 Problem Statement

Transportation planning and air quality planning cannot be seen as separate entities because decisions made in one directly affect the other. By law, Metropolitan Planning Organizations (MPOs) and other transportation planning agencies are required to assess not only the feasibility of different transportation measures, but also the air quality impact such measures may create. These agencies make use of transportation network modeling software to assess the feasibility of the transportation measure, and emission modeling software to assess the air quality impact.

In January 2002, after years of revision and improvements, the U.S. Environmental Protection Agency (EPA) released MOBILE6 as the newest mobile source emission modeling software used in the development of State Implementation Plans (SIP). MOBILE6 is used to estimate emissions measured in grams per mile (g/mi) of Hydrocarbons (HC), Oxides of Nitrogen (NOx), and Carbon Monoxide (CO). One special feature of this version is that it incorporates updated information on basic emission rates, more realistic driving patterns, separation of start and running emissions and different fleet composition than its predecessor.

One limitation of this version of the MOBILE series is that it is incapable of estimating particulate matter emissions.

In November 2002, EPA released MOBILE6.2 (EPA, 2003a), which is able to estimate particulate matter and idle emissions for diesel-fueled vehicles without the need of additional software (previous MOBILE version required PART5). MOBILE6.2 offers additional advantages to its predecessor including its capacity of estimating emission rates of air toxics, also called hazardous air pollutants (Tang et al., 2003) and its capability of calculating Benzene, Methyl Tertiary Butyl Ether, 1,3-Butadiene, Formaldehyde, Acetaldehyde, and Acrolein emissions (EPA, 2003a).

In conjunction with the aforementioned model versions, the current practice for most MPOs and transportation planning agencies to assess air quality impact relies on using TransCAD, a commercial transportation modeling software that determines the viability of a transportation project in terms of congestion relief and mobility improvement. The EPA's aforementioned MOBILE6.2 is used as a post-processor to determine the air quality impact of such transportation projects. MOBILE6.2 contains default values for many of the inputs required in the model including the transportation related ones. However, the EPA recommends the use of local information for transportation related inputs as a strategy to obtain better emission estimates.

Despite the use of transportation planning software (TransCAD) and MOBILE6 by MPOs and transportation planning agencies, problems still exist in the current practice, with the primary problem being the accuracy of obtained emission estimates.

Evidence shows that the accuracy of emission estimates depends largely on the accuracy of the input parameters for MOBILE6.2. The assumption that transportation inputs are accurate enough when obtained from a transportation modeling software is not completely correct either. First, the time unit used on the TransCAD model is one day, although the reality is that traffic conditions vary on an hourly basis. Second, Vehicle Miles Traveled (VMT) obtained from the transportation network model cannot be used, in many cases, directly in the emission modeling software. Thus, the VMT needs to be calibrated to benchmark against the Highway Performance Monitoring System (HPMS) and needs to be in complience with transportation conformity regulations *§93.122(d) and §93.122(b)(3)* (U.S. Federal Highway Administration, 2010; EPA and U.S. DOT, 2008). Finally, the seasonal variation of traffic is not considered at all.

Regulations *§93.122(d) and §93.122(b)(3)* belong to *Title 40* of the Code of Regulations published by EPA to establish the procedures for determining regional transportation related emissions (Code of Federal Regulation, 2005). Regulation *§93.122(b) (3)* establishes the procedure to reconcile the VMT values obtained with a transportation modeling software to the HPMS VMT estimates. Regulation *§93.122(d)* defines the procedure to account for the VMT growth in future years.

Some efforts have been made to address the problems described above; for example, the PPSUITE post processor (Pennsylvania Department of Transportation (Penn DOT), 2009; Barker, 2003) developed by Garment and Associates for Penn DOT has the capacity to (1) calibrate VMT for different seasons of the year to meet HPMS VMT estimates; (2) calculate hourly congested speeds for each state road segment; (3) generate MOBILE6.2 input files, and; (4) run MOBILE6.2 to estimate emission rates. The software is oriented to develop more

accurate transportation input parameters to be used in MOBILE6.2. However, the fact that PPSUITE mainly focuses on enhancing the accuracy of the transportation related inputs of MOBILE6.2 leaves some improvement opportunities behind. For example, the post-processor delivers emission estimates calculated with MOBILE6.2, but it does not present these estimates in any graphical form, including an emission grid developed in a geographical information system (GIS) platform that could determine the emission estimates spatially and temporally. The spatial and temporal location of the emission estimates could determine potential exposure of different populations to the mobile source emissions. The grid is also important because a grid can help not only as a visualization tool, but as a tool to assess the localized air quality impact resulting from different transportation measures.

The current practice used by many MPOs to assess certain transportation parameters (e.g., average speed, fleet distribution) is a tedious and time consuming process, and generates only the total quantity emitted for the whole transportation network. Caliper Corporation, in an effort to improve the accuracy of the transportation related parameters within its TransCAD version 4.8 transportation modeling software, developed a framework that divides the transportation network into cells that form a grid. Dividing the network into cells enables the estimation of the transportation parameters for each cell as an alternative to that of the whole network. Having a grid of cells instead of the whole network enables a better estimation of transportation parameters because the transportation parameters are estimated for each cell and therefore differences among different regions of the network can be better captured. For example, using the whole network may tend to estimate a small fraction of freeway roads and a large portion of arterial roads as the road distribution parameter, when instead certain cells may mostly consist of freeways with free flow speed, depending on its location and size. Each of the

cells that composes the grid represents an input scenario that is used in MOBILE6.2. This enables a more accurate estimation of the emissions, since differences in the transportation parameters among different regions and portions of the network (represented by each cell) are captured by each input scenario.

TransCAD incorporated an interface that can be used to estimate mobile source emissions using MOBILE6. The interface allows the user to enter almost every input parameter either by selecting it or by browsing an external file. Inputs related to transportation are obtained in a different manner. These inputs are collected automatically from a cell. Each cell represents different scenarios of geographical transportation related data. The user selects the cell size and TransCAD automatically constructs a grid for the whole network area. The resolution of this grid can vary depending on the size of the cell and system of units selected (e.g., 1 km by 1 km, 2 km by 2 km, 5 km by 5 km, 1 mi by 1 mi, 2 mi by 2 mi and 5 mi by 5 mi). The framework developed by TransCAD is a good effort towards estimating more accurately the mobile source emissions. However, this effort is still conservative in the sense that the grid definition process is fixed and not flexible. The user is only allowed to select from a fixed range of cell sizes and is not allowed to modify the grid size, thus the area of analysis is limited by the cell size ranges available.

Another limitation of the grid definition procedure developed by TransCAD is that the grid size is fixed to covering the whole transportation network. This limits the flexibility of the analysis by limiting the scope to the whole transportation network when many times it is necessary to focus the analysis on only a portion of the network.

In addition to the previously mentioned limitations, TransCAD framework does not calibrate the VMT to comply with the HPMS, which is important because the HPMS VMT estimates are used by many planning and transportation agencies. Many of the agencies require validating the VMT particularly when developing any congestion mitigation measure or transportation network modification. Yet another limitation is that TransCAD uses MOBILE6 instead of the latest version of the MOBILE series (MOBILE6.2). As a result, it is not possible to calculate PM emissions or idle emissions for diesel vehicles unless MOBILE6 uses an extra model (PART5) which is not included in TransCAD for calculating the PM and Diesel idle emissions.

MOBILE6.2 has the capacity of estimating direct emissions from vehicles in the form of exhaust, brake wear, and tire wear emissions; however, one limitation is that PM emissions resulting from vehicular movements on paved and/or unpaved roads are not estimated by MOBILE6.2. In order to estimate these emissions, an empirical algorithm formulated by EPA must be used. The AP-42 model developed by EPA (EPA, 2003b) is designed to calculate long-term emissions from different road types. The formula used to calculate the PM emissions is:

$$E_{ext} = \left[k\ \left(\frac{sL}{2}\right)^{0.65}\left(\frac{W}{3}\right)^{1.5} - C\right]\left(1 - \frac{P}{4N}\right) \qquad (1.1)$$

where E_{ext} is the annual or other long-term emissions in the same units as k (g/VMT or g/vehicle kilometers traveled (VKT)), sL is the road surface silt loading in (g/m^2), W is the average weight in tons of the vehicles on the road, k is the particle size multiplier for particle size range in units of interest (e.g., 7.3 g/VMT for PM10 when using grams and miles), P is the

number of wet days with at least 0.254 mm of precipitation during the averaging period (e.g., one year), *N* is the number of years considered in the averaging period, and *C* is the particle size specific emissions factor in units of interest for the 1980's vehicle fleet direct exhaust, brake wear and tire wear.

Planning agencies use the AP-42 model to develop transportation conformity reports, or to estimate the air quality impact of any new transportation measure, since this algorithm completes the PM emissions generated by vehicles (e.g., particles lifted and dropped from the rolling wheels, road surface particles re-suspension).

Although many planning agencies acknowledge the need to use the AP-42 model to assess the PM emissions, the application of the model itself still has room for improvement. First area is that the average weight of the vehicle fleet (*W*) is a value that is averaged among the whole transportation network, which tends to underestimate the distribution of certain type of vehicles. Similarly, silt loading is a parameter that is set according to the type of road under analysis, i.e., freeway, arterial, collector, and local for the whole network. This is again uncertain because the road distribution varies depending on the geographic location in the transportation network. (e.g., some regions in the city boundaries tend to be composed mainly of freeways).

Finally, once the PM emission factors have been calculated, they are multiplied by the VMT for each type of road to obtain PM emissions. However, in this process the VMT values used in the multiplication vary depending on whether the road is paved or unpaved. This procedure also has some deficiencies. First, transportation departments collect and report VMT on paved roads at state level. The National Emissions Trend (EPA, 1998a) provides emissions

for all area sources of every county in the U.S. However, information required to calculate emissions of unpaved roads, silt content, average vehicle fleet weight, road VMT, and road average speed is not available at county level. Moreover, to date there is no national database that provides this information at even the regional level.

This procedure results in ambiguous estimates of the paved and unpaved VMT estimates, since it is performed at a state level, differences among the cities that compose the state are not captured. Furthermore, differences on the paved and unpaved VMT exist among the same city, depending on the geographical location. At this moment the spatial allocation of the variations of paved and unpaved roads has not yet been implemented to improve the accuracy of the VMT estimates.

1.2 Objectives

This research has the following objectives: First, to develop a framework that integrates transportation planning tool and air quality planning tool in an automated form capable of accurately assessing emissions resulting from mobile sources. Second, to improve the accuracy of transportation related inputs (i.e., TransCAD outputs) to be used in MOBILE6.2. Finally, to provide emission estimates in a flexible size emission grid that could be used in future analyses.

This research provides the methodology needed to achieve a successful automated integration between transportation and air quality planning. Moreover, it provides the conceptual design that can be later modified to suit other needs. Planning agencies abroad might take this

framework as guidance for integrating their current transportation and air quality planning practices.

Providing emission estimates in a grid format is very useful because it enables graphical visualization of the temporal and spatial variation of pollutant emissions in the study area. It is also a useful tool for evaluating the air quality impact caused by different transportation measures and the public exposure resulting from such emissions.

1.3 Significance of The Work

The proposed framework integrates transportation planning and air quality planning. In this study, TransCAD is selected as the transportation network modeling software, and MOBILE6.2 the emission model. The same integration methodology can be applied to other software applications should better software becomes available.

The developed framework has the following advantages: First, it provides more accurate emission estimates related to different transportation measures. Second, it integrates an existing state-of-the-art transportation network model (TransCAD) and an emission model (MOBILE6.2). Third, it can calibrate the VMT to the HPMS VMT for MOBILE6.2 inputs. Fourth, the framework includes the EPA AP-42 model for estimating emissions from unpaved and paved roads which not only estimates the resuspended PM emissions, but also includes the geographical and spatial variation of some of the parameters used by the algorithm (e.g., the geographical locations of vehicle fleet in the transportation network and the associated average weight, and the spatial location of different roads).

1.4 Research Tasks

In order to fulfill the objectives stated, five tasks were implemented. The first task was to update and document the information needed for each step in the framework design. This task identified every algorithm or piece of information needed in the transportation and air quality planning integration process, including the algorithms needed to improve the accuracy of the transportation inputs used in MOBILE6.2.

The second task was to develop a series of user friendly interfaces that enabled the integration of a transportation model (TransCAD) and an emission model (MOBILE6.2).

The third task was to present the emission estimates in graphical and tabular forms, and a gridded emission database for use in future transportation conformity and air quality impact analyses.

The fourth task was to validate the framework design by analyzing a case study. This case study consisted of comparing CO and PM10 emission estimates obtained from the new framework to the ones reported in the 2007 Transportation Conformity Report by the city of El Paso, Texas.

The fifth task was to conduct a sensitivity analysis to test the consistency of the estimates of the framework when using different grid designs. The sensitivity analysis performed consists of six grid designs with eight pollutants.

1.5 Dissertation Outline

Chapter 1 discusses the shortcomings found in the current practice to assess the air quality impact that results from transportation measures. This chapter presents the objectives of this study as well as the significance of the work performed in this research.

Chapter 2 presents the theory and current transportation modeling practice. This chapter overviews different traffic assignment techniques used in transportation modeling and discusses the advantages and disadvantages associated with them.

Chapter 3 discusses the model developed by EPA to calculate resuspended PM emissions from vehicle travel. This chapter describes the history of the algorithm used to estimate PM emissions from vehicular movements on paved and unpaved roads and the model limitations.

Chapter 4 reviews the MOBILE6.2 model. In this chapter the history of the model and features associated to it are discussed. This chapter also presents the limitations and shortcomings associated to MOBILE6.2 model.

Chapter 5 discusses the current practice in the integration of a GIS system with transportation-related emissions.

Chapter 6 presents the current practice in the integration of transportation modeling and air quality impact assessment.

Chapter 7 discusses the integrated framework proposed to achieve the objectives stated in Chapter 1. This chapter describes each of the modules that belong to the framework and how each of these modules works. For illustration purposes a numerical application of the framework is presented in Appendix A and a user's guide to use the framework is provided in Appendix D.

Chapter 8 presents a case study for the city of El Paso, Texas. In this chapter the emissions obtained with the framework are compared to emissions reported by El Paso MPO.

Chapter 9 presents a sensitivity analysis that consists of six grid designs and eight pollutants. This chapter discusses the differences that exist between grid designs and the results obtained for each of them.

Chapter 10 discussed the major findings of Chapter 9. In this chapter a discussion of the emission factors of the pollutants modeled in Chapter 9 is presented.

Chapter 11 presents the conclusions and recommendations for further research.

Chapter 2: Overview of Transportation Modeling

At present, most planning agencies in the United States and other countries make use of software applications to model the performance of transportation infrastructure under different scenarios. This practice is performed with the purpose of determining the needs or goodness of new transportation projects. Travel demand modeling, also called transportation modeling, is an essential part of the transportation planning processes. In transportation planning, models are typically used to imitate travel patterns between people and goods. Thus, predicting travel demand and future operation of transportation networks is important. This chapter presents an overview of the theory behind a macro-scale travel demand model. This modeling technique is used in this research to estimate the transportation related performance measures, which are then used to estimate the mobile source emissions.

2.1 Travel Demand Modeling

Travel demand models are based upon the relationship between socioeconomic characteristics, travel patterns and land use. Travel demand models predict future travel patterns that set the grounds to assess different scenarios (e.g., the implications of community growth, different modes of transportation and new transportation projects). The prediction of travel patterns by travel demand models is accomplished through the use of computerized network simulations of the transportation system. Among the goals of using these computerized network simulations is to determine the network performance that reflect the congestion or utilization.

2.2 Traffic Analysis Zones

Travel demand models estimate demand through the use of one or more variables associated with specific geographic locations of the study area (e.g., employment, economic production, recreational activities). Trips undertaken in a given area may start and end at a large number of points. To model the system, it is necessary to subdivide the study area into a number of discrete geographic units called Traffic Analysis Zones (TAZ) (Cascetta, 2009). The selection of the TAZ is made based on the following criteria (Garber and Hoel, 2009):

- Socioeconomic characteristics should be homogenous
- Intrazonal trips should be minimized
- Physical, political and historical boundaries should be utilized where possible
- Zones should not be created within other zones
- The zones should use census tracks where possible
- Total number of zones should not be too large that it overwhelms computer resources

TAZ are essential to travel demand models as they are used to determine trip generation and attraction among different geographic locations of the transportation network.

2.3 The Four Step Model Framework

Travel demand models are based on the well known four-step sequential framework. This framework is used to predict the future performance and demand of regional transportation systems. The four-step model is shown in Figure 2.1.

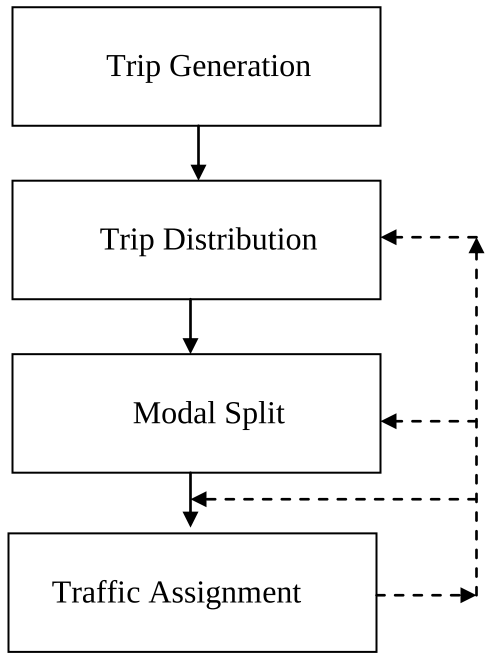


Figure 2.1: Four step sequential procedure. (Source: Boyce, 2002).

The first step in Figure 2.1 is *Trip Generation*, which defines the number of trips generated within the TAZ. The purpose of trip generation is to estimate the total number of trip ends generated in each TAZ based on land use or socioeconomic information for each TAZ.

The second step in the framework shown in Figure 2.1 is *Trip Distribution. Trip Distribution* produces trips movements between TAZ pairs based on production and attraction

among the TAZs. This step uses the output of the preceding step (trips end) and travel times between TAZs.

The third step in Figure 2.1 is *Modal Split* which is the allocation of total person trips by their respective modes of travel e.g., bus, automobile, and train. Data used to determine the modes of travel are based on comprehensive trip surveys in urban areas. Among the factors that can affect the mode of transportation are the personal characteristics of the population (e.g., income, age, car ownership), the transportation system characteristics (e.g., waiting time, availability, cost, comfort) and the purpose of the trip (e.g., work, shop, recreation).

The fourth step in Figure 2.1 is *Traffic Assignment.* This step performs the task of determining the traffic volume of each link in the transportation network. This step has two inputs: the links that describe the network and the trips that flow from TAZs to TAZs. The dotted lines in Figure 2.1 are aimed to provide feedback among the Trip Distribution, the Modal Split and the Traffic Assignment steps. Congestion levels are used to re-distribute trips and model split.

According to Hensher and Button (2000), traffic assignment has three primary objectives and three secondary objectives. The primary objectives are to obtain aggregate network measures (e.g., VMT, link volume, link travel time), to estimate zone to zone travel costs (time) for a given level of demand, and to identify heavily congested flows. The secondary objectives are to estimate the routes used between each origin-destination pair, to analyze which origin-destination pair uses a particular link or route, and to obtain turning movements for the design of future junctions.

Traffic assignment techniques allocate trips between each TAZ pair to the most likely travel routes. Trips on each link between all TAZ pairs are accumulated and the total amount of trips in each link is reported at the end of the assignment process. Different traffic assignment models vary in route selection criteria. The most common traffic assignment method is the static user equilibrium traffic assignment.

User equilibrium traffic assignment is based on the condition that traffic flows on network links are eventually adjusted to an equilibrium state by a route switching mechanism. That is, when equilibrium is reached, the flows are such that there is no incentive to switch route. Mannering et al. (2005) defines the user equilibrium condition as follows. “The travel time between a specified origin and destination on all used routes is the same and is less than or equal to the travel time that would be experienced by traveler on any unused route”.

The user equilibrium traffic assignment problem can be formulated in following non-lineal (Sheffi, 1985).

$$Minimize\ z(x) = \sum_a \int_0^{x_a} t_a(\omega)d\omega, \qquad (2.1)$$

$$Subject\ to \quad \sum_k f_k^{rs} = \mathrm{q_{rs}} \quad : \ \forall \quad \mathrm{r,s}$$

$$x_a \ = \ \sum_r \sum_s \sum_k \delta_{a,k}^{rs} \ f_k^{rs} \qquad : \ \forall \quad a$$

$$f_k^{rs} \quad \geq \quad 0 \quad : \quad \forall \quad k,r,s$$

$$x_a \quad \geq \ 0 \qquad : \quad a \ \in \ A$$

where *k* is the path, x_a is the equilibrium flows in link a, t_a is the travel time on link a, q_{rs} is the trip rate between *r* and *s*, and $\delta_{a,k}^{rs}$ is a definitional constraint given by:

$$\delta_{a,k}^{rs} = \begin{cases} 1 & if \ \ link\ a\ belongs\ to\ path\ k\ connecting\ r - s, \\ 0 & Otherwise \end{cases} \qquad (2.2)$$

Chapter 3: Resuspended PM Emissions from Vehicle Travel

Two types of PM emissions are associated to vehicular movements: direct PM emissions and suspended PM emissions (EPA, 2004). Direct PM emissions from the vehicle operation include emissions from the exhaust pipe, tire wear, and/or brake wear. Suspended PM emissions include resuspension of road dust, resulting from on-road vehicle travel. Both are important when assessing the PM emissions associated with transportation. Studies have found that public streets, highways as well as roads at industrial facilities can be major sources of atmospheric PM within an area (EPA, 1995a).

MOBILE6.2 provides emission factors for direct PM (i.e., PM10 and PM2.5) emissions but not emissions from road dust. In order to assess more accurately the PM emissions associated with transportation, it is necessary to calculate not only the direct PM emissions but also the resuspended PM emissions. Resuspended PM emissions can be estimated using the model outlined in the Compilation of Emission Factors AP-42, Fifth Edition, Volume I Chapter 13: Miscellaneous sources document of U.S.EPA.

3.1 Fugitive Dust from Paved Roads Emission Estimation Model

Cowherd et al. (1977) conducted a study to determine how paved roads contributed to measured concentrations of PM. From the study conducted primarily in the mid-west (Kansas City area) an empirical equation resulted, relating the mainly PM10 emissions to silt loading of the road. Prior to 1993 the AP-42 document had two sections concerning road fugitive emissions; Section 11.2.5 and Section 11.2.6. Section 11.2.5 entitled “Urban Paved Roads” was

first drafted in 1984 (Muleski et al., 1984) and Section 11.2.6 entitled “Industrial Paved Roads” was first drafted in 1979 (Cowherd et al., 1979) and modified in 1985 (EPA, 1985). Muleski and Cowherd (1993) reviewed these two sections and discovered limitations and shortcomings in both. They found that users of these models reported difficulties in selecting the model to use in their applications (Harding Lawson Associates, 1991). Furthermore, they found that users of the “Industrial Paved Roads” model reported that measured silt loading values at industrial facilities (iron and steel facilities) were substantially lower than the ranges suggested in Section 11.2.6. This finding contradicted the assumption made in developing the AP-42 model of adding an augmentation factor to account for higher emissions in industrial roads. In fact, field studies showed than paved roads located at iron and steel facilities more closely resembled urban roads than industrial roads in terms of the calculation of the emission factors and the size distributions (Muleski et al., 1984).

Muleski and Cowherd (1993) conducted a study to update the AP-42 model used at that time to estimate PM emissions from paved roads. In this study they did not make any distinction between urban and industrial roads, or between controlled and uncontrolled tests (the main difference being controlling the silt loading). In contrast to previous research, Muleski and Cowherd had the objective of developing a single equation that could estimate the PM emissions regardless of the type of road (i.e., urban roads, industrial roads). Based on a series of stepwise linear regressions analysis that considered silt loading, average vehicle weight, average number of wheels and average travel speeds, Muleski and Cowherd came up with a new AP-42 model to estimate fugitive dust from vehicle road travel. The model developed by Muleski and Cowherd set the beginning of using one single equation to estimate PM resuspended emissions. However, these researchers did not realize the fact that the PM emissions generated directly by vehicles

that travel vary, with respect to the vehicle type (e.g., Heavy duty trucks, passenger cars). Later updates of the AP-42 took this into consideration (Pechan and Hemmer, 2003).

Before year 2003, the AP-42 model could not distinguish between direct vehicle PM emissions (i.e., tire wear, brake wear, exhaust pipe) and resuspended road surface emissions from vehicle travel. In 2003 with the introduction of MOBILE6.2, the estimation of direct vehicle PM emissions became possible. EPA incorporated in MOBILE6.2 the capability to estimate tire wear, break wear, and exhaust PM emissions. EPA incorporated this capability to MOBILE6.2 to account for the decrease in direct vehicle PM emissions from newer vehicle models and newer fuel sources. Thus, the use of AP-42 model needed to account for this new feature added to MOBILE6.2. Otherwise there is a possibility of double counting direct vehicle PM emissions (as the AP-42 model developed in year 1993 and documented in the AP-42 for estimating total PM emissions from vehicle travel on roadways makes no difference among the two sources of emissions).

Since MOBILE6.2 had the capability to estimate direct vehicle PM emissions EPA decided to make the current AP-42 model a complement of MOBILE6.2 to estimate PM emissions. Pechan and Hemmer (2003) altered the AP-42 model to achieve this goal. In order to modify the AP-42 model Pechan and Hemmer obtained the vehicle exhaust pipe, tire wear, and break wear emissions factors from MOBILE6.2 using a typical vehicle fleet and fuel source for year 1980. Pechan and Hemmer use the model with eight different speeds (25, 30, 35, 40, 45, 50, 55 and 60 mph) defining a particle size cut of 2.5 and 10 microns. Additional inputs used and the vehicle fleet used is presented in Table 3.1 and Table 3.2 respectively.

Table 3.1: MOBILE6.2 inputs used. (Source: Pechan and Hemmer, 2003).

Parameter	Value used in MOBILE6.2
Calendar Year:	1980
Month:	July
Gasoline Fuel Sulfur Content:	330 ppm
Diesel Fuel Sulfur Content:	500 ppm
Reformulated Gas:	No

Table 3.2: Vehicle Fleet used in MOBILE6.2 runs. (Source: Pechan and Hemmer, 2003).

Vehicle Type:	LDGV	LDGT12	LDGT34	HDGV	LDDV	LDDT	HDDV	MC
VMT Distribution:	0.6748	0.1477	0.0758	0.0365	0.0088	0.0118	0.0352	0.0094

With eight runs (one for each of the speeds mentioned before) and two particle cut-off sizes Pechan and Hemmer obtained the PM10 and PM2.5 emission factors for vehicle exhaust pipe, tire wear, and brake wear. The results showed a standard deviation of less than 0.000223 g/VMT. Based on the results from the sixteen runs Pechan and Hemmer concluded that vehicle speed was not a factor in exhaust pipe, tire wear, and brake wear PM emissions. The average emission factor that Pechan and Hemmer obtained from exhaust, tire wear, and brake wear for PM10 and PM2.5 were 0.2119 g/VMT and 0.1617 g/VMT, respectively. These averages are taken throughout the complete span of vehicles considered by MOBILE6.2 (16 vehicles). After calculating the PM2.5 and PM10 emissions for different silt loadings Pechan and Hemmer subtracted the average emissions factors (i.e., exhaust, tire wear, and brake wear emissions for PM10 and PM2.5) obtained with MOBILE6.2 from the PM emissions estimated using the AP-42

model. This resulted in an emission factor for only the retrained road dust component of the transportation related PM emissions.

Pechan and Hemmer (2003) recommended the use of the following AP-42 model to estimate PM resuspended road surface emissions from vehicle travel. The equation is recommended in estimating PM2.5, PM10, PM15, and PM30 emissions, and valid for silt loading ranging from 0.03 to 400 g/m^2, average vehicle weight ranging from 2.0 to 42 tons, and average vehicle speed ranging from 18 to 88 kph.

$$E = k\left(\frac{sL}{2}\right)^{0.65}\left(\frac{\boldsymbol{W}}{\boldsymbol{3}}\right)^{\boldsymbol{1.5}} - C \qquad (3.1)$$

where E is the emission factor (g/VMT), sL is the silt loading (g/m^2), W means vehicle weight (tons), k is a constant that depends of particle size to be estimated, and C is the emission factor for 1980’s vehicle fleet exhaust, tire wear, and break wear.

EPA in 2003 defined Equation (3.1) in Section 13.2.1 of the AP-42 document as the equation to use to calculate PM emissions. However, Equation (3.1) did not account for the mitigation effect of precipitation, as a result, Equation (3.1) is used for dry roads only, and when precipitation is present, Equations (3.2) and (3.3) are used instead. These equations include an extra term to account for the mitigation effect precipitation has on daily or annual PM emissions. Equations (3.2) and (3.3) are currently used to estimate PM emissions resulting from road-surface dust resuspension when precipitation is present (EPA, 2003b).

$$E_{ext} = \left[k\left(\frac{sL}{2}\right)^{0.65}\left(\frac{W}{3}\right)^{1.5} - C\right]\left(1 - \frac{P}{4N}\right) \quad (3.2)$$

where E_{ext} is the annual or long term average emission factor in the same unit as *k* (g/VMT, g/VKT, and lb/VMT), *P* is the number of wet days with at least 0.254 mm of precipitation during the averaging period, *N* is the number of days in the averaging period, e.g., 365 days for annual, 91 for seasonal, 30 for monthly, and *k*,*sL*,*C*, and *W* are as defined in Equation (3.1). Another expression of Equation (3.3) is:

$$E_{ext} = \left[k\left(\frac{sL}{2}\right)^{0.65}\left(\frac{W}{3}\right)^{1.5} - C\right]\left(1 - \frac{1.2P}{N}\right) \quad (3.3)$$

where E_{ext} is the annual or long term average emission factor in the same unit as *k* (g/VMT, g/VKT, and lb/VMT), and *P* is the number of hours with at least 0.254 mm of precipitation during the averaging period, and *k*,*sL*,*C*, and *W* are as defined for Equation (3.1), and *N* is the number of hours in the averaging period e.g., 8760 for annual, 2124 for season, and 720 for monthly.

The precipitation term in Equations (3.2) and (3.3) can be applied on a daily or hourly basis (Muleski, 2001). Equation (3.2) includes the daily precipitation term and Equation (3.3) has the hourly precipitation term. Selection between Equations (3.2) and (3.3) depends on the availability of the data.

3.2 Process to Estimate PM10 Emissions Using AP-42 and MOBILE6.2 Models.

MOBILE6.2 and AP-42 model are used jointly for estimating PM emissions resulting from vehicular movements. First, MOBILE6.2 is used to estimate the direct vehicle PM emissions (i.e., exhaust pipe, tire wear, and brake wear emissions). Second, AP-42 model is used to estimate PM emissions from the resuspension of paved roads surface dust that results from on-road vehicle travel. Third, the resulting emissions from the two previous steps are summed to obtain the total PM emissions.

3.3 Limitations in Fugitive Dust Emission Estimates.

This section presents the limitations the AP-42 resuspended PM emission model. The model has been found to inaccurately predict PM emissions. Studies have found no correlation between silt loading values and emissions. These findings contradict one of the fundamental theories when developing the AP-42 model.

Kantamaneni et al. (1996), in a study performed in Spokane, Washington, found discrepancies between measured and predicted PM10 emissions. They showed that the measured emissions using a mobile point and stationary source tracer techniques developed by Claiborn et al. (1995) resulted in approximately 42% lower emissions than the ones calculated with the AP-42 model (EPA, 1985). Kantamaneni et al. (1996) found no correlation between measured emissions and silt loading values. This finding contradicts the AP-42 fugitive dust emission model (EPA, 1985) conclusion that the main PM10 emission contributor is silt loading. Kantamaneni et al. (1996) found a slight relation between PM10 and relative humidity under paved road conditions. He also found that street sweeping has little effect on PM10 emissions

when the relative humidity is above 30% and that emission factors for paved roads versus unpaved roads were 42% and 20% lower than the AP-42 suggested values. Kantamaneni et al. (1996) suggest that great care is required in utilizing the AP-42 model in emission control programs as the model over predicts PM10 emissions.

Cahill et al. (1994) performed a study to measure the emissions from paved roads at an intersection of Sacramento, California. In this study, PM10 emissions were measured upwind and downwind of roads to derive approximate emission factors. In this study the data collected under normal traffic conditions was directly compared to emissions predicted with the AP-42 model (EPA, 1993a) to provide an indication of the applicability of the model in California. In this study, the researchers found that measured emissions were lower by one to two orders of magnitude to that predicted with the AP-42 model. The variance found between measured and predicted emissions was attributed to differences that exist in road conditions between different regions of the U.S. In particular, differences related to silt loading and road maintenance techniques (e.g., de-icing, sweeping, sanding) between mid-western U.S., where the AP-42 model was developed, and California, are discussed.

Ashbaugh et al. (1996) performed a study at an intersection in Sacramento, California to resolve discrepancies found in a previous study. Instead of using silt loading values provided by the AP-42 document, Ashbaugh et al. (1996) collected the silt loading at the intersection, which resulted in much lower silt loading values than the ones provided by the AP-42. The highest silt loading value measured was 54 mg/m^2 and the average silt loading measured was 1.5 mg/m^2. The first value is at the 15^{th} percentile of the distribution given in the AP-42 document for high average daily traffic values for more than 5,000 vehicle per day (EPA, 1995a), and the second is

at the 5th percentile of the same distribution. The study performed by Ashabaugh et al. (1996) shows the effect silt loading has on the AP-42. It also suggests that the silt loading values provided in the AP-42 are the best silt loading values to use in the model.

Venkatram (1999) performed a critical examination of fugitive dust emissions from paved roads emissions model published by EPA (AP-42, Section 13.2.1). Venkatram centralizes his criticism on the uncertainty of the model to estimate resuspended dust emission factors from paved roads. He discusses the shortcomings on the model development, the model limitations in terms of the statistical derivation of its parameters (*k*, *p*, and *b* parameters in the model), and the correlation made between measured emission factors and possible explanatory variables such as silt loading and vehicle average weight. Venkatram (1999) discusses the statistical basis of the model emphasizing the primary problem as the fact that the model is based on purely observed correlation between emissions and possible explanatory variables. He concludes that the AP-42 model has a potential over-estimating the emissions by as much as 100%. He insisted that the model in the AP-42 document is not likely to provide adequate estimates of PM10 emissions from paved roads, as the model lacks a mechanistic foundation because the model relies on an input variable, silt loading. Instead, he suggests relying on spot measurements to obtain estimates of the emissions.

Fitz and Bufalino (2002), motivated by the failure of other studies to validate the AP-42 model, conducted a study with a different approach. Instead of using up wind and down wind measurements of PM10, they performed the measurements on moving vehicles with optical sensors. The findings were that the PM10 emissions for a variety of roads in Riverside, California ranged from 64 to 124 mg/km. These are consistent with but generally lower than

measurements using upwind-downwind techniques. Measured emissions by Fitz and Bufalino (2002) were 0.06 – 0.13 g/VKT and predicted emissions were 0.08-0.53 g/VKT. In this study, the difference between measured and predicted emissions is not as important as those discussed before. The reason for this might be attributable to the fact that in this study California-specific silt loading values were used. Although the model still is inaccurate, this study suggests that using local silt loading values improves the accuracy of the model.

Gillies et al. (2005) conducted a study in Fort Bliss base located in the city of El Paso, Texas. In this study, fugitive dust emissions from nine different vehicles were measured, with a mix of civilian and military vehicles. Six of these vehicles belonged to the light duty vehicles classification and the remaining three belonged to the heavy duty vehicle category. The PM10 emission fluxes were calculated with knowledge of the vertical mass concentration profile, the ambient wind speed and direction, and the time the plume took to pass the sampling towers. The emission factors showed a strong linear dependence on vehicle speed and weight. The findings of this study shows that application of AP-42 emission models would generally under-predict the measured emissions for vehicles other than passenger cars by a factor between 2 and 24, depending on vehicle weight and speed. For passenger cars under approximately 1200 kg of weight, the AP-42 methods overpredict emissions. This study brings to discussion the effect of different vehicle characteristics such as weight on the emission predictions made with the AP-42 model. From this study it is possible to determine that additional variables not considered in the AP-42 model affect the generation of PM emissions from vehicle movements. This study shows that variables not consider in the AP-42 model (tire surface structures, tire pressure, vehicle speed, vehicle type, and vehicle weight) could have an impact in the PM emissions.

Although the AP-42 model has been subject of criticism, it is still the best model available at this time to calculate PM emissions from vehicle movements on roads. Further work to derive the parameters used by this model can improve the accuracy of the model. For example, the value of the average vehicle weight can take more accurate values if this parameter is calculated based on individual road, vehicle fleet and volume characteristics. The use of local silt loading values can also improve the accuracy of the model if local values are used. Unfortunately at this time, for this parameter, no database is available at the local or even county level. The effect speed has on the resuspended dust emissions should also be considered in the model. In addition, considering how the tire surface structure can influence the amount of resuspended dust and including this in the model could lead to better emission predictions. Improving the accuracy of the AP-42 model falls beyond the scope of this dissertation. However, some ideas of how to improve the model are provided in Chapter 11.

From the literature reviewed in this chapter it is clear that researchers are interested in finding a better PM emissions model. However, at this moment there is no other model that can be used to supersede the AP-42 model. Furthermore, the only model validated by EPA is the AP-42 model.

Chapter 4: The Emission Model

This chapter presents a review of the EPA emission model MOBILE6.2. Key input parameters, outputs, and model limitations are discussed in this chapter. The MOBILE model was first developed by the EPA in 1978 to estimate on-road vehicle emissions (EPA, 1978). Prior to 1978, estimation of mobile source emissions was performed by using look-up tables which were constructed from empirical data (EPA, 1977). The model has been subjected to significant updates since 1978. In 1981, MOBILE1 was updated to MOBILE2, a model that included emission factors with the presence of emission control devices for the first time i.e.,, catalytic converters for 1975 vehicles and later (Office of Mobile Sources Emission Control Technology Division Test and Evaluation Branch, 1981). MOBILE3 was introduced in 1984, providing the user with more control over the inputs (Office of Mobile Sources Emission Control Technology Division Test and Evaluation Branch, 1984). The model allowed the user to interact more with the computer, offered the user more input selections, and was updated with new vehicle in-use data. Due to the fact that during the same year California had its own emission model (EMFAC7), all data blocks and computer codes related to the estimation of California emissions were deleted from the model (Office of Mobile Sources Emission Control Technology Division Test and Evaluation Branch, 1984).

MOBILE4 was introduced with the capacity to model Reid Vapor Pressure (RVP) on exhaust emission rates. MOBILE4.1 was later introduced in 1991 with added features that allowed users to enter more parameters that affect in-use emission levels, including the impact of oxygenated fuels on CO emissions (Office of Mobile Sources Emission Control Technology Division Test and Evaluation Branch, 1994). MOBILE5 was introduced in 1993 and added to

the MOBILE features the effects of new evaporative emission tests, the effects of reformulated gasoline (RFG), the effects of oxygenated fuels in VOC emissions, and added the July month evaluation option, giving the user the choice to model summer and winter seasons of the year (Office of Mobile Sources, 1994a). In 2001, MOBILE5 was replaced by MOBILE6. This version of the MOBILE model differed significantly from previous versions of the model. This version updated information on the model specifically on emission rates, incorporated more realistic driving patterns, and separated start and running emissions (EPA, 1999).

A separate EPA emission model PART5, is used for the analysis of the particulate air pollution impact of in-use gasoline-fueled and diesel-fueled motor vehicles**.** PART5 calculates PM emissions in grams per mile (g/mi) from on-road vehicles for particles sizes that range from 1-10µm (EPA, 1995b).

Since the release of PART5 in 1995, studies that attempted to validate PART5 emission predictions have found that PART5 underpredicts emissions (Norbeck et al., 1998; Cadle, 1997; Delucchi, 2000). Researchers noted that the model underpredicted emissions because the model was based on almost new, properly functioning vehicles. In fact, a study found that the model lacks representation of real world situations such as poor vehicle maintenance, and the probability of vehicle malfunction (Delucchi, 2000).

In 1995, PART5 was used jointly with MOBILE5 to estimate PM emissions from vehicle travel. However, based on the researchers and modelers observations, EPA decided to revise the PART5 model (Office of Transportation and Air Quality, 2001)**.** MOBILE6.1 was introduced and in this model an upgraded version of the PART5 model was incorporated. The upgraded

version of the PART5 model incorporated mobile source PM emission factors developed by the state of California in year 2000 for the EMFAC2000 emissions model. EMFAC2000 was the mobile source emission model for the state of California. In year 2001, EPA decided to use the PM emission factors developed by California because these emission factors represented the latest data available for that year. Furthermore, these emission factors consider additional characteristics such as vehicle deterioration and fuel sulfur reductions (Office of Transportation and Air Quality, 2001). PART5 model was incorporated in MOBILE6. However, the newer and revised version is incorporated in MOBILE6.1 (Glover and Cumberworth, 2002).

In November 2002, EPA released MOBILE6.2, the most recent version of the MOBILE series. This version of the model is able to estimate particulate matter and idle emissions for diesel-fueled vehicles without using PART5 software, which MOBILE6 and MOBILE6.1 make use of. Additionally, MOBILE6.2 offers an advantage over its predecessor MOBILE6.1, the capacity of estimating emission rates of air toxics (the model capacity to calculate emissions of hazardous air pollutants) (EPA, 2003a).

4.1 MOBILE6.2 Inputs

MOBILE6.2 allows the user to enter local information such as temperature and humidity in the form of inputs. It is designed to improve the accuracy of the emission estimates. However, when local information is not available, default values can be used. These default values are parameters estimated from national averages. Most inputs in the model are optional so that the user can run the model without site specific information. The minimum inputs the user needs to provide are the calendar year, minimum and maximum temperature and fuel volatility. These

inputs need to be entered since national average values for these inputs are unrealistic. A list of MOBILE6.2 inputs is presented below (EPA, 2003a).

- Calendar year
- Month (January, July)
- Hourly Temperature
- Altitude (high, low)
- Weekend/weekday
- Fuel characteristics (e.g., Reid vapor pressure, sulfur content)
- Humidity and solar load
- Registration (age) distribution by vehicle class
- Annual mileage accumulation by vehicle class
- Diesel sales fractions by vehicle class and model year
- Average speed distribution by hour and roadway
- Distribution of vehicle miles traveled by roadway type
- Engine starts per day by vehicle class and distribution by hour
- Engine start soak time distribution by hour
- Trip end distribution by hour
- Average trip length distribution
- Hot soak duration
- Distribution of vehicle miles traveled by vehicle class
- Full, partial, and multiple diurnal distribution by hour
- Inspection and maintenance (I/M) program description

- Anti-tampering inspection program description
- Stage II refueling emissions inspection program description
- Natural gas vehicle fractions
- HC species output
- Particle size cutoff
- Emission factors for PM and HAPs
- Output format specifications and selections

4.1.1 Vehicle Classifications

MOBILE6.2 has twenty-eight individual vehicle classes (Table 4.1). These classes are assigned on the basis of gross vehicle weight and fuel characteristics. Many of the twenty-eight classes are paired. Some gasoline-fueled classes are paired with their corresponding diesel-fueled classes, resulting in a composite list of sixteen vehicle classes (shown in Table 4.2). The vehicle fleet distribution in MOBILE6.2 can be designed to account for vehicles with zero to twenty five years of age, taking as reference the calendar year to be modeled. The model allows the use of a national average vehicle fleet distribution, which assigns the smallest proportion of the vehicle fleet distribution to older vehicles (vehicles closer to the 25 years of age) and the largest proportion to newer vehicles (vehicles closer to zero years).

Table 4.1: Complete MOBILE6.2 Vehicle classifications (Source: EPA, 2003a).

MOBILE6 Vehicle Classifications		
No.	Abbreviation	Description
1	LDGV	Light-Duty Gasoline Vehicles (Passenger Cars)
2	LDGT1	Light-Duty Gasoline Trucks 1 (0-6,000 lbs. GVWR, 0-3,750 lbs. LVW)
3	LDGT2	Light-Duty Gasoline Trucks 2 (0-6,000 lbs. GVWR, 3,751-5,750 lbs.)
4	LDGT3	Light-Duty Gasoline Trucks 3 (6,001-8,500 lbs. GVWR, 0-5,750 lbs.)
5	LDGT4	Light-Duty Gasoline Trucks 4 (6,001-8,500 lbs. GVWR, greater than 5,751 lbs.)
6	HDGV2b	Class 2b Heavy-Duty Gasoline Vehicles (8,501-10,000 lbs. GVWR)
7	HDGV3	Class 3 Heavy-Duty Gasoline Vehicles (10,001-14,000 lbs. GVWR)
8	HDGV4	Class 4 Heavy-Duty Gasoline Vehicles (14,001-16,000 lbs. GVWR)
9	HDGV5	Class 5 Heavy-Duty Gasoline Vehicles (16,001-19,500 lbs. GVWR)
10	HDGV6	Class 6 Heavy-Duty Gasoline Vehicles (19,501-26,000 lbs. GVWR)
11	HDGV7	Class 7 Heavy-Duty Gasoline Vehicles (26,001-33,000 lbs. GVWR)
12	HDGV8a	Class 8a Heavy-Duty Gasoline Vehicles (33,001-60,000 lbs. GVWR)
11	HDGV7	Class 7 Heavy-Duty Gasoline Vehicles (26,001-33,000 lbs. GVWR)
12	HDGV8a	Class 8a Heavy-Duty Gasoline Vehicles (33,001-60,000 lbs. GVWR)
13	HDGV8b	Class 8b Heavy-Duty Gasoline Vehicles (>60,000 lbs. GVWR)
14	LDDV	Light-Duty Diesel Vehicles (Passenger Cars)
15	LDDT12	Light-Duty Diesel Trucks 1and 2 (0-6,000 lbs. GVWR)

Table 4.1: Cont. Complete MOBILE6.2 Vehicle classifications (Source: EPA, 2003a).

MOBILE6 Vehicle Classifications		
No.	Abbreviation	Description
16	HDDV2b	Class 2b Heavy-Duty Diesel Vehicles (8,501-10,000 lbs. GVWR)
17	HDDV3	Class 3 Heavy-Duty Diesel Vehicles (10,001-14,000 lbs. GVWR)
18	HDDV4	Class 4 Heavy-Duty Diesel Vehicles (14,001-16,000 lbs. GVWR)
19	HDDV5	Class 5 Heavy-Duty Diesel Vehicles (16,001-19,500 lbs. GVWR)
20	HDDV6	Class 6 Heavy-Duty Diesel Vehicles (19,501-26,000 lbs. GVWR)
21	HDDV7	Class 7 Heavy-Duty Diesel Vehicles (26,001-33,000 lbs. GVWR)
22	HDDV8a	Class 8a Heavy-Duty Diesel Vehicles (33,001-60,000 lbs. GVWR)
23	HDDV8b	Class 8b Heavy-Duty Diesel Vehicles (>60,000 lbs. GVWR)
24	MC	Motorcycles (Gasoline)
25	HDGB	Gasoline Buses (School, Transit and Urban)
26	HDDBT	Diesel Transit and Urban Buses
27	HDDBS	Diesel School Buses
28	LDDT34	Light-Duty Diesel Trucks 3 and 4 (6,001-8,500 lbs. GVWR)

Table 4.2: Composite MOBILE6.2 Vehicle classifications (Source: EPA, 2003a).

MOBILE6 Vehicle Classifications		
No.	Abbreviation	Description
1	LDV	Light-Duty Vehicles (Passenger Cars)
2	LDT1	Light-Duty Trucks 1 (0-6,000 lbs. GVWR, 0-3,750 lbs.)
3	LDT2	Light-Duty Trucks 2 (0-6,000 lbs. GVWR, 3,751-5,750 lbs.
4	LDT3	Light-Duty Trucks 3 (6,001-8,500 lbs. GVWR, 0-5,750 lbs.
5	LDT4	Light-Duty Trucks 4 (6,001-8,500 lbs. GVWR, 5,751 lbs.)
6	HDV2B	Class 2b Heavy-Duty Vehicles (8,501-10,000 lbs. GVWR)
7	HDV3	Class 3 Heavy-Duty Vehicles (10,001-14,000 lbs. GVWR)
8	HDV4	Class 4 Heavy-Duty Vehicles (14,001-16,000 lbs. GVWR)
9	HDV5	Class 5 Heavy-Duty Vehicles (16,001-19,500 lbs. GVWR)
10	HDV6	Class 6 Heavy-Duty Vehicles (19,501-26,000 lbs. GVWR)
11	HDV7	Class 7 Heavy-Duty Vehicles (26,001-33,000 lbs. GVWR)
12	HDV8A	Class 8a Heavy-Duty Vehicles (33,001-60,000 lbs. GVWR)
13	HDV8B	Class 8b Heavy-Duty Vehicles (>60,000 lbs. GVWR)
14	HDBS	School Buses
15	HDBT	Transit and Urban Buses
16	MC	Motorcycles (All)

It must be pointed out that these vehicle characteristics do not follow conventional classifications defined by transportation agencies**.** FHWA and DOTs have a different vehicle classification method than EPA. The FHWA classifies vehicles into thirteen vehicle categories. Therefore, FHWA field data will need to be adjusted for use in MOBILE6.2.

The sixteen vehicle classification shown in Table 4.2 is a composite group classification of vehicles. It mainly groups all gasoline and diesel-fueled vehicles into heavy duty and light duty categories. For some of the input parameters, the model requires that input data be entered for the 28 vehicle classification shown above, and for others the model requires information for 16 vehicle classifications only.

4.1.2 Vehicular Miles Traveled

Vehicle-Miles Traveled (VMT) is the total number of miles driven by all vehicles within a given time period and geographic area. It is subjective to factors such as number of vehicles per household, population, the number of car trips per day and distance traveled. The VMT provides a unit to measure the travel made by a private vehicle, such as an automobile, van, pickup truck, or motorcycle. True VMT is the total number of miles traveled by a given vehicle or fleet of vehicles in a given period of time (e.g., day, year) on the road network.

4.1.3 VMT Fractions

The VMT fraction in MOBILE6.2 refers to the fraction of the total miles traveled by a vehicle class. MOBILE6.2 contains a series of national average VMT fractions for different

years ranging from 1952 to 2050. These VMT fractions are estimated using national average information. However, the disadvantage of using these default values is that the fraction of VMT is different across regions of the country. Even though MOBILE6.2 default values reflect national VMT average values, local information reflects more realistic VMT fractions. VMT fractions are used by the model to calculate the emission factors (EPA, 2004).

4.1.4 Roadway Types

A new feature incorporated in MOBILE6.2 is a more detailed and expanded road classification. MOBILE6.2 has four types of roads: freeway, arterial road, local road and freeway ramp. Each road type incorporates an empirical number and duration of traffic stops for estimating emissions from various types of vehicles.

The VMT on freeway road refers to driving that occurs on roadways that do not have traffic signals, usually have limited access (via converging ramps), and have free flow speeds greater than 50 miles per hour. The arterial/collector VMT refers to driving that occurs on roadways that have signalized traffic control. Arterial roadways are not freeways because they have traffic signals, but they have free flow speeds and may be divided, multi-lane or one-way. Local roadway VMT refers to driving on roadways which are not normally considered as part of the transportation network. These roadways do not have traffic lights and rarely have more than one lane in each direction. They usually allow vehicle parking on the roadway surface and traffic control is handled via stop/yield signs. Speed limits are normally 30 miles per hour or less. Freeway ramp VMT refers to the activity on access roadways for freeways. It includes both traffic entering and exiting the freeway. Driving on freeway ramps is characterized by rapid

acceleration from a complete stop, low speeds to freeway speeds, and decelerations from freeway speeds to low speeds or a complete stop (EPA, 2004).

4.1.5 Average Speed

Average speed allows designates a single average speed for all freeways and /or arterial roads for the entire day. The average speed entered takes values that range from 2.5 miles per hour to 65 miles per hour. When average speed is used, it is necessary to indicate the roadway scenario to be used. Average speed, as defined in MOBILE6.2, is the distance traveled in miles divided by the time in hours (EPA, 2004).

4.2 The Federal Test Procedure (FTP)

The FTP, also known as the LA4 cycle, has been the test procedure used since the early 1970's to measure emissions from old vehicles and new vehicles. The FTP is a test cycle which is used to certify new vehicles to emission performance standards (Code of Federal Regulation, 1970). The test is conducted using a dynamometer for different driving cycles to measure different pollutants (e.g., CO, NOx, and HC). Motor vehicle manufacturers have made significant improvements in the last 10 years to reduce in-use deterioration of vehicle emissions control equipment (Office of Mobile Sources, 1994b; MECA, 2000; MECA, 2007; Buckland and Cook, 2005; West and Sluder, 2000). These improvements refer to catalyst longevity, fuel injection instead of systems that use carburetors and improvements in spark plug materials. These technological advancements improved the longevity of the emission control devices (EPA, 1998b) and motivated EPA to consider revisions to the emission control deterioration factors in MOBILE6. The revisions performed in emission control deterioration factors resulted in

improved emission control deterioration factors incorporated in MOBILE6 (Carey et al., 1999; Enns et al., 1999).

The FTP test was criticized as having several shortcomings. The FTP have limited acceleration rates and speed limits, mainly because at the time the test was developed dynamometers limited vehicle speed to less than 60 mph, or acceleration rates greater than 3.4 mph/sec. In response, EPA developed a new test procedure called the supplemental FTP, or SFTP. This new testing procedure allows greater acceleration rates and higher speeds (Brzezinski and Gilmore 2001).

MOBILE6.2 is considered to be a Macro-scale emission factor model reflecting travel over a large region (Brzezinski and Gilmore 2001). MOBILE6.2 is designed to perform Macro-scale modeling, so the input average speed needs to reflect the average speed for a region rather that for only a single road. This average speed distribution is estimated using a travel demand model (TDM). MOBILE6.2 uses the regional average speed to calculate emissions for each vehicle class. The model develops emissions for various vehicle classes using standard driving cycles such as the Federal Test Procedure (FTP) or the SFTP.

MOBILE6.2 uses the regional average speed estimate to calculate the emission rates for each vehicle class. The model develops basic emissions for various vehicle classes using standard driving cycles such as the Federal Test Procedure (FTP) or the SFTP. To have more realistic emission rates, correction factors are used in MOBILE6.2 to estimate emissions under operating conditions different than the ones considered in the SFTP. The correction factors used

are the speed correction factors. These factors enable MOBILE6.2 to estimate emissions under different speeds and acceleration patterns (EPA, 2003c).

Exhaust emissions under the SFTP are measured by driving the vehicle on a dynamometer simulating different driving conditions. The vehicle runs on the dynamometer under two conditions, cold start (i.e., after a period of non-use) and hot start (while the engine is still hot). In addition, evaporative emissions are measured by heating the tank to simulate sun heating, and then the car is driven for a period of time and stopped with the engine hot i.e., hot soak testing (EPA, 1993b).

MOBILE6.2 was developed to account for the impact of driving behaviors not represented by the FTP (off-cycle), newer vehicles being certified using the SFTP, A/C on emissions, temperature adjustments, and fuel adjustments. The final formula used to estimate running exhaust emission in MOBILE6.2 is Equation (4.1) (FHWA, 2006).

4.3 MOBILE6.2 Outputs

MOBILE6.2 estimates emission factors (g/mile) of air pollutants for each of the sixteen vehicle categories previously described. The modeling is based on thousands of SFTP tests for LDV. Currently, EPA uses an engine dynamometer to measure emissions from individual heavy duty diesel engines. The emission factors obtained from engine dynamometers are reported in grams of pollutant emitted per unit of brake work performed by the engine (grams per brake horse power hour). For HDVS, the emission factors are derived from baseline emission rates (gram/brake-horsepower-hour) developed in the laboratory, using engine dynamometer test

cycles (Feng et al., 2005) shown in Figure 4.1. The conversion of engine work to g/mile rates is performed by MOBILE6.2 using Equation (4.1) (Pollak, 2003).

$$MOBILE6.2\left(\frac{g}{mi}\right) = EF\left(\frac{g}{hp-hr}\right) \times \frac{\rho}{FE} \times BSFC \quad (4.1)$$

where $MOBILE6.2\left(\frac{g}{mi}\right)$ is the emission factors calculated in grams per mile, EF is the emission factor from the engine testing in grams/brake-horsepower-hour, FE is fuel economy in mile/gallon, ρ is the fuel density in lb/gal, and $BSFC$ is the brake specific fuel consumption in lb/hp-hour.

To account for the differences between the SFTP test and the actual fleet activity, the model applies corrections for differences in certain parameters (e.g., average speed, temperature, and fuel).

Figure 4.1: Engine dynamometer (Source: CE-CERT, 2009).

4.4 Macro, Meso and Micro Analysis Scales and MOBILE6.2

Macroscale analyses are appropriate for developing analysis over large areas (e.g., county, state, national). *Mesoscale* analyses are appropriate for developing analyses at a finer level of spatial resolution (e.g., roadway links, traffic analysis zones). This type of analyses uses vehicle trips consistent with the output from standard travel demand model. *Microscale* analyses have a much finer level of spatial resolution than *mesoscale*. This type of analysis allows the estimation of emissions at the intersection and corridor level.

MOBILE6.2 is considered a *macroscale* emission factor model. The estimates are developed based on average trips over a large region and vehicle activity (average speed, VMT) and are designed to calculate the total emissions inventory from inputs that belong to a region rather that a single road. However, the resulting emission factors are calculated for each vehicle classification. The calculation of an emission inventory at the *macroscale* level has the following basic data elements: emission rates, vehicle activity information, vehicle fleet, characterization information, meteorological information, control program information, and fuel specifications (Office of Air and Radiation, 2001).

4.5 MOBILE6.2 Shortcomings and Limitations

MOBILE6.2 is limited by the methodology used in the emission factor development. This methodology is identified to be limited especially for the HDV. Limitations are found in the testing procedure (SFTP) and the conversion factors used in the process to convert the emission factors to grams per mile.

The use of an engine dynamometer to determine the emission factors for heavy duty vehicles in MOBILE6.2 also limits the accuracy of the estimates. Although different driving conditions are simulated in the engine dynamometer with the application of loads to the engine, real driving conditions are not fully considered. Researchers have found that the emissions produced by heavy duty vehicles depend not only on the condition considered in the engine dynamometer testing but also on the following conditions: aerodynamic drag, tire rolling resistance, tire pressure, axle geometry, whether the wheels are driven or towed, grade load, inertial load, and road way characteristics i.e., horizontal alignment, cross slope, and longitudinal grade (Feng et al., 2005).

Emission factors for both gasoline and diesel heavy-duty vehicles, unlike the light-duty vehicles, are expressed in terms of grams per brake-horsepower-hour (g/bhp-hr). Thus, an energy conversion factor in terms of brake horsepower-hour per mile (bhp-hr/mi) must be used to convert engine work to vehicle activity in terms of miles traveled (Browning, 2002). EPA found it impractical to perform the same number of in-use vehicle testing in HDV as it did on LDV, so engine certification data was used instead to estimate the emission factors. This data was taken from in-use surveys for the fuel density and fuel economy (TIUS, 1992). This is a limitation because surveys and certification data may not be accurate, as the engine testing performed in 1982 only included vehicles 1978 and older. Test data for newer heavy-duty vehicles was developed based on certification tests (EPA, 1998b). The fact that the vehicle fleet tested is old results in uncertainties in the calculation of emission factors (Browning, 1998). These uncertainties are because newer emission control technology developed for heavy duty trucks (e.g., selective catalytic reduction (SCR), and auxiliary power units (APU)) was not included in the chassis engine dynamometer testing. In addition, the test does not consider factors such as the

aerodynamics, tire resistance, frequent stops, aggressive driving and extended idling behavior for long periods of time. Bertelsen (2001) discusses the technologies emission control technologies expected for 2004-2009 time frame and emphasizes the important role of advanced catalyst technologies.

Granell et al. (2004) studied the differences that exist between PART5 and MOBILE6.2 in terms of PM emission factors. The control parameters used in the study were calendar year and vehicle speeds. This study presents an important finding in that it shows that MOBILE6.2 as well as PART5 are both insensible to changes in speed. The results showed that exhaust PM emissions tend to be lower using MOBILE6.2 than predicted by PART5, while tire wear and brake wear emission factors tend to be higher. This limits the accuracy obtained when PM emissions at the micro-scale level is estimated. Furthermore, it reduces the model accuracy when used in single roads or road segments with variable speed.

Additional limitations of the MOBILE model were documented and accounted by the U.S. General Accounting Office (GAO) in 1997. In that year, 14 EPA officials studied the limitations of MOBILE5a model and the plans to address them in MOBILE6. However, many of the limitations identified were not addressed and to this date some remains in MOBILE6. Among the limitations that remain is the grade of the roads. EPA officials considered that increased road grade can result in substantial emissions increases, especially in CO and NOx emissions (U.S GAO, 1997). However, due to the difficulty of testing for this driving activity and the difficulty of plotting road grades for millions of miles of highways, this activity was not and has not been represented in the EPA's model to date (U.S. GAO, 1997). EPA officials were also concerned with the maintenance and inspection programs for heavier vehicles more than for light duty (e.g.,

vehicles that weight over 8,500 lbs). EPA officials found that the data for these types of vehicles was not enough and that the current data available comes from vehicles with 20 years of age.

Another limitation of the MOBILE6.2 model relies in the method used to estimate PM emissions from brake wear. The PM brake wear emissions in MOBILE6.2 are estimated using the same formula as the PART5 EPA model. In the model, the brake wear emission factors are assumed to be the same for all vehicle classes (Browning, 2002):

$$BRAKE = 0.0128 \times PSBRK \quad (4.2)$$

where $PSBRK$ is the fraction of particles less than or equal to the particle size cutoff (e.g., PM 10).

Tire wear emissions in MOBILE6.2 are estimated using the same formula as in the PART5 model. (Browning, 2002):

$$TIRE = 0.002 \times PSTIRE \times WHEELS \quad (4.3)$$

where *TIRE* is the emission factor in grams per mile, *PSTIRE* is the fraction of particles less than or equal to the particle size cutoff, and *WHEELS* is the number of wheels of a vehicle class.

Assuming the brake wear emission is the same for all vehicles is not accurate as the brake pads and number of pads used across vehicle categories is different. Moreover, the frequency of stops is considered while the driving mode is not. Thus, the effect aggressive driving and stop frequency has on brake wear emissions is not considered.

In addition to the previously identified limitations of the engine dynamometer test, the test also failed to consider the following conditions: brake frequency (number of stops) and applied load, number of axles and tires, and the A/C operation conditions. Accounting for the breaking frequency determines the condition of the brakes and the amount of brake wear emissions. Furthermore, the number of tires also contributes to the brake PM10 emissions. The force applied to the brakes also influences the amount of PM emissions emitted not only by the brakes but by the tire. Steeper roads in this sense will tend to increase this type of PM10 emissions. The number of axles also is important since the number of axles is related to the number of tires and the load the vehicle can carry. The fact that MOBILE6.2 VMT fractions command only allows the definition of the fraction of VMT that corresponds only to highway roads limits the performance of the model, because the transportation network is composed of a mix of road type classifications (i.e., arterial, local, and freeway ramps).

At this time, MOBILE6.2 is the current state-of-the art emission modeling software in the U.S. However, as in past versions of the model MOBILE6.2 needs to upgrade its emission factors to represent more realistic conditions. Furthermore, the model needs to update the vehicle fleet used in the development of the emission factors to account for newer technologies and needs to increase the amount and representativeness of HDV in the emission factor estimation process.

The scope of the research presented in this dissertation is not aimed to improve the accuracy of MOBILE6.2. However, some ideas on how the model can be more accurate are presented in Chapter 10.

Chapter 5: Current Emission Modeling GIS-Based Frameworks

The assessment of transportation related emissions is a common practice that is performed by many planning agencies and transportation planners, because transportation related emissions are considered to be one of the main sources of air pollution in urban areas. Considering the negative impact transportation related emissions have on the environment have motivated researchers to improve the accuracy of the emission estimates. Researchers started to base their emissions assessment technique on a GIS environment to capture the spatial and temporal variation associated with transportation. However, improvements still can be made. This chapter describes the techniques and efforts made towards the assessment of mobile source emissions in a GIS environment.

Xia and Leslie (2003) introduced a GIS framework consisting of an integrated vehicular exhaust emissions model (MOBILE5) with a three-dimensional photochemical grid. The framework was developed to aid in the establishment of urban air pollution control strategies for Sydney, Australia. The framework was developed to take advantage of many GIS database abilities (e.g., the ability to store and manage spatial and temporal data, the ability to graphically represent road networks as well as traffic emissions). The framework represents a reasonable effort towards improving the transportation strategies based on the air quality impact. Nevertheless, it is still incomplete and limited. Important transportation information (e.g., VMT, speed, and traffic flow) is assigned based on road traffic data collection by the local government. It does not use any traffic assignment model to predict traffic flow; instead traffic counts collected by the local government are used.

The absence of any traffic assignment model in the framework developed by Xia and Leslie (2003) substantially affects the accuracy of the following transportation parameters: VMT, traffic flow and speed. In absence of a traffic assignment model, the transportation information is limited to only data obtained by the counting stations which reflect the congestion condition on the region where they are located. Road counting stations are set at fixed locations, usually on main roads. Road counting locations are limited on capturing the effect traffic congestion has on certain transportation parameters (e.g., VMT, speed, and traffic flow). If traffic congestion happens on roads close to the data collection location, the effect of traffic congestion is reflected. Whereas, if congestion happens on roads far from the data collection location, its effects are not reflected on the data collected.

In terms of the grid definition, the framework uses a modeling system named Urban Airshed Model (UAM-V) developed by Systems Applications International (SAI). This system produces a three-dimensional photochemical grid model that calculates the concentration of both inert and chemically reactive pollutants. Although the framework has a grid module, there are still some limitations. The grid module does not allow any cell size definition, therefore limiting the possibility to increase the resolution of the grid.

Another limitation of the framework is that the impact of land use changes in the emissions cannot be accounted for. Also, the fact that the emission model used is MOBILE5 results in inaccurate emissions as the emission factors that the model use come from an old vehicle fleet. Furthermore, the emission model is not just limited because the emission factors are outdated but, the incorporation of a newer version of the model requires additional processes in the integration methodology. For example, processes to estimate the fraction of VMT that

belong to each road type, the processes needed to estimate the average speed for each road classification, and vehicle fleet.

Symeonidis et al. (2004) developed a framework to be a decision support system for environmentally related strategies and planning policies. This framework, named “Emission Inventory System from Transport” (EIST), consisted of six modules: Input Data Processes, Database, Air pollutants Emissions Calculations, Database System Management Application, Geographical information and Emission inventory System from Transport. The EIST framework produces emission inventories for air, sea, on-road, off-road, and rail transportation systems. The emission inventory in the EIST framework is calculated by using COPERTII which is a model developed by Alvihk et al. (1997) for the European Commission to calculate emissions in Europe.

The EIST framework does not contain a transportation module as all transportation information is computed separately from the framework, using government databases and traffic counts. Furthermore, the information needs to be formatted to an MS Excel format to be imported by the framework. Additionally, not having a transportation module in the framework limits the possibility to analyze different transportation scenarios because real time modification of the transportation network cannot be made directly in the framework. Government traffic counts do not account for the impact different transportation scenarios have on the whole transportation network either. In order to do this it is necessary to perform a transportation simulation. However, these procedures are not connected to the framework, making the real time calculation of new scenarios impossible. Additionally, the use of the EIST framework is limited to European countries since the emission model used is COPERT II. EPA requires the use of

MOBILE6.2 as the emission model used in any transportation conformity analysis. Furthermore, a study performed by Pujadas et al. (2004) shows that the emission model COPERT III is not accurate. Pujadas et al. (2004) compared measured NOx and CO emissions from 101 passenger vehicles in idling and in-use mode with emission predictions using COPERT III. The results obtained showed noticeable deviation between predicted and measured idle emissions. Showing that generally CO is underestimated and NOx is over-estimated.

Sjödin and Jerksjö (2007) compared predicted emissions using COPERT 4 and measured emissions using a remote sensing device (Fuel Efficiency Automobile Test) in the city of Göteborg, Sweden. The results obtained showed that:

- For NOx from gasoline passenger cars, there is a reasonably good agreement between COPERT 4 model and NOx measured emissions.
- A fairly poor agreement between COPERT 4 emission predictions and emission measurements was observed for HC emissions from gasoline passenger cars
- Reasonable agreement was found between COPERT4 and on-road emissions for CO from gasoline passenger cars.
- For heavy-duty diesel vehicles (both buses and trucks), there is reasonably good agreement between predicted and observed NOX emissions for the Euro 2 and Euro 3 categories, whereas for later categories (Euro 4, Euro 5 buses) the models tend to underpredict emissions.
- COPERT 4 tended to underpredict NOx emissions from diesel passenger cars.

Sjödin (2007) findings show that the COPERT 4 model not only is uncertain in measuring emissions in idle mode but that it is uncertain in-use operation at different speeds. Uncertainties shown by the COPERT emission model makes the framework developed by Symeonidis et al. (2004) uncertain in the emission estimation.

The framework developed by Parra et al. (2006) used a high resolution grid (1km by 1 km) to address transportation-related emissions. It is conservative, while the grid resolution can be built of 1km by 1 km cell size, the sizes of the grid are restricted to 2 km by 2 km, 4 km by 4 km, and 8 km by 8 km. The algorithm used by Parra et al. (2006) to estimate transportation related hot exhaust emissions is:

$$E_r^{ihot}(k,d) = \sum_{j=1}^{n} Clf \times Crd \times DAT_{rj}(k) L_r(k) F_j^{ihot}(S_r) \quad (5.1)$$

where

$E_r^{ihot}(k,d)$ is expressed in g/day representing hot exhaust emission of pollutant *i* during one day (weekday or weekend) in road segment *r (*urban, rural, or highway) that is allocated to cell *k*th,

$F_j^{ihot}(S_r)$, expressed in g/km, is the hot emission factor of pollutant *i* for vehicle category *j* as function of speed S_r;

$L_r(k)$, in kilometers, is the length of road segment *r;*

DAT_{rj}; expressed as number of vehicles per day, is daily average traffic of vehicle category j;

Crd is the ratio between daily for a specific month; and

Clf is the coefficient for daily traffic (to adjust for weekend or week day).

The algorithm used for transportation-related hot exhaust emissions has certain shortcomings. The emission estimation procedure is based on daily average traffic for each vehicle category considered. However, the DAT values are computed for major roads only (e.g., major highways, roads and streets), roads with DAT of over 3000 vehicles. No modeling procedure is used to determine the effect of traffic congestion on vehicular volume in either major or minor roads. In other words, no traffic assignment method is used to estimate the volume of traffic on roads when a traffic congestion event happens. Considering minor roads is necessary because when traffic congestion occurs, vehicles tend to take alternative roads to get to their destinations. These alternative roads may turn out to be minor streets or roads.

The fact that minor roads are not considered in the analysis results is under estimating the mobile source emissions because less volume of vehicles is estimated. Moreover, it fails to reflect a realistic scenario when traffic congestion occurs. This reduces the impact congestion has on emissions and leads to mistaken transportation congestion mitigation measures or decisions.

The framework built by Parra et al. (2006) also fails to calibrate the vehicular kilometers traveled to other sources of information (e.g., national databases that have transportation information and/or governmental transportation agencies). Moreover, the emission modeling method cannot be used in the United States since EPA requires MOBILE6.2 to be the emission modeling software.

The strength of Parra et al. (2006) relies on that it has the capability to build a high resolution grid. However, the emission model used is a previous version of the COPERT III model. This limits the accuracy of the emissions calculated for the reasons previously discussed. Furthermore, real time analysis cannot be performed as traffic data collection occurs in this type of analysis.

A framework developed by Lin and Lin (2002) integrates a vehicle emission model (MOBILE-Taiwan 2.0), a pollutant dispersion model (CALINE 4), and a backward trajectory model to estimate the emissions and spatial distribution of traffic pollutants. This framework presented interesting features such as flexibility to build grids with different size cells and the use of EPA approved emission modeling software and pollutant dispersion model. However, the transportation related information used in this research is based on traffic counts on 45 main streets. This is a limitation as it fails to simulate the effect of traffic congestion on the transportation network. Traffic counts only determine the congestion on the roads nearby to where the counting station is set. Moreover, the traffic counts can only cover a small area of the transportation network in which congestion might not even happen during the data collection period. Furthermore, the traffic count stations are positioned on main streets, leaving out the traffic volume that occurs on minor roads, thus underestimating the fleet of vehicles on the network. Traffic counts cannot be used to estimate the impacts of proposed new congestion control measure. On the other hand, traffic assignment techniques model the effects congestion has on the whole transportation network.

Lin and Lin (2002) compared measured emission values (71 stations) versus simulated emission values. Their failure to use better quality estimates of the transportation related inputs

(traffic volumes) resulted in underestimation of CO and NO_x by 20 to 50 % when compared to measured values.

Lin and Lin (2002) did not perform any calibration or verification of the transportation related inputs (traffic flow). Furthermore, the framework did not consider any seasonal adjustment of the transportation information.

Although Lin and Lin estimated PM10 emissions with the EPA AP-42 model, they missed the opportunity to use road specific traffic volumes and average vehicle weight in the AP-42 model. Furthermore, the emission module was developed for Taiwan and did not incorporated EPA latest improvements in the MOBILE model (e.g., vehicle deterioration rates and speed correction factors). Therefore, the model is inaccurate in estimating the emissions.

A GIS-based integrated system for visualization and estimation of road traffic air pollution was created by Rebolj and Sturm (1999). The main goal of their research was to develop a GIS based graphical interface to estimate road traffic emissions, which could lead decision makers to better informed decisions. The system utilizes an emission modeling software developed by the Institute for Internal Combustion Engines and Thermodynamics at the Technical University of Styria, Austria. This model has the ability to estimate CO, CO_2, NO, and SO_2 emissions. The traffic data was collected by automated traffic count stations operated by the government of Styria, Austria. The measured traffic data included weekly, seasonal, and hourly traffic volumes for trucks and cars. Once the traffic data is measured, it is then entered to the emission modeling software for emission estimates. A Gaussian line source model is used to model emissions at road links. The Gaussian model calculates the pollutant concentrations at

different distances from the road centerline (e.g., 0 m, 10 m, and 20 m). The system attempts to integrate traffic data and air quality planning. However, it too has some shortcomings and limitations. One of the shortcomings is that the framework does not predict traffic conditions (uses a traffic assignment technique). It also uses traffic counts to determine the transportation inputs. This is inconvenient because traffic improvement measures or projects cannot be evaluated in real time, since for any new transportation measure considered a new set of traffic data should be collected. In this study the traffic information is based on traffic counts undertaken by the Styrian government. Then, this information was manually entered into a GIS database to then be used in the air quality analysis.

Traffic counts are only placed on major roads of the city; this underestimates the flow of vehicles through minor roads when traffic congestion events occur. As major roads become congested, vehicles (more commonly passenger vehicles) tend to take any available path to get to their destinations, often times by minor roads (i.e., local classification type of roads).

Another shortcoming of the model is that the pollutant levels are located on GIS map only on individual road segments. This limits the only possible source of emissions to road segments, leaving behind the alternative of considering other emission sources. Alternatively, an emission grid offers the possibility to consider emissions from other sources, since the grid can account for different attributes that relies within each cell that at the same time forms the grid.

Research presented in this chapter has a common shortcoming they all failed to incorporate a travel demand model in their frameworks. The fact that this research did not incorporate any travel demand model to their framework limits the analysis in terms of land use

representation. This results in the inability to reflect the impact land use changes has on emissions.

Chapter 6: GIS-based Transportation Modeling and Air Quality Analysis

A key element in transportation planning is travel forecasting, a procedure that is usually accomplished through the use of computerized transportation modeling. Similarly, air quality planning is performed using a computerized procedure (i.e., MOBILE6.2). At present time, some efforts have been made towards the integration of both planning procedures with the desire of making better informed decisions. This chapter reviews different efforts made towards the integration of transportation and air quality planning, and then reviews efforts made to improve the accuracy and quality of transportation related inputs used in MOBILE6.2

Brown and Affum (2002) developed a GIS-based environmental modeling system named Transport Add-on Environmental Modeling System (TRAEMS). This system makes use of GIS capabilities to integrate the output of a transportation planning model and the environmental impacts of different road traffic scenarios. The TRAEMS has the capacity of using the output from any travel demand model (TDM). In the case of emission modeling, the TRAEMS is capable of estimating emissions of hydrocarbons (HC), carbon monoxide (CO), nitrous oxides (NOx), sulfur dioxide (SO_2), carbon dioxide (CO_2) and particulate matter (PM10). TRAEMS also uses the Gaussian based CHOCK dispersion model for predicting air pollution concentrations near roadways and is able to create a grid of custom sizes. However, TRAEMS system does not use any MOBILE emission modeling software to estimate emissions. Instead, the air emission model used in TRAEMS was developed based on traffic collection data and emission factors obtained from the U.S. and New South Wales (NSW) to assess the emissions from the vehicle fleet in Australia. Three main categories were created: light duty petrol vehicles comprising passenger cars and light commercial vehicles (LDPV), heavy duty petrol vehicles

comparing medium and heavy commercial vehicles (CV) and buses (HDPV), and heavy duty diesel vehicles comprising medium and heavy CV (HDDV). The algorithm by which calculations are performed is the following:

$$E = \sum_{i=1}^{n} N_i \times P_i \times f(s)_i \tag{6.1}$$

where P_i is the emission factor (in in grams per kilometer of roadway g/km) for vehicle of a particular type i, N_i is the total volume of vehicle type i, E is the emission per vehicle type i, $f(s)_i$ is the speed related emission factor correction function for each pollutant and vehicle type, and n is the total number of vehicle types into which the vehicle fleet is classified.

The fact that TRAEMS uses Equation (6.1) limits TRAEMS system, because the algorithm used does not account for any vehicle deterioration rate as does MOBILE6.2. Furthermore, the emission model did not consider the speed correction factors incorporated in MOBILE6.2. These speed correction factors represent different driving cycles for vehicles in a variety of roadway types under a variety of congestion levels and average speed (Sierra Research, 1997). This means that the emission factors used to estimate the emissions did not account for the effect of different congestion levels encountered on different roads classes. Moreover, the algorithm does not account for the effect of newer emission control devices as does MOBILE6.2. In addition the algorithm does not account for different seasons of the year. Thus, seasonal effects on the emissions are not accounted. Another limitation is that EPA requires the use of MOBILE6.2 in the elaboration of the State Implementation Plan (SIP) and all new transportation conformity analysis. Additionally, the absence of a travel demand model that

incorporates land use changes in the model is another shortcoming. This limits the model in the same manner as described for the literature presented in Chapter 5.

In TRAEMS the fleet distribution is considered to be the same for the whole network, without considering different types of roads, or road functional class distribution, while differences among road functional class can lead to certain fleet distribution (e.g., on freeway roads heavy vehicles tend to be more present, than in local/residential roads). Different types of roads have different features (e.g., freeways have greater speed limits, more lanes).

Although TRAEMS estimate PM10 emissions, these emissions are direct vehicle emission rates (i.e., from exhaust pipe, brake wear, and tire wear) only. TRAEMS does not consider the emissions from resuspended loose material on the road surface.

Anderson et al. (1996) developed a model to estimate the impact of traffic congestion in terms of air quality. The model developed in this research is interfaced with MOBILE5.C to estimate mobile source emissions for the city of Hamilton, Canada. MOBILE5.C is the Canadian version of MOBILE5 (Grondin et al., 2007). The model is called Integrated Model of Urban Land-use and Transportation for Environmental Analysis (IMULATE). IMULATE estimates traffic flows and average speeds on each link of an urban road network using a user equilibrium assignment algorithm. It uses the estimated traffic flows and average speed to estimate the vehicular emissions by using MOBILE5.C. After calculating the emission estimates the model uses CALINE-4 to estimate dispersion of CO near roadways. The model has its own limitations as well. One is that the emission modeling software used is MOBILE5.C, the Canadian version of MOBILE5, a MOBILE series version that has been replaced by MOBILE6.2 in the U.S.

Another limitation is that the model develops estimates for HC, CO, and NOx emissions but fails to estimate PM emissions. Furthermore, the framework does not estimate resuspended PM emissions from vehicle travel when studies of source apportionment of PM10 for different cities in the western U.S.A. have showed that geological sources and motor vehicle PM emissions contribute to 40% of the total PM10 (Watson and Chow, 2000). Moreover, Fitzpatrick (1987) found unpaved roads to be a major source of PM 10. In addition, the emission model used is also limited, as in the case of Lin and Lin (2002) the model did not consider any of the new improvements made to the MOBILE model.

Another effort to integrate transportation and emission modeling was developed by Gualtieri and Tartaglia (1998). This model is a GIS-based framework for evaluating the air quality impact caused by road traffic in urban areas. The framework integrates in a GIS database road network, territorial data, traffic demand characteristics, driving cycles, fleet composition, and meteorological conditions. It used three mathematical models, for estimating traffic conditions, pollutant emissions, and pollutant concentrations. Road traffic is simulated using a deterministic model designed for solving the equilibrium assignment problems with capacity restraints developed by Sheffi (1985). The emission model is developed based on results obtained by Eggleston et al. (1991) and Tartagalia (1995). The emission model is able to estimate CO, HC, and NOx emissions, but the framework has the following limitations. First, the emission model used only estimates HC, CO, and NOx emissions, but not the PM emissions. Furthermore, the framework does not estimate resuspended dust PM emissions from vehicle movements. Second, the emission model is not comparable with the MOBILE series models developed by EPA, which limits the application of this framework to transportation conformity analysis for areas that are not regulated by EPA. Moreover, the model does not calibrate the

estimated VMT to the HPMS VMT estimates. Third, the emission model used is based on results shown by Journard et al. (1992), Eggleston et al. (1991), and Tartaglia (1995). These results in using emission factors from an old vehicle fleet and without the improvements made by MOBILE6.2 (e.g., speed correction factors and newer emission control technologies).A traffic assignment technique is used that model does not account for land use changes, limiting its capacity to model emissions when land use does change.

Bhat et al. (2003) calibrated two main important MOBILE6 transportation related inputs: the VMT mix ratio and the vehicle registration distribution. Bhat et al. (2003) determined the VMT mix as a function of the following variables number of lanes, whether the link is divided or not, the operating characteristics of the links (e.g., link speed), and the traffic zone in which the links lies (e.g., urban suburban). Similarly, they used 1998 vehicle registration from Dallas Forth worth area to identify the zonal locations of the vehicles. The fact that he took advantage of GIS based transportation software (TransCAD) to produce these two variables is important because it illustrates a method to calibrate TransCAD outputs (i.e., VMT, and age distribution). Another important contribution of this work is that, based on the transit network design, it is possible to generate the VMT mix ratio and the vehicle age distribution in a fast and automated manner. The final output of this work is an ASCII format file that contains the VMT mix and the vehicle age distribution that later can be used in MOBILE6. This research provides an important approach to improve the accuracy of the transportation related inputs. However, the contribution is limited to only generating better quality transportation inputs to MOBILE6 model.

As part of the Transportation Conformity Report (TCR), the El Paso MPO (2007) calculated PM10 emissions using MOBILE6.2 and road surface resuspended PM10 emissions

from vehicle road travel from Equation (3.3). In doing so El Paso, Texas MPO varied the silt loading used depending on road type (i.e., arterial, freeway, local, and freeway ramp), giving a specific value of silt loading prior to the analysis for each road type. A silt loading value of 0.020 g/m^2 was assigned for freeway roads, 0.062 g/m^2 for arterial roads, 0.115 g/m^2 for local roads, and 0.210 g/m^2 for freeway ramps. In addition, the average weight of vehicles was assigned fixed values according to the type category (i.e., arterial, freeway, local, and freeway ramp). The following actions were performed in order to obtain the emission estimates: the VMT calculated with TransCAD were adjusted to that to the HPMS VMT, two seasons were considered (winter and summer), VMT were adjusted to follow hourly values for both seasons, and the VMT were calibrated using data from automatic traffic recording (ATR) stations. The efforts made El Paso MPO to improve the accuracy of the transportation inputs are quite time consuming and can be improved. The methodology used in this report is feasible for projects as large as the TCR, but for daily or frequent planning it is not feasible, simply because the time and effort required would not make it viable. In addition, the environmental impact documented in this report is limited to CO and PM 10, and it does not consider any other of the pollutants. It also does not provide an emission grid for further analysis.

Chapter 7: Developed Transportation, GIS and Emission Modeling Framework

Efforts have been made in assessing the air quality impact that comes from transportation sources. However, as described in previous chapters, most of the efforts to date have focused on the solution of just a few aspects of the problem. For example, some focused on the improvement of the transportation inputs (Brown and Affum, 2002; Anderson et al., 1996), some focused on calibration of such inputs (Bhat et al., 2003; El Paso MPO, 2007), and others on taking advantage of the spatial features of the GIS platform to present dispersion models and emission grids (Xia and Leslie, 2003; Symeonidis et al., 2004). Most of these efforts missed some important steps in the full integration, leaving behind the opportunity to obtain more accurate emission estimates. The framework below is intended to effectively integrate transportation planning and air quality planning to provide more accurate emission estimates.

This chapter describes the framework to achieve the objectives as stated in Section 1.2. It also presents a description of the design and methods integrated in the framework.

7.1 Description of the Transportation, GIS and Emission Modeling framework

The framework is designed to have the following features:

- Deterministic in nature
- Capable of modeling spatially and temporally the type of vehicles
- Capable of calculating and using both the speed and volume in the transportation network
- Considers the characteristics of the roads (e.g., facility type)
- Considers the season of the year, the land use characteristics, and the resulting emission rates

The framework design consists of six modules: the Data input module, the GIS data base module, the Transportation module, the Emission modeling module, the Graphical presentation module and the Post-processor module. Figure 7.1 illustrates the conceptual design of the framework.

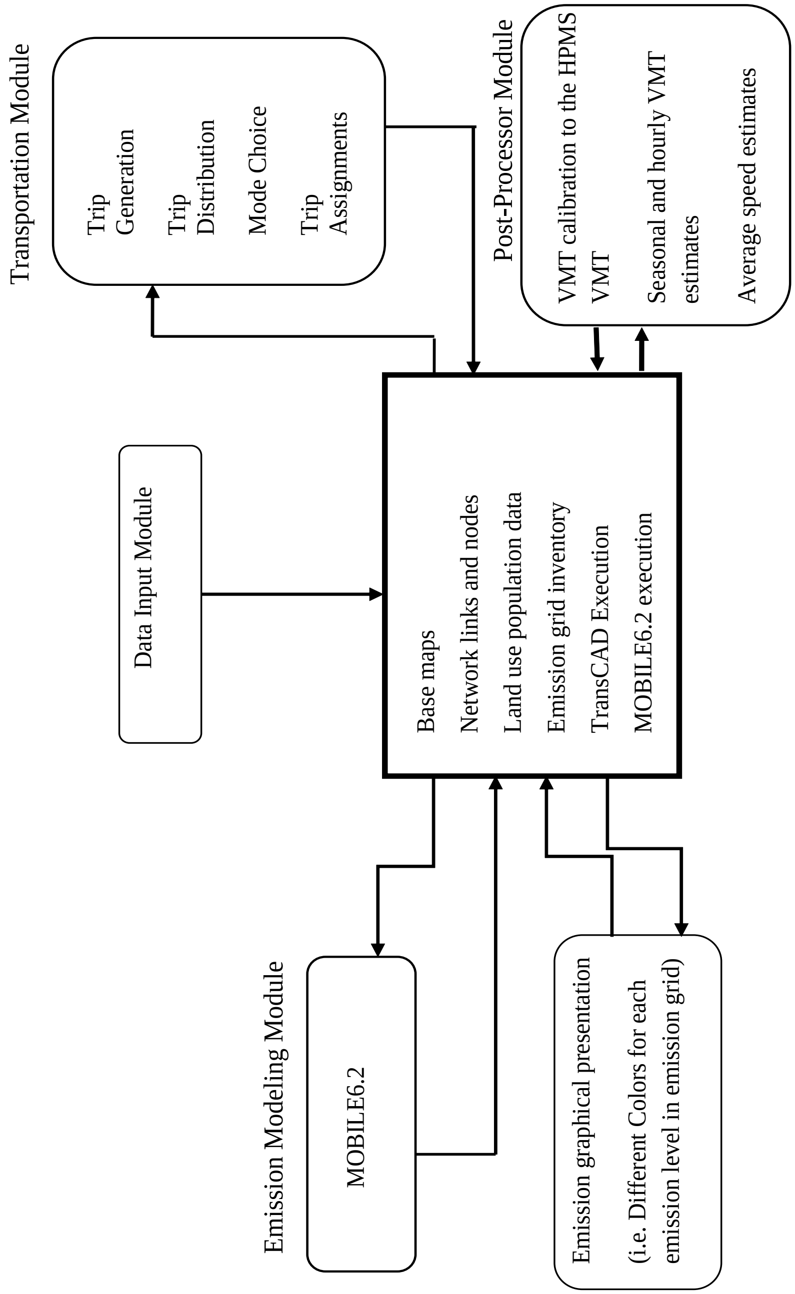


Figure 7.1: Conceptual Framework Design.

7.2 Data Input Module

The data input module is intended to acquire all of the external data necessary for the analysis. This module has the main goal of gathering all relevant information in the area of study, such as the environmental parameters, grid definitions, pollutants to model (i.e., HC, NOx, CO, PM), season of the year, weekday or weekend, and fuel characteristics. This module is designed to let users input the necessary information in a friendly and easy to use manner. Figure 7.2 shows a screen shot of the Data Input Module.

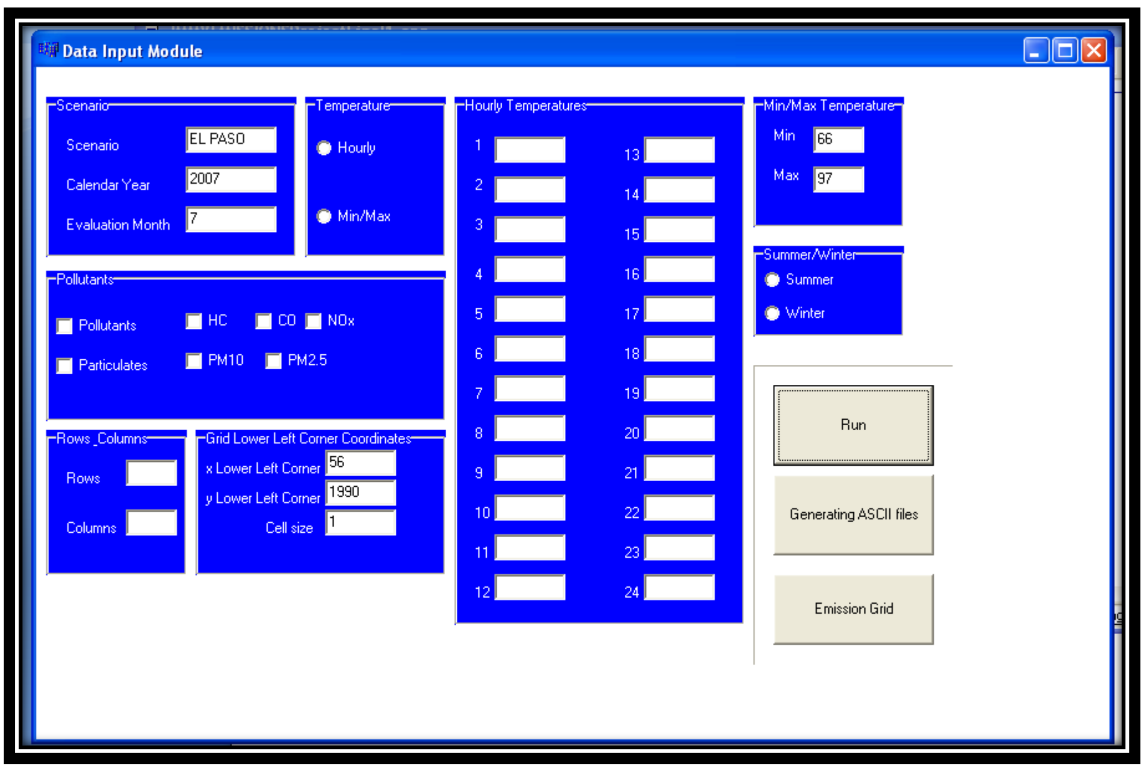


Figure 7.2: Screen shot of the Data Input Module.

The Data Input module screen is divided into six sections: scenario, temperature, pollutants, number of rows, of columns, summer/winter, and grid lower left corner coordinates.

The scenario section defines the name of the scenario that is modeled. The temperature section gives the user the choice of entering hourly or minimum/maximum temperature values. The summer/winter section allows the user to select between summer or winter season. The grid lower left corner coordinates section captures the position of the lower left coordinates of the grid. The summer and winter season choice determines the hourly VMT adjustment factors that are used by the framework. The coordinates of the lower left corner enables the framework to locate the emission grid in the correct position.

7.3 Transportation Module

The transportation module evaluates the effect of different transportation measures that lead to congestion relief or transportation network improvements. This module generates the transportation data necessary to run MOBILE6.2. This module exports the output data to the GIS-based data module for further processing. The exported output (shape file) has all of the variables describing the transportation conditions estimated by TransCAD (e.g., average speed, and vehicular flow). It also contains physical features related to the transportation network (e.g., number of lanes, and length of the links). Additionally, this file contains a code number for every road on the transportation network (i.e., 2 and 14 for freeway roads). Based on this coding the calculations of other parameters is performed (e.g., fleet distribution, number of arterial roads, and average speed).

The transportation modeling module has two data sources: one before traffic assignment and the other after traffic assignment. Traffic assignment inputs are:

- Capacity in different directions of a link
- Total capacity of a link
- Origin destination matrices

The outputs after traffic assignment in TransCAD are:

- Estimated volume in different directions of a link
- Total volume of a link
- Estimated speed in different directions of a link
- VMT for different directions of a link
- Total VMT of a link
- Vehicular hours traveled (VHT) in different directions of a link
- VHT in a link
- Volume over capacity ratio (V/C) of a link

The traffic assignment inputs are defined by the following factors: physical characteristics of the network (e.g., 2 lanes, and 4 lanes), traffic zones definitions, and origin destination matrices. These inputs are entered into the module by defining the capacity of the roads and the traffic analysis zones in TransCAD.

The transportation module in this framework not only provides the necessary input data to run MOBILE6.2, but also permits feasibility studies on transportation measures themselves. In other words, one can evaluate if a transportation project is feasible. Once the transportation modeling is complete, it is possible to pass the outputs to the GIS database module for further processing.

7.4 GIS Database Module

This module is the heart of the framework since it is the database at which all other modules present the output data and obtain their input data. This module is designed to be embedded in a GIS environment to take advantage of many of the GIS capabilities. In particular, it has two major functions: control the execution of the different modules that integrate the framework and present the results in a GIS environment (ArcGIS). The GIS database module is designed to implement the following tasks: execute TransCAD, import the transportation network from TransCAD, create grids of different sizes, run the Emission modeling module, and generate the emission grid representations.

The GIS database module is considered the main platform where crucial calculations take place. Among these calculations is the grid definition. The grid definition process incorporated in this module permits the definition of cells of different sizes, meaning grids of different number of rows and columns (e.g., 15 rows and 20 columns, 20 rows and 20 columns). Cells that make up the grid can also take different sizes (e.g., 1 x 1 miles, 1 x 2 miles). This feature increases flexibility and widens the grid definition possibilities.

The grid definition process begins by defining a rectangular area over the transportation network. Based on the rectangular area (number of rows, and columns), the GIS Database Module estimates the number of cells that form the grid. For example, the transportation network for the city of El Paso, shown in Figure 7.3, is contained in a rectangular area of 2,500 square miles, defined by a rectangle of 50 miles wide and 50 miles long. The user can select any size of cell for the grid such as a grid that consists of 2,500 cells. The number of rows and columns necessary to build any grid definition can be computed by simply dividing the horizontal and vertical sides of the rectangle by the corresponding desired cell side size. Figure 7.4 shows the resulting grid for a 1mile by 1 mile grid.

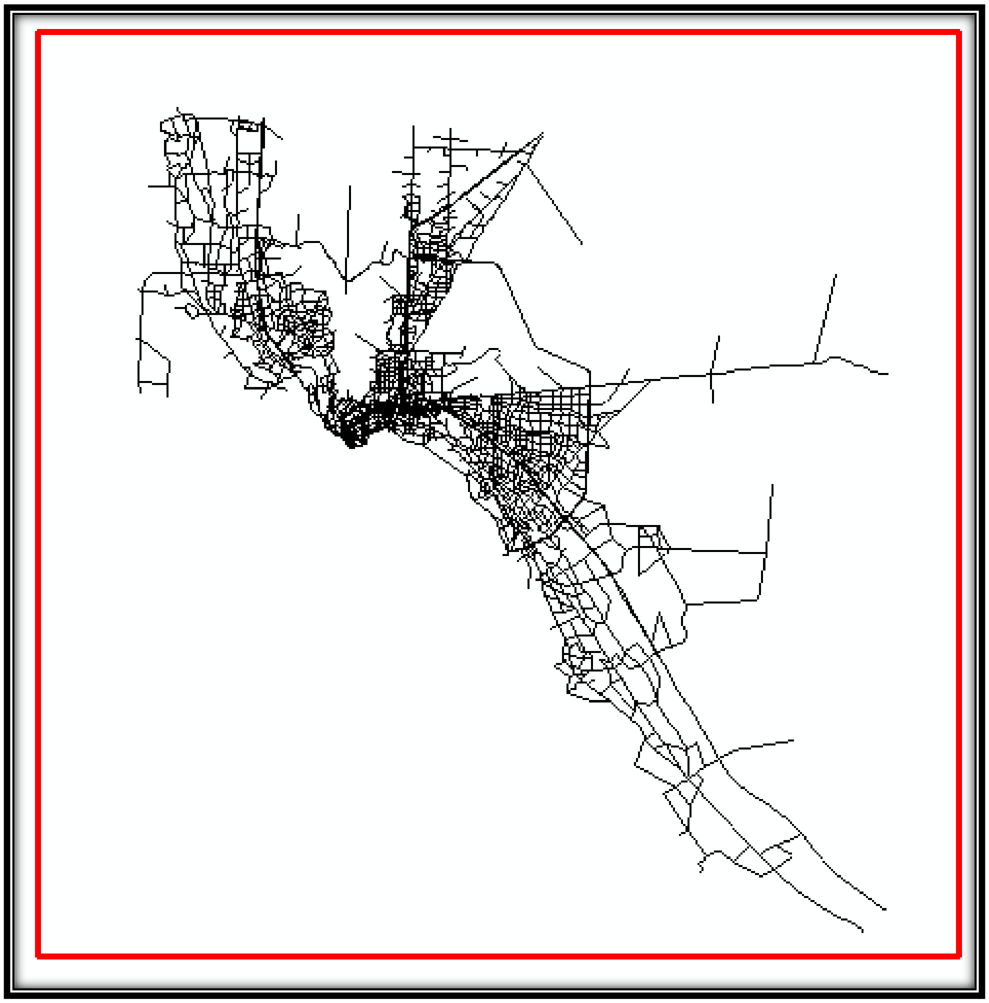


Figure 7.3: Rectangular area of definition for the city of El Paso,

Texas transportation network.

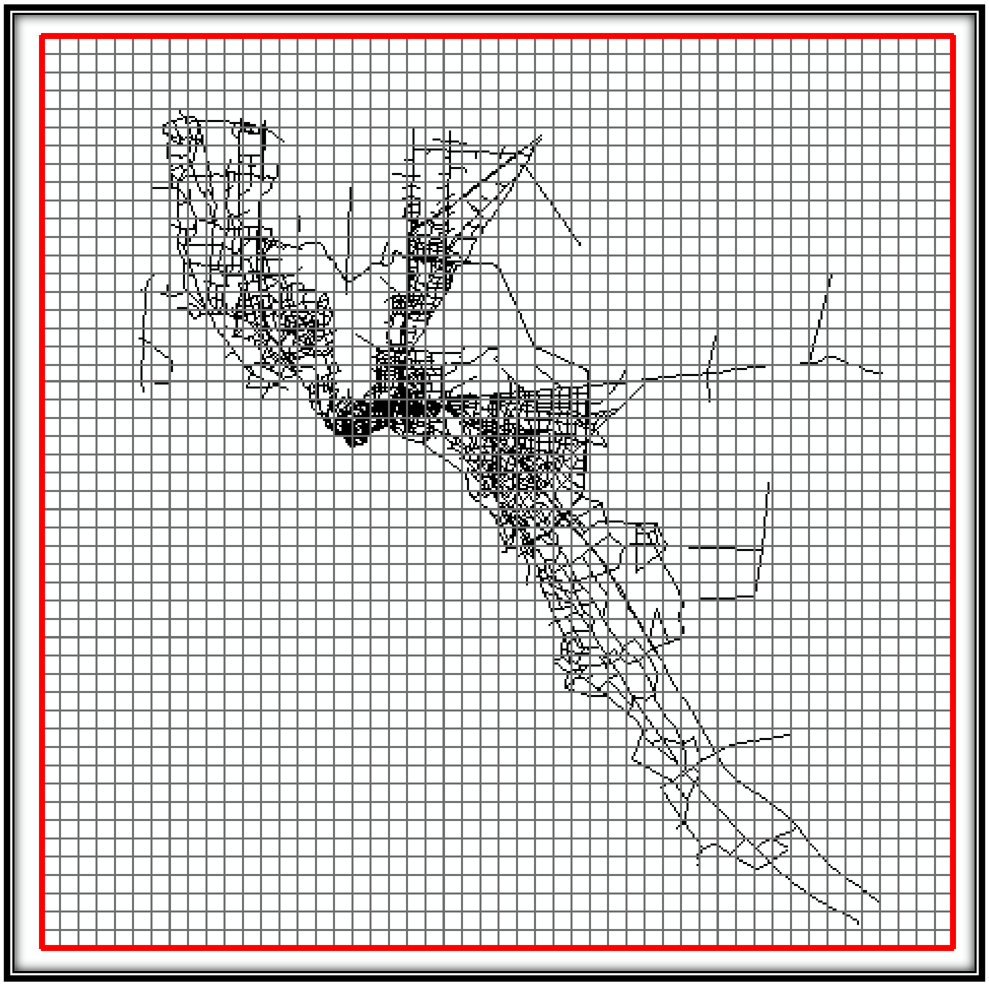


Figure 7.4: Rectangular 1 x 1 miles grid for the city of El Paso, Texas.

It is important to remark some of the features of the grid definition process of the GIS data base module. It allows the user to overlay the grid on the whole network or to define the grid for the region of interest in the transportation network. This reduces computation time and increases the speed of the analysis. Figure 7.5 shows a 1x1 mile grid for a portion of El Paso, Texas transportation network (El Paso, Texas downtown area).

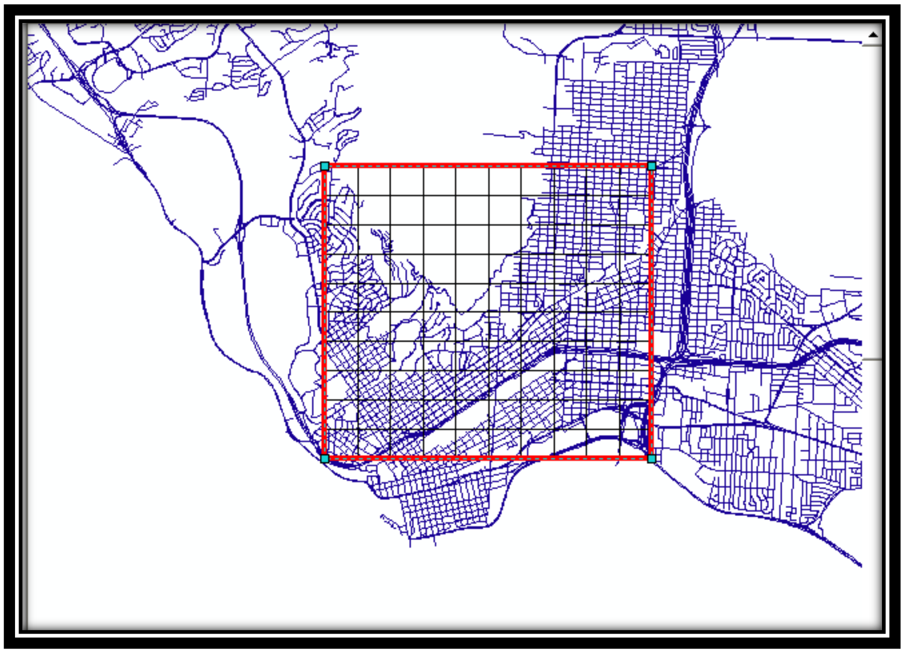


Figure 7.5: Rectangular 1 x 1 mile grid for a portion of El Paso,
Texas transportation network.

For any defined grid, each cell will generate necessary information to be used in MOBILE6.2 (i.e., each cell represents a scenario in MOBILE6.2). MOBILE6.2 uses this information and estimates pollutant emissions for each cell. Defining the cell is not just a matter of defining size; it is a matter of calculating some parameters that are inside the cell (e.g., VMT, functional road distribution, fleet distribution).

Following the grid definition process the GIS database module is used to generate an ASCII file that can be later used by the Post-processor module. This file contains information regarding the transportation network, the length of the links, the vehicular flow in every direction, the average speed, and the type of road. The data is stored in a matrix as shown in Equation (7.1).

$$M = [x_{ij}]_{mx7} \quad (7.1)$$

where M is a matrix formed by m rows and 7 columns, and x_{ij} are the transportation related variables extracted for each cell (e.g., length of roads, type of roads, average speed, and vehicle flow), and m is the number of rows.

7.5 Post-Processor Module

The Post-processor module estimates and adjusts the transportation related information. It relies on the output file from the GIS data base module. This module estimates the total VMT, the fraction of VMT of different type of road, and the fleet distribution (depending on the road type and the average speed for each cell). Additionally, it adjusts the estimated VMT to the HPMS VMT values to comply with the transportation conformity regulations stated previously and adjusts the VMT to meet seasonal variations on an hourly basis.

7.5.1 Calibration of the VMT to the HPMS VMT Estimates

When a transportation network modeling software is used to estimate the VMT, the latter must be checked and adjusted, if needed, against the HPMS system VMT estimates to ensure consistency between the VMT forecasted and reported by the HPMS. The adjustment factor used to calibrate the VMT is shown in Equation (7.2):

$$Adjustment\ Factor = \frac{\sum_{i=1}^{4} VMT_{HPMS(x)}}{VMT_{TransModule(x)}} \quad (7.2)$$

where VMT_{HPMS} is the HPMS VMT estimates, x is the functional type of the road (e.g., arterial, freeway) , and $VMT_{TransModule}$ is the VMT estimates obtained in TransCAD (U.S. Federal Highway Administration, 2006).

The same procedure can be applied to estimate the adjustment factor for the winter season and for weekends. In addition to using the above algorithm, the VMT calibration for each season can be performed by using automated traffic recorder data. Usually it is measured and stored by state Departments of Transportation (DOTs). This information accommodates hourly traffic counts and usually records data throughout the whole year, thus encompassing different seasons of the year.

7.5.2 Post-processing of the GIS Data Base Module

This section describes the initial process that takes place to calculate all of the variables needed to build individual input scenarios for estimating emission factors for each cell. The scenarios depend on individual cells as there are as many scenarios as cells that exist in the grid network. The input scenarios are built in the Post-processor module because the average speed, the vehicle fleet, and the road distribution are estimated by this module. Figure 7.6 shows the process that takes place to calculate the following: the cell VMT fractions of different road types, the MOBILE6.2 vehicle fleet distribution assigned to each road class, and the cell average speed.

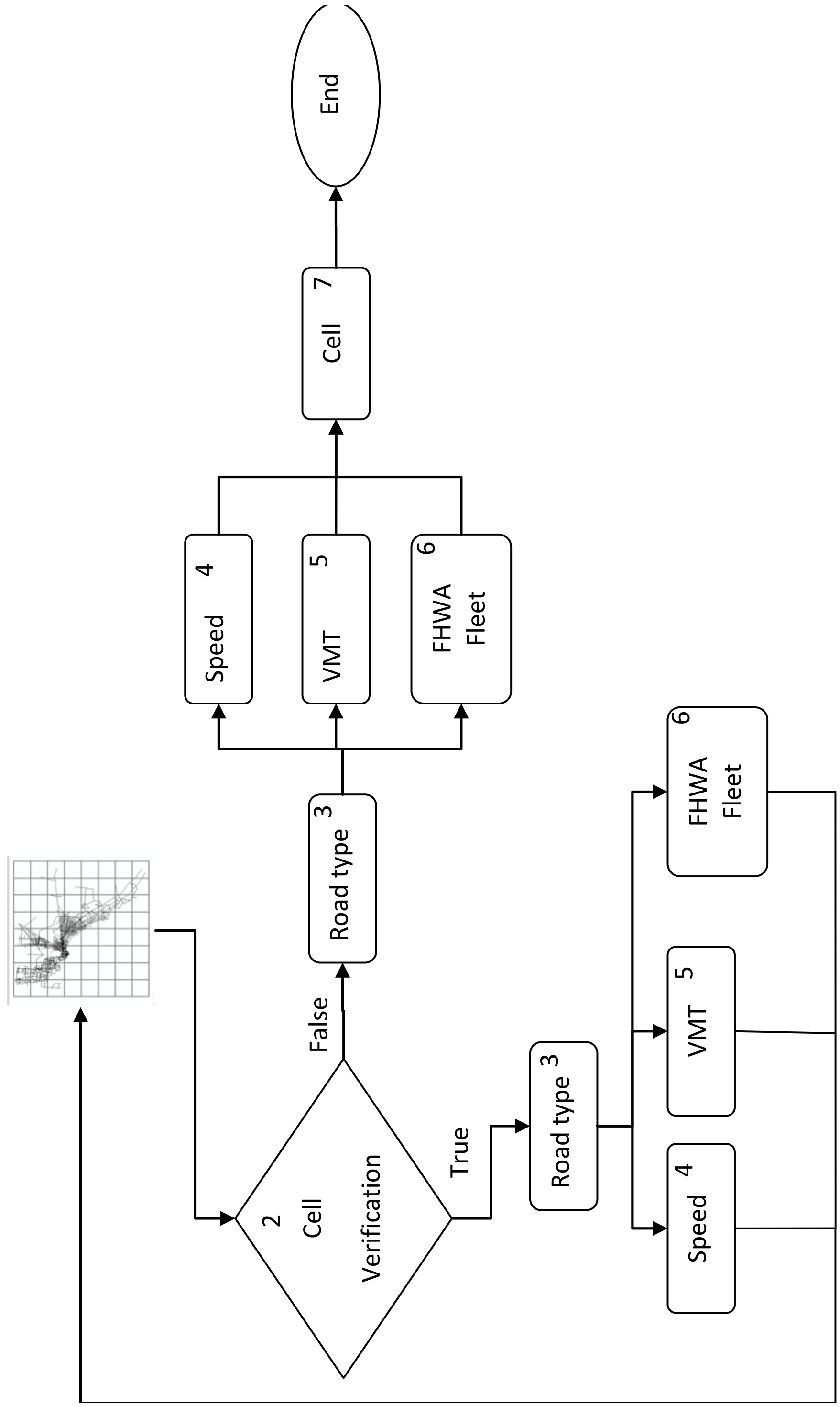


Figure 7.6: Process to estimate the road type fractions, VMT fractions, and MOBILE6.2 fleet.

The process is composed of seven modules, as described below. Module 1 is the output from the GIS data Module in the form of the matrix shown in Equation (7.1). Each row of the matrix contains the following information in the order shown:

- Cell number
- Length of the road
- Road type
- Speed
- Flow in AB direction
- Flow in BA direction
- VMT

Module 2 processes the information contained in the matrix row by row until the matrix no longer has any data. The first task performed by this module is determining the cell number and comparing it with the cell number that follows in the matrix. If these two values are equal it means that the information in current row and the row that follows belong to the same cell. If the cell number is different it means that the information in the current row represents all the information available for the cell.

Module 3 assigns the VMT, the speed, and the FHWA vehicle fleet distribution of every road to each of the four road categories. For example, if a road belongs to the freeway category then the module classifies the VMT, speed, and FHWA vehicle fleet as freeway VMT, freeway speed, and freeway FHWA vehicle fleet. This module then sends the classified information to the following modules (Modules 4, 5, and 6). The module uses numerical road codes to determine

which roads belong to each of the road types. The numerical codes for the road are numbers assigned to them based on the functional characteristics, for example, 2 and 14 for freeway roads, and 12 for freeway ramps. This numerical coding is defined by the user in the transportation network in framework's transportation module.

Module 4 receives the speed from every road in the transportation network classified into four road categories and stores it by road type/category. The module keeps storing the information as long as the cell number (verified in Module 2) is the same. When the cell number stops being equal (false in Module 2) this module sends the information to Module 7, where the information is processed to obtain cell average speed. Module 5 and Module 6 perform the same operations as Module 4, with the exception that the information being processed and sent to Module 7 is the VMT and FHWA vehicle fleet, respectively.

Module 7 calculates the average speed, the fraction for each type road, and the MOBILE6.2 vehicle fleet for the complete cell. This module uses a series of calculations to perform this task. The fraction of VMT that belongs to each road type is estimated using Equation (7.3).

$$[FreewayVMT] = \frac{[freewayVMT]}{[TotalVMT]} \tag{7.3}$$

$$[ArterialVMT] = \frac{[arterialVMT]}{[TotalVMT]}$$

$$[LocalVMT] = \frac{[localVMT]}{[TotalVMT]}$$

$$[FrampVMT] = \frac{[framplVMT]}{[TotalVMT]}$$

where $[frampVMT]$, $[aterialVMT]$, $[freewaylVMT]$, and $[localVMT]$ are the VMT that belongs to freeway ramps, arterial, freeway, and local roads, $[TotalVMT]$ is the total amount of VMT in the cell, $[FreewayVMT]$ is the fraction of freeway VMT a freeway road has out of the total VMT in the cell, $[FrampVMT]$, $[ArterialVMT]$, and $[LocalVMT]$ are the same but for arterial, local and freeway ramps, respectively.

After the fraction of VMT is estimated for each cell the following parameter cell average speed is estimated. This parameter is calculated using Equation (7.4) from (EPA, 2006).

$$\bar{s}_{ik} = \frac{1}{\sum_{i=1}^{n} \left(\frac{1}{\frac{VMTf_{ik}}{speed_{\mathrm{ik}}}} \right)} \tag{7.4}$$

where $\bar{s}_{\mathrm{k}}$ stands for the average speed for road class k,$[VMTf_{ik}]$ is the fractions of VMT for road i out of the total VMT of road class k, and $[speed_{ik}]$ is the speed of each road i of class k. The proportion of VMT for every road type is summed from i=1 to n roads of class k.

The last parameter estimated by the process shown in Figure 7.6 is the vehicle fleet in the MOBILE6.2 format. This parameter is calculated based on three inputs: the traffic counts, the type of road, and the flow on the road. The traffic counts are obtained from a database from governmental agencies (El Paso, TTI & MPO).

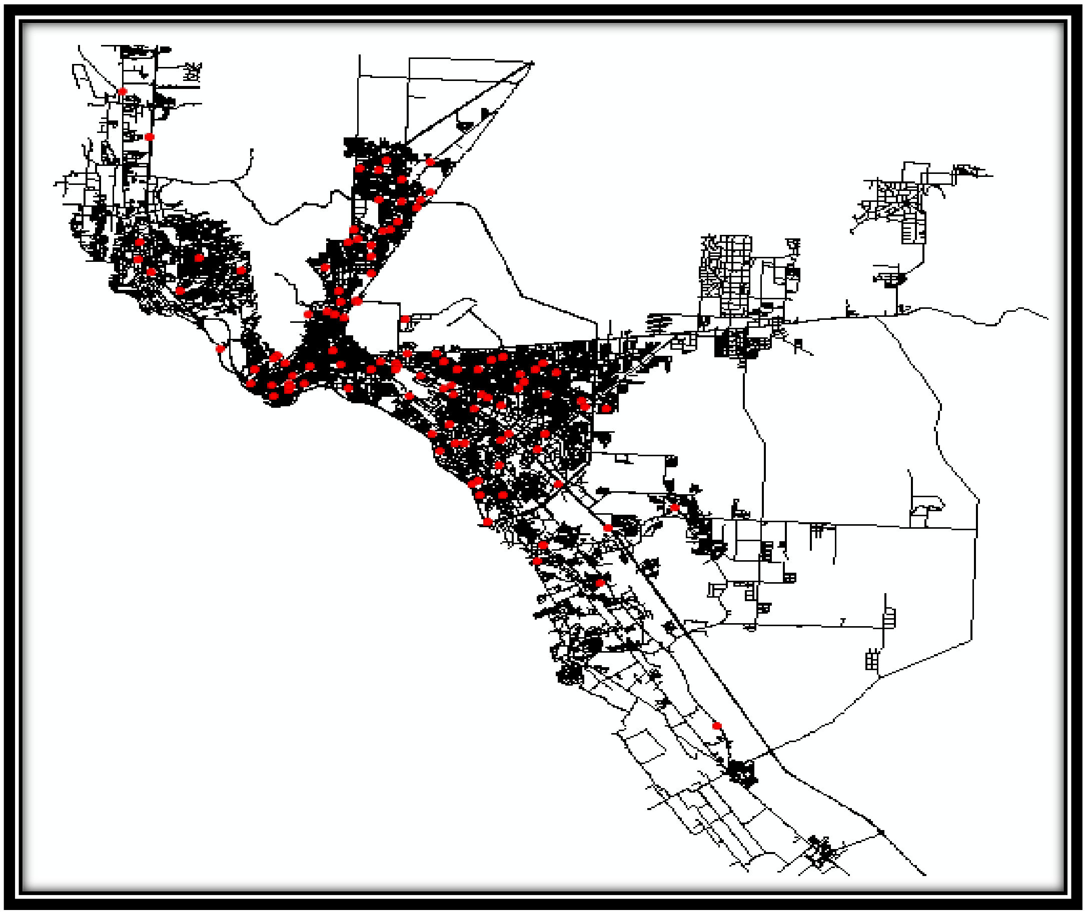


Figure 7.7: TTI vehicle count stations distribution on El Paso, Texas.

"Type of road" is used to estimate the FHWA vehicle fleet, the average vehicle fleet distribution for the cell is estimated taking an average value for each vehicle class. After the average FHWA vehicle fleet distribution is determined, the MOBILE6.2 vehicle fleet distribution is calculated using Equations (7.5)-(7.20).

$$LDV = LDV \tag{7.5}$$

$$LDT1 = LDT1_{year\ default\ value} * (LDT/ \textstyle\sum_1^4 LDT_{year\ default\ values}) \tag{7.6}$$

$$LDT2 = LDT2_{year\ default\ value} * (LDT/ \textstyle\sum_1^4 LDT_{year\ default\ values}) \tag{7.7}$$

$$LDT3 = LDT3_{year\ default\ value} * (LDT/ \sum_{1}^{4} LDT_{year\ default\ values}) \quad (7.8)$$

$$LDT4 = LDT4_{year\ default\ value} * (LDT/ \sum_{1}^{4} LDT_{year\ default\ values}) \quad (7.9)$$

$$HDV2b = HDV2b_{year\ default\ value} * (HDV/ \sum_{2b}^{8b} HDV_{year\ default\ values}) \quad (7.10)$$

$$HDV3 = HDV3_{year\ default\ value} * (HDV/ \sum_{2b}^{8b} HDV_{year\ default\ values}) \quad (7.11)$$

$$HDV4 = HDV4_{year\ default\ value} * (HDV/ \sum_{2b}^{8b} HDV_{year\ default\ values}) \quad (7.12)$$

$$HDV5 = HDV5_{year\ default\ value} * (HDV/ \sum_{2b}^{8b} HDV_{year\ default\ values}) \quad (7.13)$$

$$HDV6 = HDV6_{year\ default\ value} * (HDV/ \sum_{2b}^{8b} HDV_{year\ default\ values}) \quad (7.14)$$

$$HDV7 = HDV7_{year\ default\ value} * (HDV/ \sum_{2b}^{8b} HDV_{year\ default\ values}) \quad (7.15)$$

$$HDV8a = HDV8a_{year\ default\ value} * (HDV/ \sum_{2b}^{8b} HDV_{year\ default\ values}) \quad (7.16)$$

$$HDV8b = HDV8b_{year\ default\ value} * (HDV/ \sum_{2b}^{8b} HDV_{year\ default\ values}) \quad (7.17)$$

$$HDBS = HDBS_{year\ default\ value} * (HDB/ HDBS_{year\ default\ values} + HDBT_{year\ default\ values}) \quad (7.18)$$

$$HDBT = HDBS_{year\ default\ value} * (HDB / HDBS_{year\ default\ values} + HDBT_{year\ default\ values}) \quad (7.19)$$

$$MC = MC \quad (7.20)$$

where the values *LDV*, *LDT*, *HDV*, *HDB* and *MC* are the general category fractions collected from the field in the FHWA format, these five values must sum one;

$\sum_{1}^{4} LDT_{year\ default\ values}$ is the sum of the *LDT1*, *LDT2*, *LDT3* and *LDT4* MOBILE6.2 values;

$LDT1_{year\ default\ value}$, $LDT2_{year\ default\ value}$, $LDT3_{year\ default\ value}$, *and* $LDT4_{year\ default\ value}$ are the light duty trucks categories in MOBILE6.2;

$HDV2b_{year\ default\ value}$,$HDV3_{year\ default\ value}$,$HDV4_{year\ default\ value}$,$HDV6_{year\ default\ value}$, $HDV6_{year\ default\ value}$,$HDV7_{year\ default\ value}$ $HDV8a_{year\ default\ value}$,
$HDV8a_{year\ default\ value}$ are the MOBILE6.2 heavy duty vehicles categories;

MOBILE6.2, $HDBS_{year\ default\ value}$, is the MOBILE6.2 bus;

$\mathrm{HDBS}_{\mathrm{year\ default\ value}}$ is the transit or urban buses MOBILE6.2, $\mathrm{HDV2b}_{\mathrm{year\ default\ value}}$
$\sum_{2b}^{8b} HDV_{year\ default\ values}$ is the sum of the *HDV2b, HDV3, HDV4, HDV5, HDV6, HDV7, HDV8a* and *HDV8b* MOBILE6.2 default values, and
$HDBS_{year\ default\ values} + HDBT_{year\ default\ values}$ is the sum of the *HDBS* and *HDBT*, all MOBILE6.2 default values for the year of interest.

7.6 Emission Modeling Module

The emission modeling module reads all of the input files generated by the Post-processor module described in the previous section. It is basically designed to make use of MOBILE6.2 for estimating the emissions generated in the transportation network. The estimation of direct PM emissions is performed by using the input information defined in the data input module, and generated by the Post-processor module, particularly the information regarding individual cells. This information is used in MOBILE6.2 to calculate the PM

emissions from road surfaces. For PM emissions from road surfaces, this module follows the process shown in Figure 7.8.

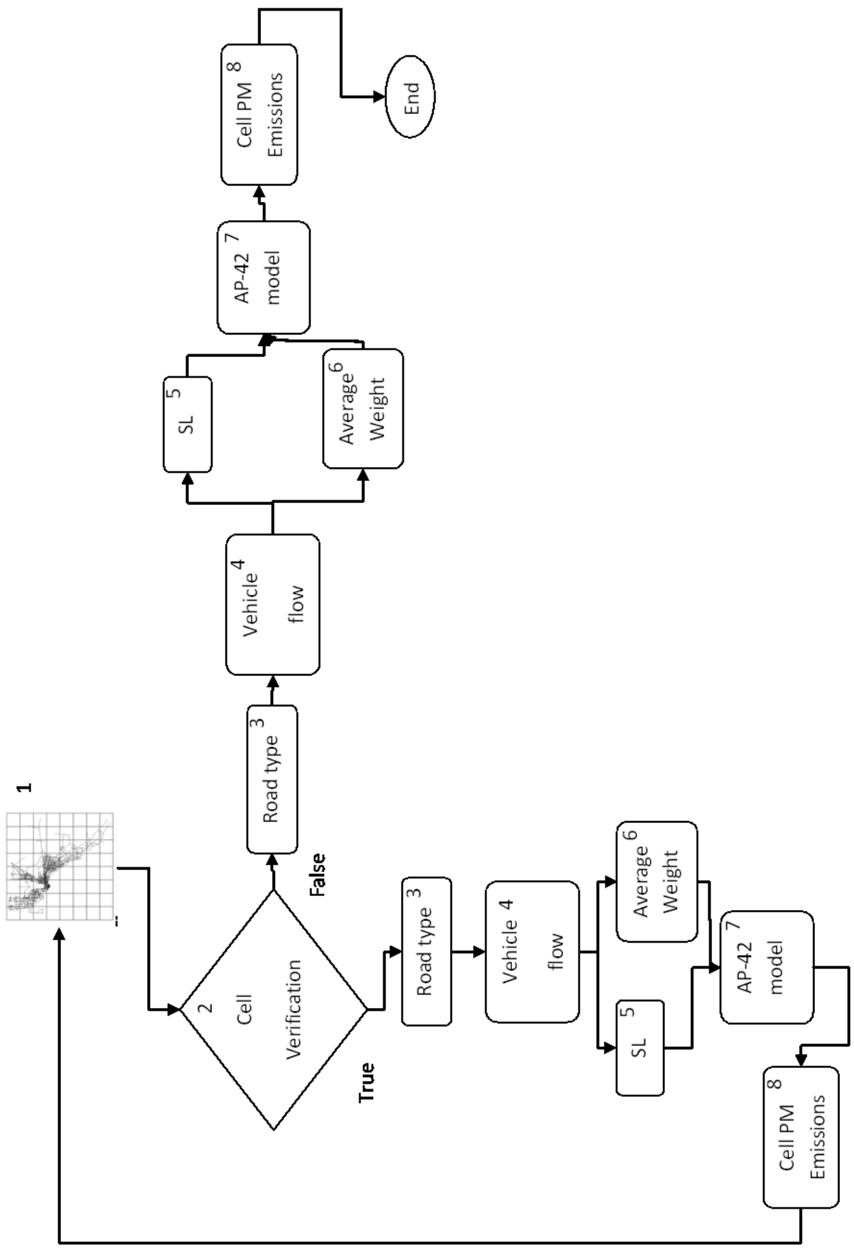


Figure 7.8: Process to estimate resuspended dust PM emissions.

The process shown in Figure 7.8 has eight modules for estimating the resuspended dust PM emissions. Module 1 and Module 2 use the same matrix as source of information and perform the exact operations as described in the process of Section 7.5.2. Module 3 identifies the road type using the same coding in Section 7.5.2. However, for the process shown in Figure 7.8, this module classifies the vehicle flow (in both directions when applicable) for input to the Modules 5 and 6. This action is performed because the vehicle fleet distribution varies depending on the road type, influencing the average vehicle weight calculations. Module 4 stores the vehicle flow by road type. Module 5 assigns the silt loading values depending on the flow. For vehicle flows below 500, a silt loading value of 0.6 g/m^2 is used, for vehicle flows of 500-5,000, 5,000 -10,000, and greater than 10,000, silt values of 0.2 g/m^2, 0.06 g/m^2, and 0.03g/m^2 are used, respectively (Kuykendal, 2004).

Module 6 estimates the average weight of the vehicles that travel through the road. This module makes use of the vehicle flow and the MOBILE6.2 vehicle fleet to determine this weight, Equation (7.21).

$$[AvVweight] = \frac{\sum_{i=1}^{n}[MobileVF]\times([flowAB]+[flowBA])\times[fleetGVW]}{N} \qquad (7.21)$$

where $[AvVweight]$ is the road average vehicle weight, $[MobileVF]$ is the vehicle fleet estimated for every road, $[flowAB]$ and $[flowBA]$ are the vehicle flows in two directions, $[fleetGVW]$ is the gross vehicle weight for each MOBILE6.2 vehicle class, n is the number of vehicle classes in MOBILE6.2, and N is the total number of vehicles in the road.

Module 7 estimates the resuspended dust emissions for every road. The module uses the silt loading values and average vehicle weight calculated in the Module 6 and Equation (7.22) (EPA, 2003a).

$$E_F = \left[k\left(\frac{Sl}{2}\right)^{0.65}\left(\frac{\{AvVweight]}{3}\right)^{1.5} - C\right]\left(1 - \frac{P}{4N}\right) \qquad (7.22)$$

where E_F is the resuspended dust PM emissions for the road. k, P,C, and N are the same as defined in Equation (3.3), $[AvVweight]$is the calculated average weight of the vehicles that travel over the road. sl is the calculated silt loading values for the road.

Module 8 sums the emissions calculated with the Module 7 for as long as the cell number remains the same. This module estimates the resuspended PM emissions for the whole cell.

7.7 Graphical Presentation Module

This module is designed to take the outputs of the previous module and then present them in a graphical form. This module takes the emission estimates and assigns them to the grid cells defined in the previous modules. The GIS module generates the emission grid using Equation (7.23).

$$CellE_k = E_k \times [TotalVMT]_k \qquad (7.23)$$

where $CellE_k$ are the emissions for every cell k in the grid, E are the pollutants (CO, NOx, PM 10, PM2.5 , or HC) emissions for cell, and $[TotalVMT]$ are the total VMT for cell.

Chapter 8: Case Study for the City of El Paso

In order to illustrate the performance of the framework, a case study for the city of El Paso, Texas, is presented. This chapter presents the inputs used in the case study and the emissions obtained by the framework for two grid designs: one cell grid over whole transportation network (for PM10), and four hundred and eighty four 0.1 mile by 0.1 mile cells grid over the CO non-attainment zone. A comparison of reported and calculated CO and PM10 emissions is also included in this chapter.

8.1 Inputs

Many of the inputs used in the case study are exactly the same as the inputs used by the City of El Paso, Texas in preparing the TCR for year 2007 (El Paso MPO, 2007). The case study presented in this chapter considers three types of inputs: inputs specific to the season of the year modeled, inputs common between the two seasons of the year modeled, and transportation related inputs.

The inputs specific to each season are minimum/maximum temperature and the hourly VMT adjustment factors. Inputs common between them are the calendar year, the diesel fractions (see Appendix B), the vehicle registration distribution (see Appendix B), and the pollutants of interest (i.e., NO_X, VOC, PM 10, and CO).

The minimum and maximum temperatures used for the summer season were 66 ºF and 97 ºF, respectively. The hourly VMT adjustment factors for the summer season are shown in Appendix B, and the evaluation month for the summer season is July. For the winter season the

minimum and maximum temperature used were 26ºF and 63ºF, respectively. The evaluation month was January and VMT hourly adjustment factors used changed between summer and winter seasons (see Appendix B). The common inputs used for both seasons are shown in Table 8.1. These inputs are the minimum inputs required by MOBILE6.2.

Table 8.1: Case study inputs.

Input	Input Parameter Source/Value
Pollutants	VOC, CO, NO_X, and PM10
No refueling	Applied, non refueling emissions are considered.
Calendar year	2007
Evaluation month	July and January
Min/max temperature	Summer: 66/97 Winter: 26/63
Registration distribution	County-specific/MOBLE6 default. TTI developed the age distributions input to MOBILE6 using TxDOT mid-year 2007 El Paso County registrations data for LDV, LDT, MC, and HDV (less HDV8b); statewide data for HDV8b; andMOBILE6 defaults for buses.
Diesel Fractions	Texas-specific/MOBLE6 default. TTI developed the evaluation year-specific diesel fractions input using the mid-year 2007 TxDOT statewide fuel specific HDV registrations data, supplemented byMOBILE6 defaults for light duty and bus classes
VMT by hour	Season-specific. Fractions developed by El Paso MPO for use in allocating 24-hour link VMT by hour of day, following MOBILE6.2 input sequence.
Inspection/Maintenance Programs (I/M)	County-specific, by program design (seven I/M programs defined as in El Paso TCR).
Oxygenated Fuels	El Paso-specific, winter only, values based on winter 2001/2002 Northrop Grumman Mission Systems (NGM) El Paso gasoline sample survey Data (El Paso MPO,2007).

The remaining set of inputs used in the case study were estimated based on characteristics of the transportation network (i.e., the length of every link, the type of road), the traffic assignment used (i.e., user equilibrium), and the grid definition. As described earlier in Chapter 7, the framework enables the user to define grids of different sizes. This feature relates the definition of the transportation inputs to the grid design. For example, if the grid consists of only one cell that covers the transportation network, the transportation parameters (e.g., average speed, VMT, and road distribution) calculated will correspond to the whole network. The inputs that are calculated by the framework are listed and described in Table 8.2.

Table 8.2: Inputs calculated by the Framework.

Input	Input Parameter Description
VMT	VMT for different road type classification
Average speed	The average speed for the four road classifications (i.e., arterial, local, freeway, freeway ramp).
Vehicle fleet distribution	Based on the road type and MOBILE6.2 2007 year Vehicle fleet fractions.
Vehicle flow	Flow of vehicles on every link (depends on the traffic assignment used. flow). The flow is estimated for both directions A to B flow and B to A flow.
VMT fractions	The framework uses TTI data and MOBILE6.2 default VMT fractions to estimate the VMT fractions for 16 vehicle categories.
Road length	The length of every road in the transportation network.
Distribution of roads	The framework estimates for every cell the proportion of roads that belongs to arterial, local, freeway and freeway ramp.
FHWA thirteen vehicle classes vehicle fleet.	The fleet of vehicles is calculated for each of the four road categories. Following the FHWA vehicle classification scheme.
Silt loading factors	The silt loading factors are estimated depending on the flow of vehicles on the road.
Re-suspended dust emissions (AP-42 PM 10).	The framework estimates specific PM10 emissions for each of the four road categories. For summer and winter seasons.
Average weight of vehicles	Weight of vehicles in every road on the transportation network (The value depends on the functional classification of the road and the flow on the road).

As discussed before, the vehicle fleet distribution assigned to every road depends on the functional classification of the road. These values are assigned based on field data obtained by Texas Transportation Institute. The El Paso MPO uses these data to prepare the TCR for year 2007. The data used comes from 228 counting stations: 121 arterial roads, 39 freeway roads, 58

local roads, and 10 ramps, spread all over the El Paso, Texas transportation network. The data shows differences in the vehicle fleet in each of the four road classifications. Freeway roads tend to have more heavy vehicles in the vehicle fleet than arterial roads. Tables 8.3 and 8.4 show the Texas Transportation Institute vehicle fleet distributions for classes 1 through 7, and 8 through 13 respectively.

Table 8.3: Vehicle fleet distribution FHWA classes 1 through 7.

	Cl 1	Cl 2	Cl 3	Cl 4	Cl 5	Cl 6	Cl 7
Arterial	76.896%	15.769%	0.787%	2.041%	0.475%	0.043%	0.301%
Freeway	76.265%	16.518%	0.429%	2.277%	1.447%	0.021%	0.327%
Freeway Ramp	80.385%	14.153%	0.417%	3.284%	0.809%	0.009%	0.373%
Local Roads	77.983%	19.055%	0.908%	1.630%	0.192%	0.000%	0.107%

Table 8.4: Vehicle fleet distribution FHWA classes 8 through 13.

	Cl 8	Cl 9	Cl 10	Cl 11	Cl 12	Cl 13
Arterial	0.076%	0.237%	0.007%	0.008%	3.359%	0.000%
Freeway	0.319%	2.307%	0.018%	0.044%	0.027%	0.000%
Freeway Ramp	0.104%	0.443%	0.003%	0.019%	0.002%	0.001%
Local Roads	0.036%	0.085%	0.003%	0.000%	0.002%	0.000%

Each of the road classifications has different characteristics (e.g., speed limit, number of lanes and width of lanes). For example, it is very unlikely for heavy vehicles to travel on neighborhood roads (i.e., local roads). As mentioned in Chapter 7, the assignment of the average vehicle fleet distribution is based on the functional classification of the road.

The silt loading factors used in this framework were specific to the vehicle flow on the road. This assignment methodology estimates the silt loading factors based on the average daily traffic values for every road in the transportation network. The methodology follows the same method as suggested in the “Paved Road Area Category Calculation Methodology Sheet” (Kuykendal, 2004). Table 8.5 presents the silt loading values used in this case study.

Table 8.5: Silt loading values.

Silt loading (sL)				
ADT (Vehicles)	<500	500-5,000	5,000-10,000	>10,000
Silt loading in g/m^2	0.6	0.2	0.06	0.03

Another parameter estimated and assigned by the framework is the average weight of vehicles. This parameter is assigned to every road depending on its functional class. As described in the process flow, shown in Figure 7.6, the framework uses the vehicle fleet and the flow of vehicles to estimate the average weight of the vehicles. The average weight values vary by road classification because the vehicle fleet assigned is different for each of the four road categories and also because the flow varies among the roads of transportation network. Table 8.6 shows the weight values used for each of the four types of roads (The National Academies Press, 2001).

Table 8.6: Vehicle fleet gross vehicle weight.

FHWA vehicle Classification	Gross Vehicle Weight (GVW) in Tons
Class 1	1.875
Class 2	1.875
Class 3	2.875
Class 4	2.875
Class 5	4.25
Class 6	5.0
Class 7	7.0
Class 8	8.0
Class 9	9.75
Class 10	13.0
Class 11	16.5
Class 12	30.0
Class 13	30.0

The silt loading and average vehicle weight are inputs in Equation (7.22) to estimate dust PM10 emissions for every road in the cell.

For the case study, the following inputs were estimated using methods described in Chapter 7: the VMT, the average speed, and road distribution. The vehicle flow and road length were estimated using the transportation module (by TransCAD) and the transportation network respectively. The inputs discussed in this section are used by the three scenarios described in the following section.

8.2 Scenarios

Two scenarios are evaluated: a single cell grid over the transportation network (for PM10) and a grid (formed by four hundred and eighty four cells) over the CO non-attainment zone. These scenarios are built to compare emission estimates generated by the framework to the ones reported by the City of El Paso, Texas in the 2007 TCR. The TCR reports PM10 and CO emissions for different seasons of the year and for different areas of the city. PM10 emissions are reported for the summer season and for the whole transportation network, whereas the CO emissions are reported for the winter season and only for a small portion of the city (i.e., non-attainment zone).

The first scenario created is built to obtain PM10 emission estimates for the entire transportation network. This scenario is built as a single cell grid that covers the entire network. This scenario is modeled for summer and winter seasons. Figure 8.1 shows the grid design used for this scenario.

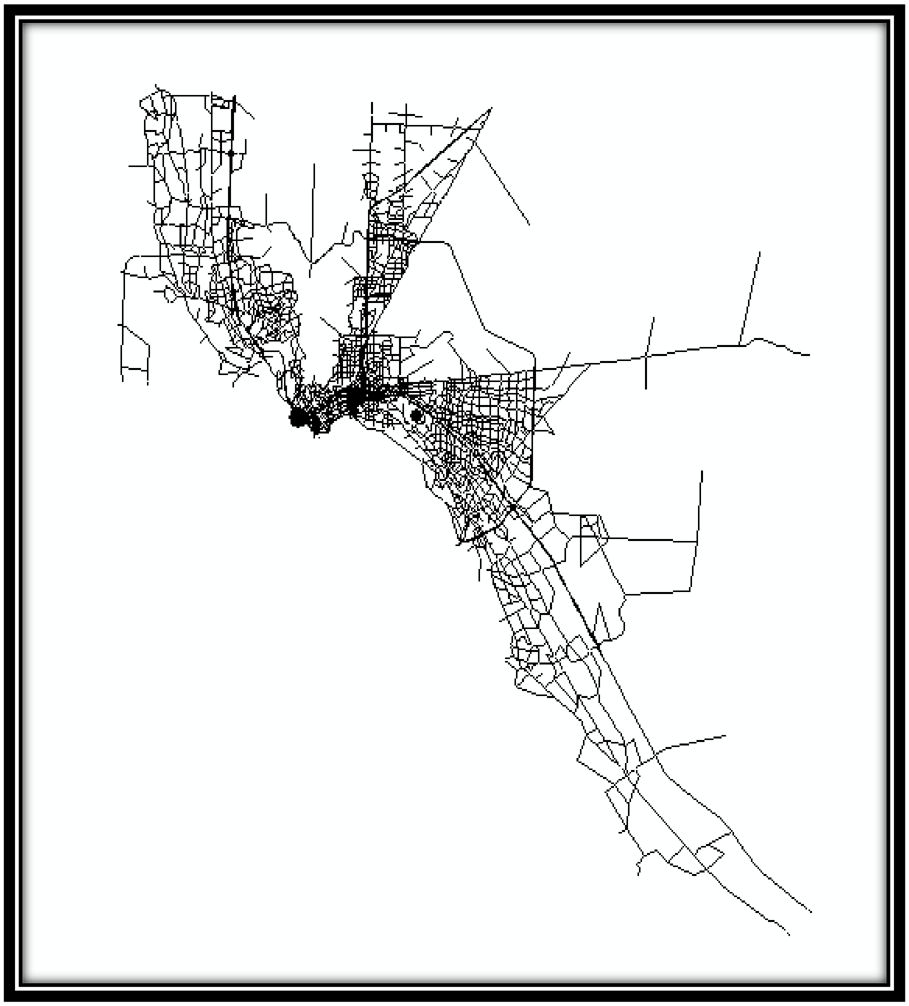


Figure 8.1: Single cell grid.

The following scenario is built to cover the CO non-attainment zone. To do this it was necessary to overlay the non-attainment area, provided in the TCR, in GIS over the transportation network (Figure 8.2). This area follows the description provided in the TCR. It is important to note that this area is not precisely defined in the TCR report itself (El Paso MPO, 2007). It is described to be bounded as follows: the north by I-10 from Porfirio Diaz Street to Raynolds Street, Raynolds Street from I-10 to the Southern Pacific Railroad lines, the Southern Pacific Railroad lines from Raynolds Street to U.S.62 (Paisano Dr.), Highway 62 from the Southern Pacific Railroad lines to State Highway 20 (Alameda Ave.), and Highway 20 from

Highway 62 to Polo Inn Road; bounded on the east by Polo Inn Road from Highway 20 (Alameda Ave.) to the Texas-Mexico border; bounded on the south by the Texas-Mexico border from Polo Inn Road to Porfirio Diaz Street (extended); and bounded on the west by Porfirio Diaz Street from the Texas-Mexico border to I-10 (see Figure 8.2 and Appendix B for reference).

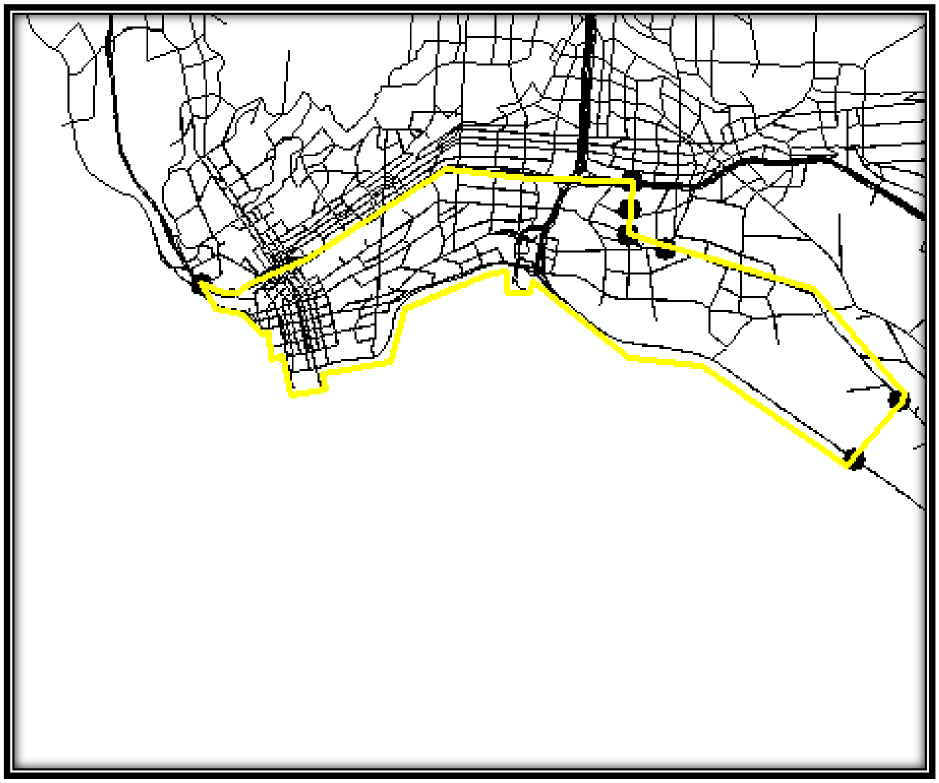


Figure 8.2: Zone drawn in GIS to represent the CO non-attainment area.

The second scenario thus consists of a grid located over the CO non-attainment zone for the city. This grid is composed of four hundred and eighty four 0.1 mile by 0.1 mile cells that are located inside the CO non-attainment zone, taken from a grid of 3,200 cells grouped in 40 rows and 80 columns to provide the best approximation available to the CO non-attainment zone. This scenario enables the comparison of CO emissions obtained with the framework to the ones

reported by El Paso MPO for the winter season. Figure 8.3 shows the grid design of the second scenario, the cells highlighted (in red) are cells that falls within the CO non-attainment zone.

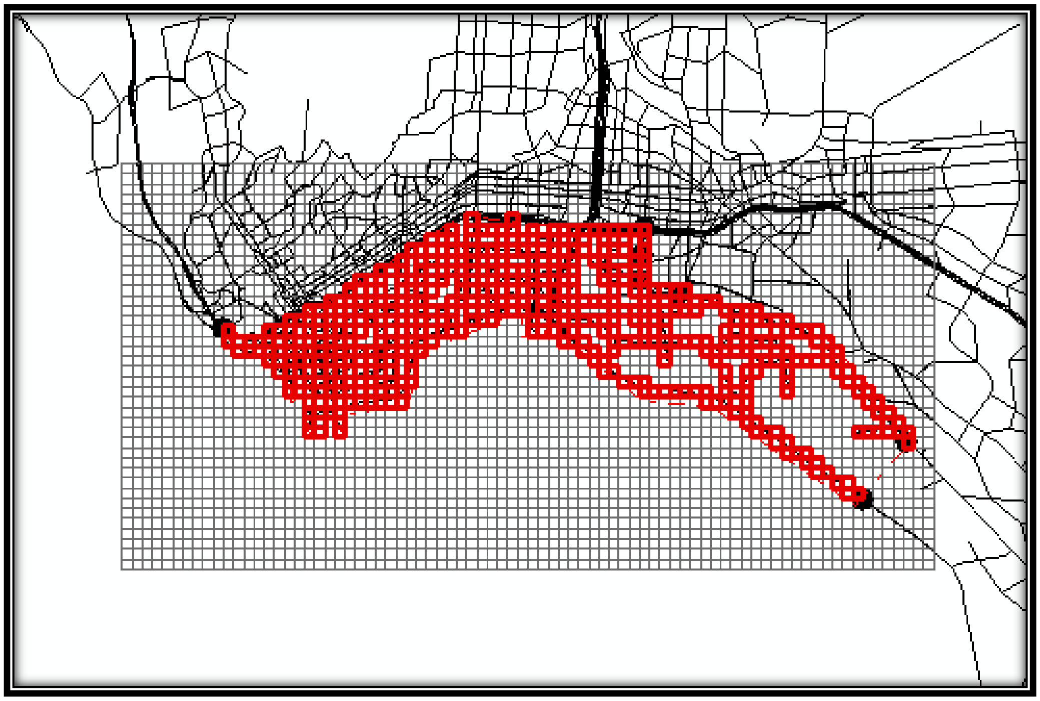


Figure 8.3: 0.1 x 0.1 mile grid over the CO non-attainment zone.

8.3 Results

Table 8.7 shows the summer results for the single cell grid over the whole transportation network (scenario 1). Table 8.8 presents the results for the same grid but for the winter season. Table 8.9 presents the results for the 0.1 mile by 0.1 mile grid over the CO non-attainment area (scenario 2). Figure 8.4 presents the 0.1 mile by 0.1 mile emission grid over the CO non-attainment zone.

Table 8.7: 2007 summer season emission estimates for the single cell grid.

Summer 2007 Emission Estimates		
Category	El Paso MPO	Framework results
Average Speed (mph)	38.600	28.620
PM10 Direct Vehicle Emissions (ton/day)	0.670	0.679
AP-42 Emissions (ton/day)	3.850	3.967
Total PM10 Emissions (ton/day)	4.520	4.647
PM10 budget (ton/day)	12.100	

Table 8.8: 2007 winter season emission estimates for single cell grid.

Winter 2007 Emission Estimates		
Category	El Paso MPO	Framework results
Average Speed (mph)	38.100	28.62
PM10 Direct Vehicle Emissions (ton/day)	0.720	0.699
AP-42 Emissions (ton/day)	4.090	4.063
Total PM10 Emissions (ton/day)	4.810	4.762
CO Emissions (ton/day)	---	237.880

Table 8.9: 2007 winter season emission estimates for the 0.1 mile x 0.1 mile grid on the CO non-attainment zone.

Winter season CO emissions for CO non-attainment area (tons/day)	
CO Emissions	19.130
El Paso MPO	19.530

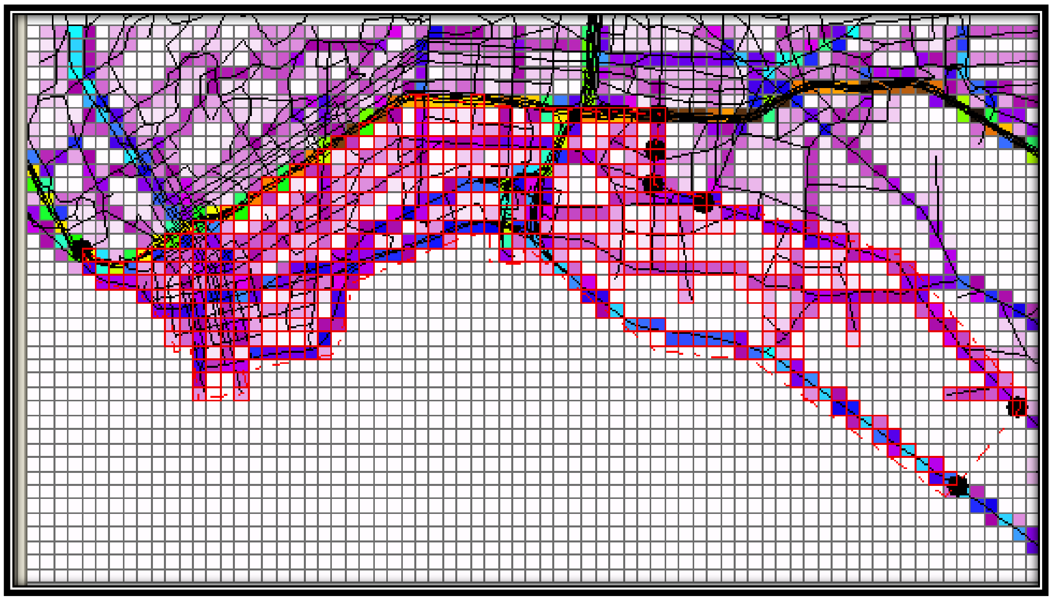


Figure 8.4: CO emission grid for scenario 2.

In Figure 8.4, the white color indicates that the emissions for that cell is equal to zero, as the color starts to change from white to pink to purple and finally to black, the emission values have higher values. The emission values for the emission grid shown in Figure 8.4 has a total of 19.130 ton/day, this total emission value is taken by summing the emissions of the cells within the CO non-attainment zone only.

The results obtained from the single cell grid scenario allows the comparison of results between the ones obtained by El Paso MPO and the ones obtained by the framework. The total

PM10 direct vehicle emissions for the summer season obtained with the framework is 1.34% higher than that estimated by El Paso MPO, and the total resuspended dust PM10 emissions for the same season is 3.04% more than the ones reported by El Paso MPO. Table 8.8 shows that emissions obtained for the winter season with the framework are 3.0% and 0.66% lower for direct and resuspended PM 10, respectevly.

From the results just described, it is obvious that there is no significant difference between the PM10 resuspended dust emissions estimated by the framework and those estimated by El Paso MPO. However, the difference that does exist can be associated to the method used by El Paso MPO for estimating the resuspended PM dust emissions. El Paso MPO used a fixed value to designate the average weight of vehicles (specifically, 3.03 tons in the case of freeway roads, 2.18 tons in the case of arterial, and 1.377 tons in the case of freeway ramps and local roads). In contrast, this framework derives the weight of vehicles based on the vehicle fleet distribution associated to each road classification and flow of vehicles on the road. This results in more realistic average vehicle weight values than the ones used by El Paso MPO. Another difference in the methodology is that El Paso MPO did not consider any variation of silt loading factor with respect to the volume of vehicles in the road. El Paso MPO only considered differences in the silt loading factor depending on the road classifications e.g., a silt loading values of 0.020 g/m^2 is assigned for freeway, 0.062, 0.020 g/m^2 for arterial, 0.115 g/m^2 for freeway ramp, and 0.201 g/m^2 for local roads.

The average speed obtained by the framework for the whole network is less than that obtained by El Paso MPO. El Paso MPO estimated an average speed of 38.6 mph and the framework estimated an average speed of 28.6 mph for the whole transportation network. This

difference in average speed influences the emission estimates since the average speed is one of the parameters that influence the emission outputs. El Paso MPO estimated the average speed for the whole network using the vehicle hours of travel (VHT/day) and VMT/day on the link (Chen et al., 2001).

$$VHT = \frac{VMT}{Speed} \tag{8.1}$$

where *VHT* is equal to vehicle hours of travel for the whole transportation network, and *VMT* are the VMT for the whole transportation network, and *Speed* is the average speed in the transportation network.

The El Paso MPO did not consider the functional classification of the roads on the transportation network, and when estimating the average speed, it only applied Equation (8.1) for the summer and winter seasons using the total amount of VMT and VHT for each (e.g., in the case of the summer the average speed is equal to 38.6 mph, or 15,779,014 VMT/day divided by 409,088 VHT/day). The framework instead uses Equation (7.23) to estimate the average speed for every cell. Equation (7.23) considers the proportion of VMT traveled at certain speed for each of the four road classes. This equation leads to better estimates of the average speed since variation in traveled speed inherent to different road types are estimated.

Even though the resuspended PM10 emissions estimates are almost the same as those estimated by El Paso MPO, the resolution of the grid is on the macroscale level. This actually was the purpose of that scenario to perform the analysis as close as possible to the conditions considered by El Paso MPO. However, because of the resolution used, the actual potential of the

framework is not fully utilized. For example, if a grid of 1 mile by 1 mile is built over the transportation networks, the contribution of each cell could have been accounted for. Furthermore, if El Paso MPO would had built a 1 mile by 1 mile grid, the results obtained would still be limited, as the average weight of vehicles and the silt loading values used are fixed values assigned to specific roads.

In the case of CO emissions, the emissions estimated with the framework are 128.175 tons/ day for the summer season and 237.880 tons/day for the winter season. These estimates are obtained when considering the whole transportation network for summer and winter, respectively. In contrast, the emissions reported by El Paso MPO (Table 8.9) only represent the CO emissions for the CO non-attainment zone. To enable the comparison of CO emission estimates between the framework and El Paso MPO, a summation of the emissions of the cells within the CO non-attainment zone are considered only. The boundary defined by El Paso MPO for CO non-attainment zone is not precise, as the exact coordinates and roads considered within the zone are not provided. The total CO emission considered for the grid is taken by summing the square 0.1 mile 0.1 cells inside the CO zone. The CO non-attainment zone has a VMT of 1,166,852 veh-miles and the VMT used by the framework for this zone is equal to 1,210,181 veh-mi. A precise grid for the CO non-attainment zone cannot be obtained as the CO non-attainment zone can only be approximated by the 0.1 mile 0.1 mile cells that fall within its limits. Another parameter that influenced the variation between MPO CO estimates and the framework estimates is the average speed. For the framework, the average speed value is considered for every cell and it varies depending on the cell characteristics. The framework estimates the emissions for each cell based on the average speed of values associated to every cell. This varies

from the method used by El Paso MPO in which the average speed used is a single value based on the whole transportation network.

Among the inputs considered in Table 8.1 the I/M has a significant influence on the CO emission emissions, less on the affects NO_X and VOC emissions. When an I/M program is used as input, MOBILE6.2 recognizes that a properly designed I/M program remains one of the most effective means of ensuring that high-emitting vehicles are identified and repaired so the emission factor is adjusted to reflect the presence of that I/M program (Jack Faucett and Associates, 1994; Glover and Brzezinsky, 1999; Koupal and Glover, 1999). The I/M used for the case study represent the seven I/M programs used by El Paso MPO. The El Paso I/M program consists of exhaust (start year 1987) and evaporative (start year 1997) component tests conducted on an annual basis. Vehicles 1996 and newer equipped with On-board diagnostic systems (OBD) are tested under OBD and gas cap integrity (GC) tests, while pre-1996 and non-OBD equipped vehicles are tested under the Two-Speed Idle (TSI) and GC tests. All the gasoline vehicle types within a 2 to 24 year age window were considered subject to inspection. This means that vehicles that are less than two years old and vehicles that are 25 years old and older are exempt from testing (El Paso MPO, 2007). In addition, another parameter that influences the CO emissions is the oxygenated fuels input, this parameter reduces the CO emissions (Rao, 2001). The I/M programs only affects the emission factors of the pollutants stated above without having any effect on PM emission factors. In the case of El Paso, CO emissions reduced from 160.929 ton/day to 128.175 ton/day in the summer and in the winter from 304.421 ton/day to 237.880 ton/day in the winter. VOC emissions reduced from 17.618 ton/day in the summer to 15.790 ton/day and from 22.469 ton/day to 19.274 ton/day in the winter.

Chapter 9: Sensitivity Analysis

This chapter examines the emission performance of the transportation network under different grid resolutions. The transportation network used in the analysis corresponds to the city of El Paso, Texas for the year 2007. The grids built for this analysis consist of 2 by 2, 4 by 4, 8 by 8, 16 by 16, 32 by 32, and 50 by 50 rows and columns, respectively. For the analysis, summer and winter seasons were considered and the pollutants modeled where:

- CO
- PM10 & PM2.5
- Resuspended PM10 & PM2.5
- Total PM10 & PM2.5
- VOC

As previously mentioned, the framework defines individual cells of the grid as individual input scenarios to be used in MOBILE6.2. Each of these scenarios has a series of inputs that are common for all cells (individual scenarios) of the grid and some are specific to every cell, i.e., the average speed, the vehicle fleet distribution and the road distribution. Both inputs influence the calculation of the emissions, but since many inputs are the same for all of the cells, the only inputs that determine the resulting emissions among cells are the ones that are specific to each cell.

The emissions for the cells are obtained using two parameters, the cell VMT and the emission factors calculated for that cell. The cell VMT is obtained by summing up the product of

a road and the volume of vehicles traveled on the road in the cell. The emission factors are calculated based on the average speed, the vehicle fleet and the road distribution that is specific to the cell. The total amount of emissions for the grid is calculated by summing the emissions of the cells that form the grid.

9.1 Emission Grids

The framework builds an emission grid for each of the pollutants modeled. The emission grids built by the framework make use of the natural breaks classification method embedded in ArcGIS. This classification method identifies breakpoints or range of intervals between classes using a statistical formula called Jenks optimization (Jenks and Caspall, 1971). Jenks method minimizes the differences between data values in the same class and maximizes differences between classes. Given a desired number of classes, the Natural Breaks method partitions the data into subsets that minimize the sum of the data within each subset. The emissions grids built by the framework have a color scheme for different level of emissions. Lower emission levels are represented by white color and highest emissions by black. The following subsections discuss how the size of the grid allows the capturing of the spatial contribution of different portions of the transportation network to total emissions. The complete set of emission grids for all the pollutants is presented in Appendix C. Section C.1 presents the summer emission grids for all pollutants stated above. Section C.2 presents the winter emission grids for the same pollutants and Section C.3 presents the numerical values of the emission grids shown in Section C.1 and C.2.

9.1.1 CO Emission Grids

This section provides a comparison of the CO emissions for each of the grid designs stated in the previous section. This section determines the effect changing the resolution of the grid has on CO emissions. In this analysis, only the summer CO emission grids are considered. In order to determine the stability and convergence of the framework this section presents a comparison of cells of different grids designs to Cell 0 of the 2 rows by 2 columns (2x2) CO summer emission grid. Figure 9.1 presents the CO emission grids used in the comparison of CO emissions.

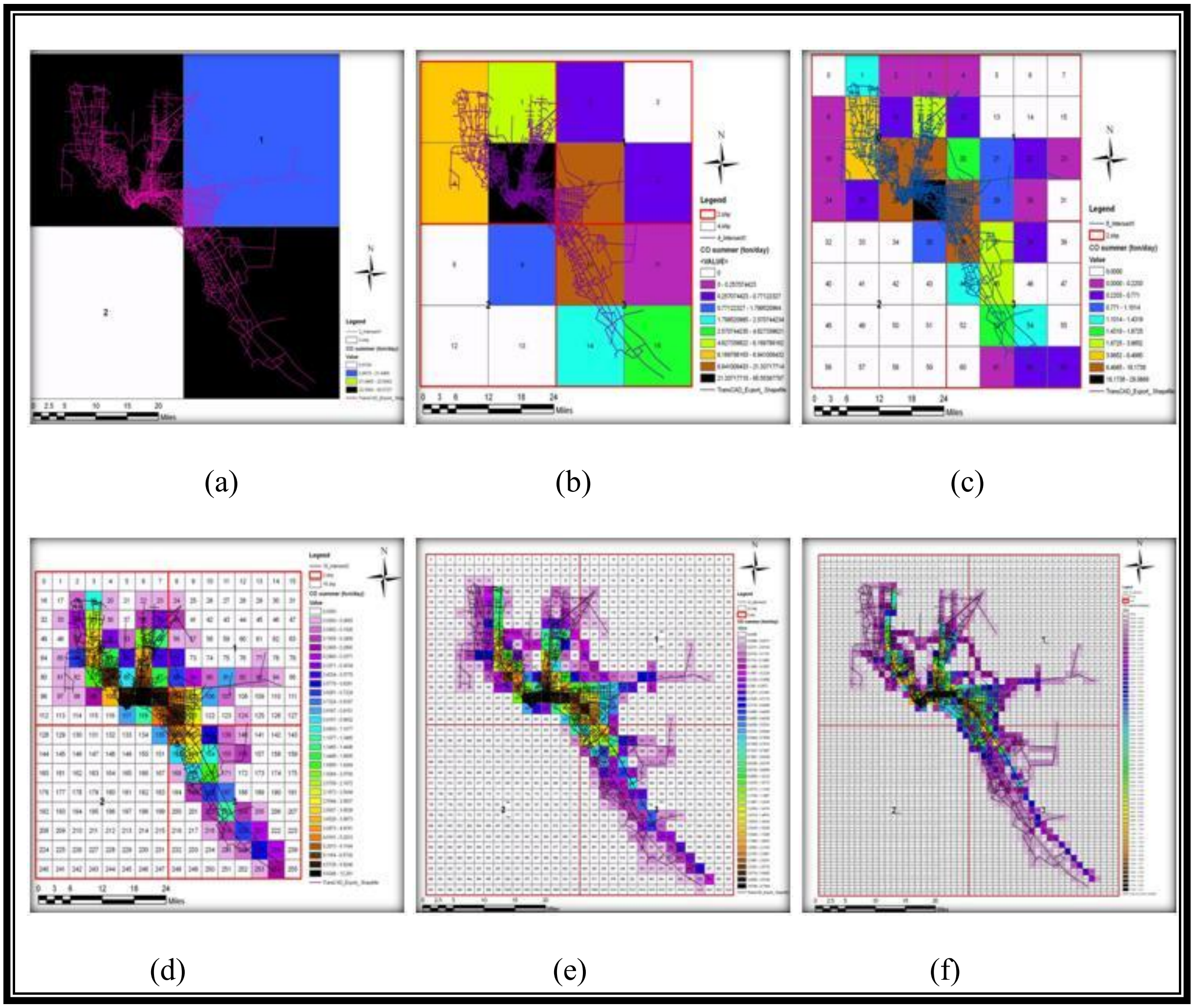


Figure 9.1: Summer CO emission grids.

In Figure 9.1 different grid design are placed over the 2x2 grid. Figure 9.1(b) shows the 4x4 CO summer emission grid placed on the same area as covered by 2x2 CO emission grid (shown by red lines). Similarly, in Figure 9.1(c), Figure 9.1(d), Figure 9.1(e), and Figure 9.1(f) the 8x8, 16x16, 32x32, and 50x50 CO emission grids are placed on the same area as the 2x2 emission grid to determine the convergence of different emission grids in determining the CO emissions of the same area. As mentioned earlier, Cell 0 of Figure 9.1(a) is used as the base of comparison between grids. On the other hand, the emissions of other grids for that same area (as Cell 0 in Figure 9.1(a)) are obtained by adding the emission of every cell located in that area.

The first comparison made is between Cell 0 in Figure 9.1(a) and cells of the 4x4 CO emission grid (Figure 9.1(b)). Cell 0 (in Figure 9.1(a)) has the highest CO emissions observed by the 2x2 emission grid with a value of 83.573 ton/day and cells of the 4x4 emission grid (upper left hand side corner of Figure 9.1(b)) have a total of 83.564 ton/day 99.99% of the 2x2 CO emissions. The following grid design in the comparison is the 8x8 summer CO emission grid (Figure 9.1(c)).This grid design sums a total of 83.578 ton/day representing 0.007% more emissions than the ones reported for Cell 0 in the 2x2 summer CO emission grid. In the 16x16 (Figure 9.1(d)) CO summer emissions sum a total of 83.780 ton/day which is 0.249% higher than the ones of the 2x2 grid. In Figure 9.1(e), the total amount of the 32x32 CO emissions is equal to 83.647ton/day 0.089% higher than the ones in the 2x2 CO emission grid. The 50x50 CO emission grid (Figure 9.1(f)) has a total of 84.209 ton/day for cells located in the same area Cell 0 of Figure 9.1(a).

The framework uses the information of every cell to develop the parameters that input the emission modeling module and the emission modeling module generates the emission factors that are used jointly with the cell VMT to estimate the cell emissions. When one cell is used in the analysis of a specified area as in the case of Cell 0 of the 2x2 CO emission grid, the emission factor for that cell, through the parameters calculated, is calculated based on the road distribution, average speed and vehicle fleet of that cell. In contrast, when more than one cell is used to estimate the emissions of a specified area (as in the case shown in Figure 9.1) the emissions in that area depend on the emission factors and VMT calculated for each of the cells in the area. Placing different grids over the 2x2 grid show the differences that exist among portions of the transportation network. For example, consider the 4x4 CO emission grid in this CO emission grid the four cells located in the same area as Cell 0 of the 2x2 emission grid which have different colors. This means that each of the cells in that area have a different contribution

to the total CO emissions of that area and in fact Cell 5 of that grid design is shown as the cell that contributes more to the CO emissions. To illustrate how differences in the transportation network leads to different CO emission factors for equivalent areas, a comparison of emission factors of Cell 0 of the 2x2 against the four factors of the 4x4 CO emission grid is presented next. Figure 9.2 presents the average speed of the five cells considered (four of 4x4 plus Cell 0 of the 2x2). Figure 9.3 shows the road distribution of the same five cells. Figure 9.4 shows the CO emission factors of the five cells and presents the vehicle fleet of these cells.

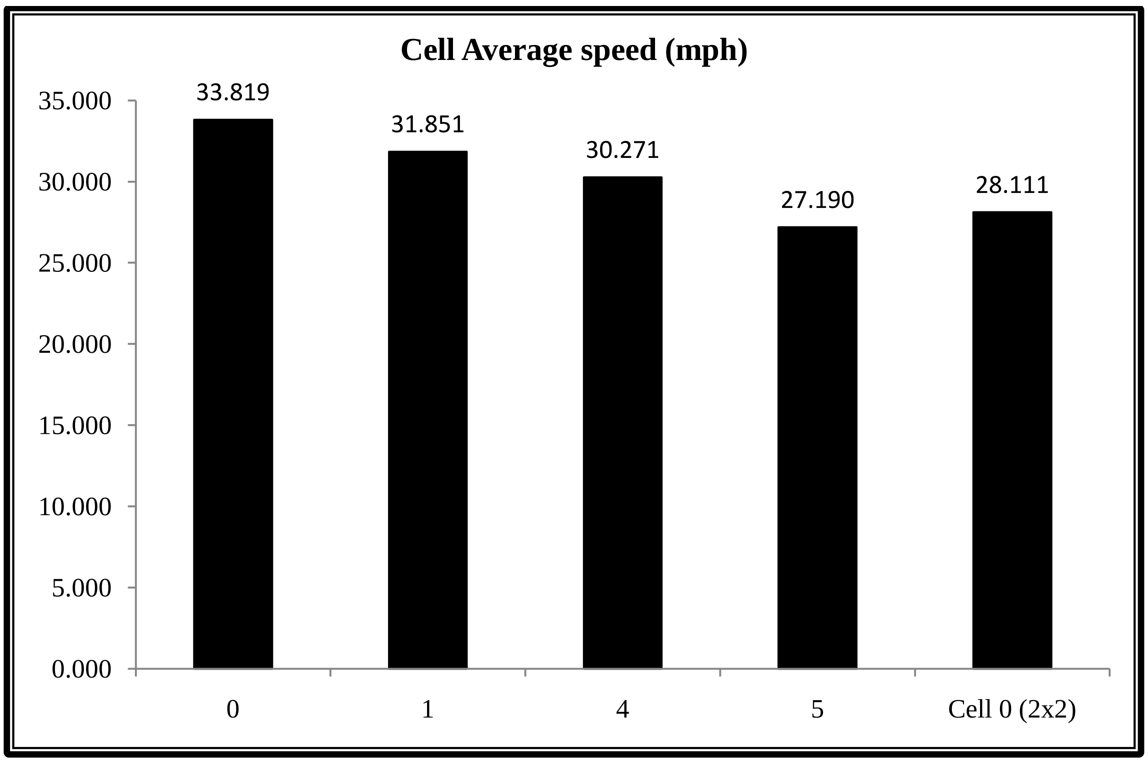


Figure 9.2: Average speed of Cell 0 of the 2x2 grid and cells of the 4x4 grid.

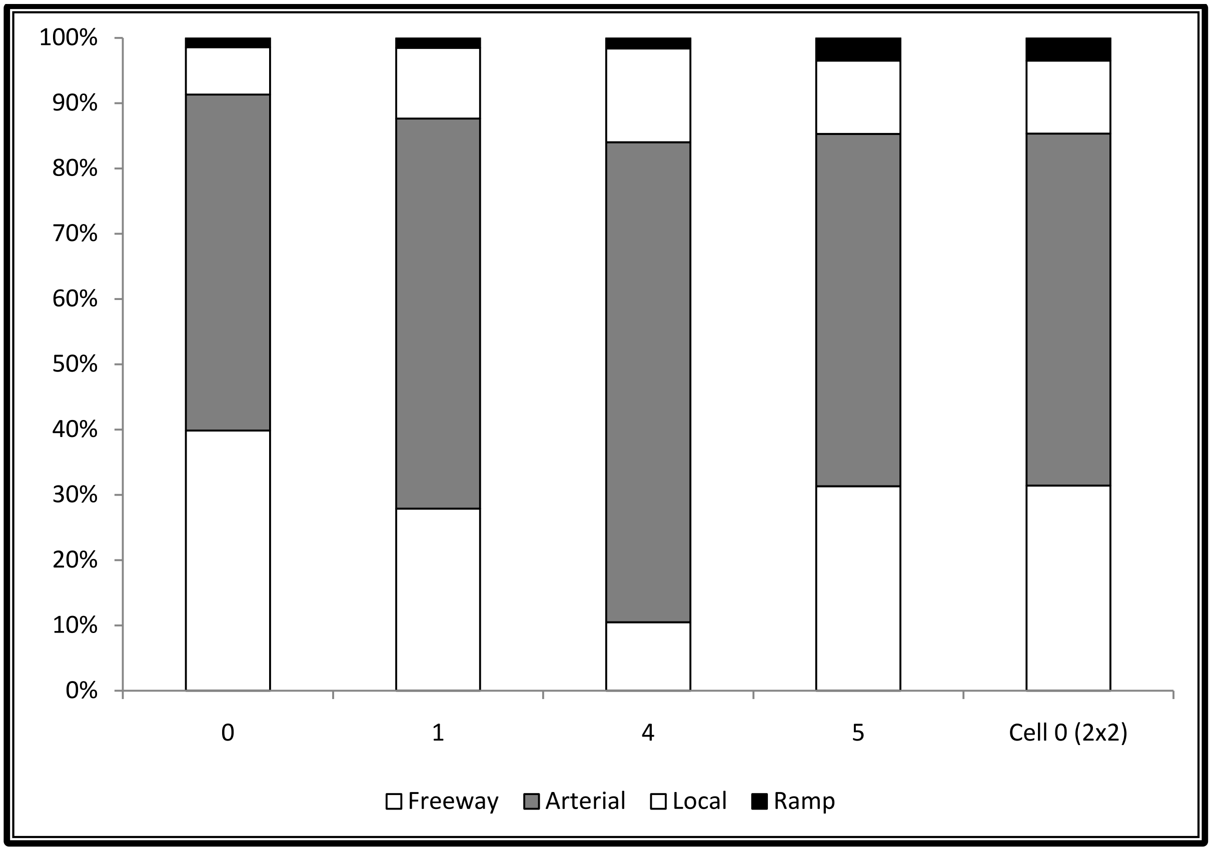


Figure 9.3: Road distribution of Cell 0 of the 2x2 grid and cells of the 4x4 grid.

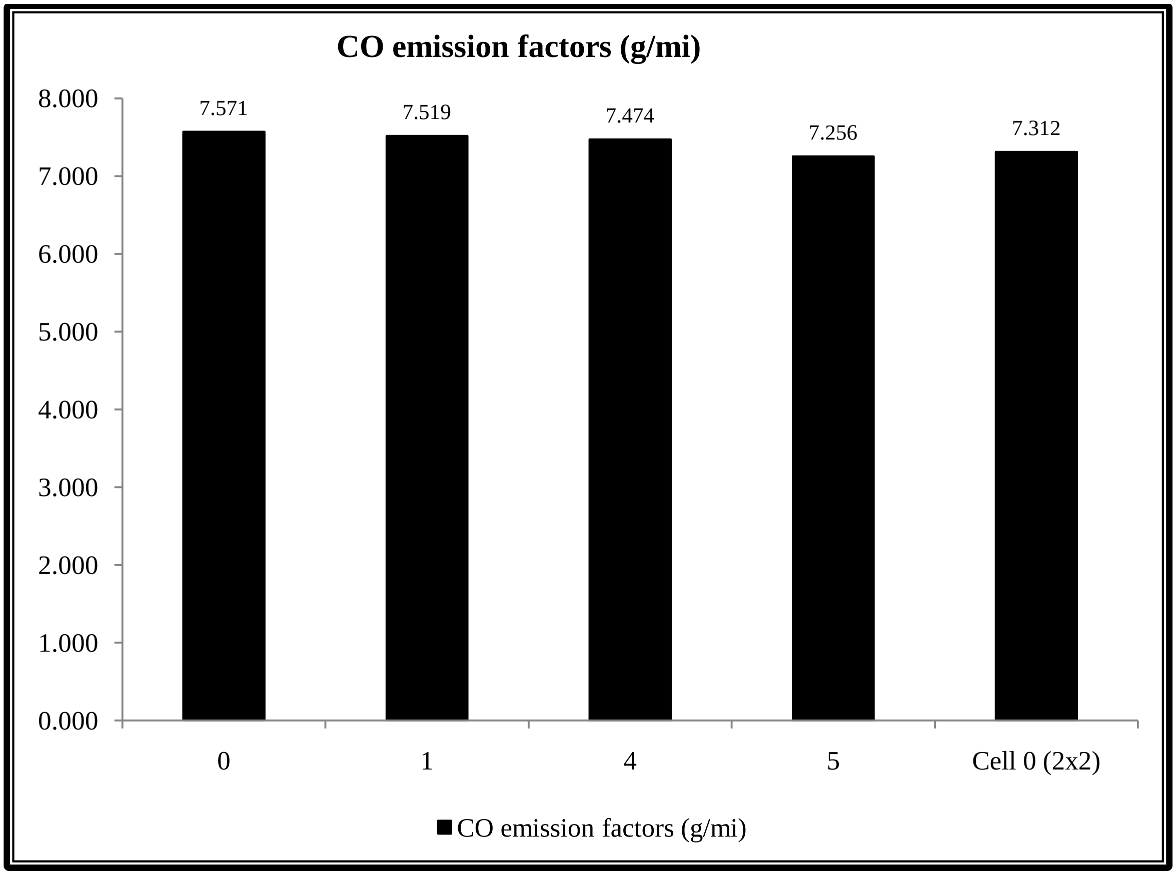


Figure 9.4: CO emission factors of Cell 0 of the 2x2 grid and cells of the 4x4 grid.

Table 9.1: Vehicle fleet distribution of the 4x4 grid cells and Cell 0 of the 2x2 grid.

Cells	LDV	LDT1	LDT2	LDT3	LDT4	HDV2B	HDV3	HDV4
0	0.851481	0.015131	0.050344	0.015517	0.007142	0.016531	0.001623	0.001324
1	0.860136	0.013887	0.046204	0.014241	0.006555	0.016188	0.00159	0.001297
4	0.87035	0.012476	0.041512	0.012795	0.005889	0.015665	0.001538	0.001255
5	0.867834	0.012899	0.042918	0.013228	0.006089	0.015642	0.001536	0.001253
Cell2x2	0.866039	0.013132	0.043694	0.013468	0.006199	0.015763	0.001548	0.001263

Table 9.1 Cont : Vehicle fleet distribution of the 4x4 grid cells and Cell 0 of the 2x2 grid.

Cells	HDV5	HDV6	HDV7	HDV8A	HDV8B	HDBS	HDBT	MC
0	0.000982	0.003674	0.004357	0.004742	0.016916	0.003058	0.001376	0.0058
1	0.000962	0.003597	0.004267	0.004643	0.016564	0.002807	0.001263	0.0058
4	0.000931	0.003481	0.004129	0.004493	0.016029	0.002522	0.001135	0.0058
5	0.00093	0.003476	0.004123	0.004487	0.016006	0.002607	0.001173	0.0058
Cell2x2	0.000937	0.003503	0.004155	0.004521	0.01613	0.002654	0.001194	0.0058

Figure 9.4 shows that Cell 0 of the 4x4 grid (located in the upper left corner of Figure 9.1(b)) has the greatest CO emission factor of the cells located in the same area as Cell 0 of the 2x2 grid. The CO emission factor of this cell is the highest because this cell has the greatest average speed and proportion LDT and HDV in its vehicle fleet of all the cells (see Figure 9.2 and Table 9.1). Cell 1 of the same grid design has the second highest CO emission factor of the cells because this cell has the second highest average speed and proportion of LDT and HDT on the vehicle fleet. Cell 4 of the 4x4 emission grid has the third highest CO emission factor of the cells because this cell's average speed is also the third highest of the cells in the 4x4 grid and because it has a smaller proportion of LDT and HDV as compared to the aforementioned cells. Cell 5 has the lowest CO emission factor of the 4x4 grid because this cell has an average speed closer to the 20 mph range where the average speed values have the lowest impact on CO emission factors. In addition, Cell 5 has the second highest proportion of LDGV in its vehicle fleet, thus reducing the amount of HDV emission. Cell 0 of the 2x2 emission grid has an emission factor that is higher than the one observed by Cell 5 of the 4x4 emission grid and lower than the ones calculated for the remaining cells of the same grid. The emission factor of Cell 0 of the 2x2 grid is higher than the one calculated for Cell 5 of the 4x4 emission grid because the average speed of this cell is higher than the one estimated by Cell 5. The rest of the cells in the 4x4 CO emission grid have higher emission factors than Cell 0 of the 2x2 emission grid because

all of these cells have higher average speeds. Road distribution did not have an important impact on the CO emission factors observed by the five cells because the average speed observed by these cells is close to the 30 mph range where no difference exists between 100% arterial roads and 100% freeway roads.

The CO emission factors are mostly affected by the average speed calculated: average speeds below 20 mph result in the highest emission factors, and average speeds in the range of 30 mph to 50 mph result in the same emission factors for arterial and freeway roads (Giannelli et al., 2002; Rao, 2001). The CO emission factors are the same for arterial and freeway roads for speeds above 30 mph because in MOBILE6.2 it is assumed that driving above 30 mph (high average speed as considered in MOBILE6.2 model) consists of almost entirely cruise with little stopping or idle, regardless of the road way type. At the extremely low speed of 7.5 mph and below, arterial and freeway roads have the same CO emission factors because this speed is considered idle with no difference in driving conditions (EPA, 2002). On the other hand, the higher proportion of LDT and HDVs present in the cells increased the CO emission factors. LDT and HDVs have higher emission factors than LDVs. Thus, the higher the proportions of these vehicles in the vehicle fleet, the higher the CO emissions (Enns et al., 2002; Brzenzinsky et al., 2001; SEMCOG, 2004).

Reducing the resolution of the grid increases the number of emission factors generated for a particular area as every cell represents one scenario for which an emission factor is generated. The variation between CO emission grids is observed among grids because the emission factors of higher resolution grids are more sensitive to changes in average speed, road

distribution, and vehicle fleet. Thus, total CO emissions considered for the same area have differences from the ones estimated using one single cell.

9.1.2 VOC Emission Grids

This section provides a comparison of the VOC emissions as performed for CO in previous section. As in the case of CO cells covering the same area of Cell 0 of the 2x2 VOC summer emission grids are compared to emissions of Cell 0 of this design. Similarly, winter emission grids are provided in Appendix C. Figure 9.5 presents the VOC summer emission grids as presented in Figure 9.1.

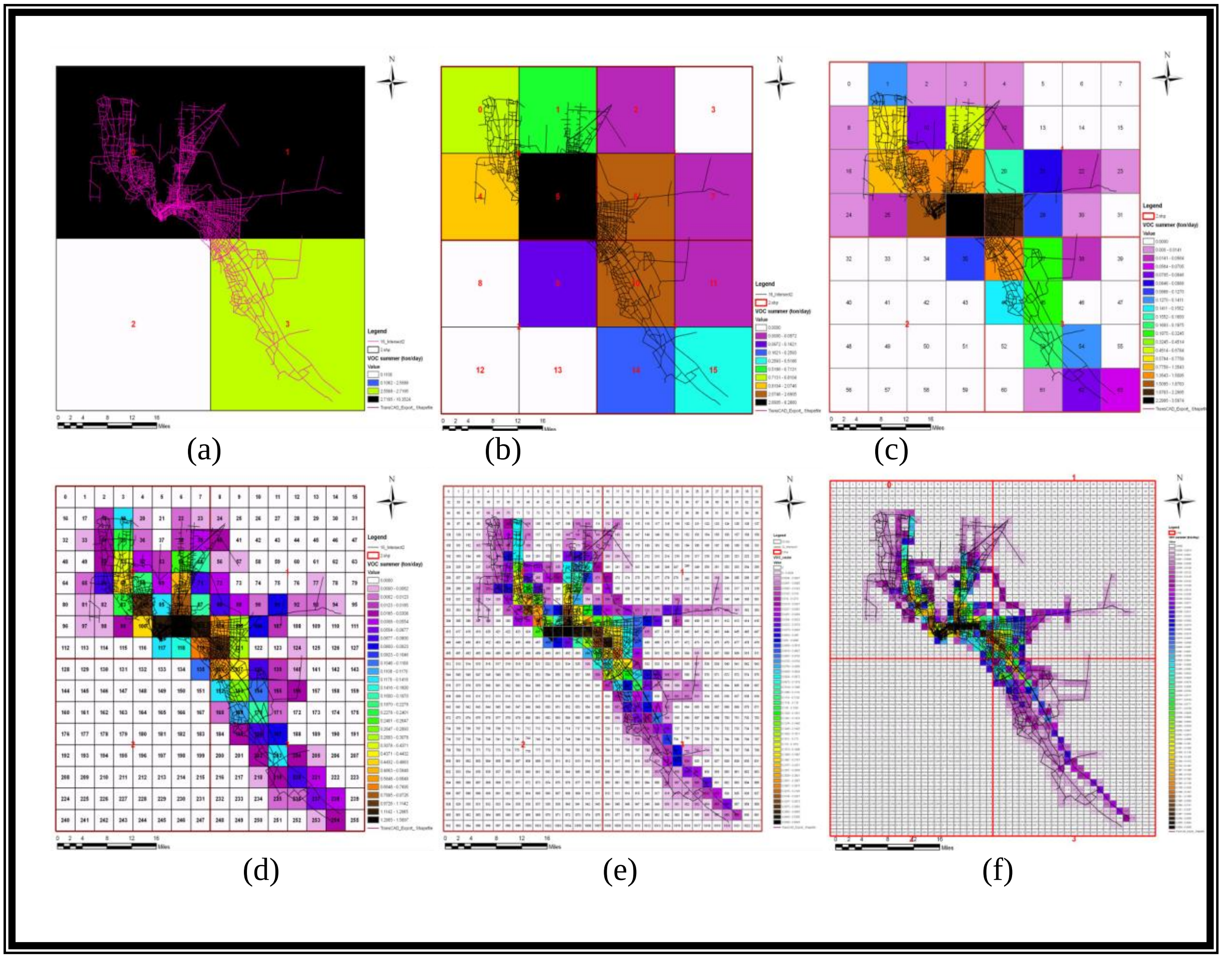


Figure 9.5: Summer VOC emission grids.

VOC emissions of Cell 0 (Figure 9.5(a)) of the 2x2 summer emission grid are equal to 10.352 ton/day. In Figure 9.5(b) the emissions of cells located in the same area as Cell 0 of the 2x2 VOC summer emission grid are equal to 10.154 ton/day 98.09% of the emissions calculated for Cell 0 of the 2x2 grid. The total emissions of the 8x8 VOC summer emission grid (Figure 9.5(c)) for that area is equal to 10.227 ton/day 98.80% of Cell 0 VOC emissions. In Figure 9.5(d), cells located in that area sum a total of 10.195 ton/day. This is 98.48% of the emissions of Cell 0 in the 2x2 grid. Cells located in Figure 9.5(e) and Figure 9.5(f) have a total of 10.214 ton/day and 10.173 ton/day, for the 32x32 and 50x50 VOC summer emission grids respectively.

Representing in the case of the 32x32 VOC summer emission grid 98.67% Cell 0 VOC emissions of the ones calculated for 2x2 grid and in the case of 50x50 VOC summer emission grid the emission calculated represent 98.27% of the same emissions estimated for the 2x2 grid.

In the same manner as in the case of CO, every cell in the grid has a corresponding VOC emission factor. These emission factors depend on the average speed, road distribution, and vehicle fleet of the cell. VOC emission factors, however, respond different to changes in these parameters as compared to CO emission factors. The VOC emission factors are also affected by the average speed (Giannelli et al., 2002; Rao, 2001). However, the impact of average speed on VOC emission is different. In the case of VOC, as the average speed increases and the emission factors reduces, road distribution has no impact on VOC (Giannelli et al., 2002), and HDV and LDT in the vehicle fleet reflect as higher VOC emission factors (MDE, 2003; SEMCOG, 2004;Pennsilvani Department of Transportation, 2009). Figure 9.6 present the VOC emission factors for Cell 0, 1, 4, 5, and Cell 0 of the 4x4 and 2x2 VOC summer emission grids, respectively.

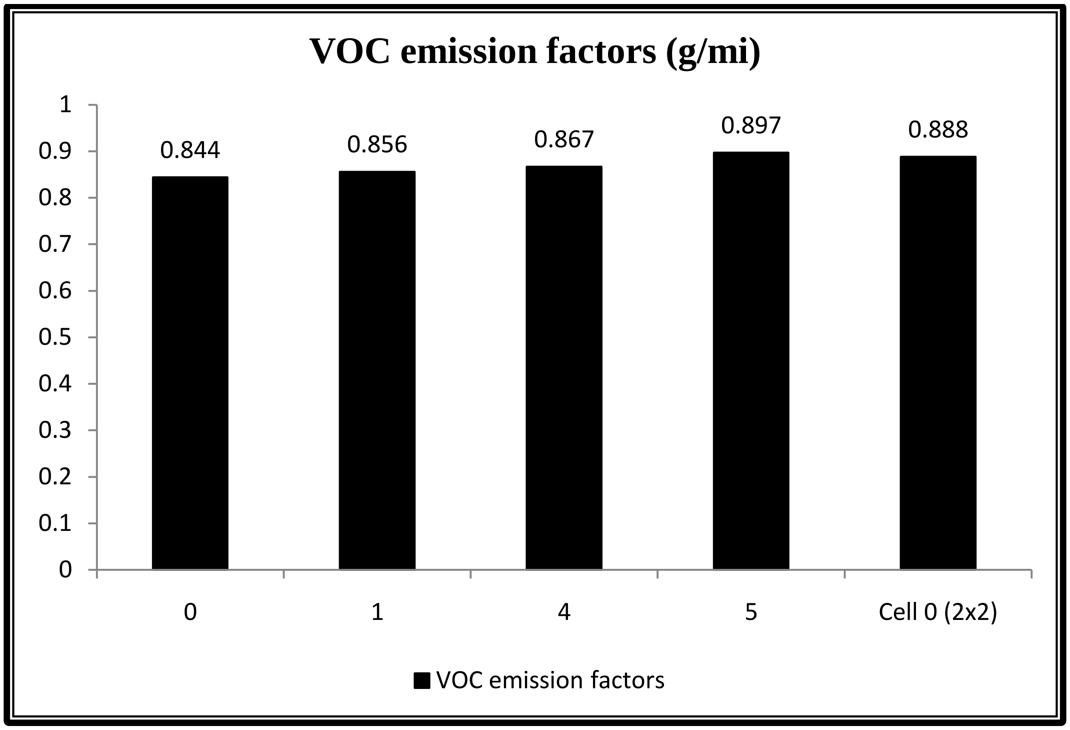


Figure 9.6: VOC emission factors of Cell 0 of the 2x2 grid and cells of the 4x4 grid.

The impact of average speed on VOC emission factors can be observed in Figure 9.6. This figure shows that the smallest emission factor corresponds to the cells with the highest average speed and that the greatest correspond to the cell with the lowest average speed. Differences observed among the cells VOC emission factors are the source of the variance presented by different grids total emission values in the area of Cell 0 of the 2x2 grid.

9.1.3 PM10 and PM2.5 Emission Grids

Following the same analysis pattern as for CO and VOC, the following analysis of comparing emission grids of different resolutions is performed for PM10 and PM 2.5 emission grids. PM10 and PM2.5 follow the same pattern for the summer emission grids and have the

same characteristics so this section describes the analysis performed for both. Figure 9.7 presents the summer PM10 emission grids.

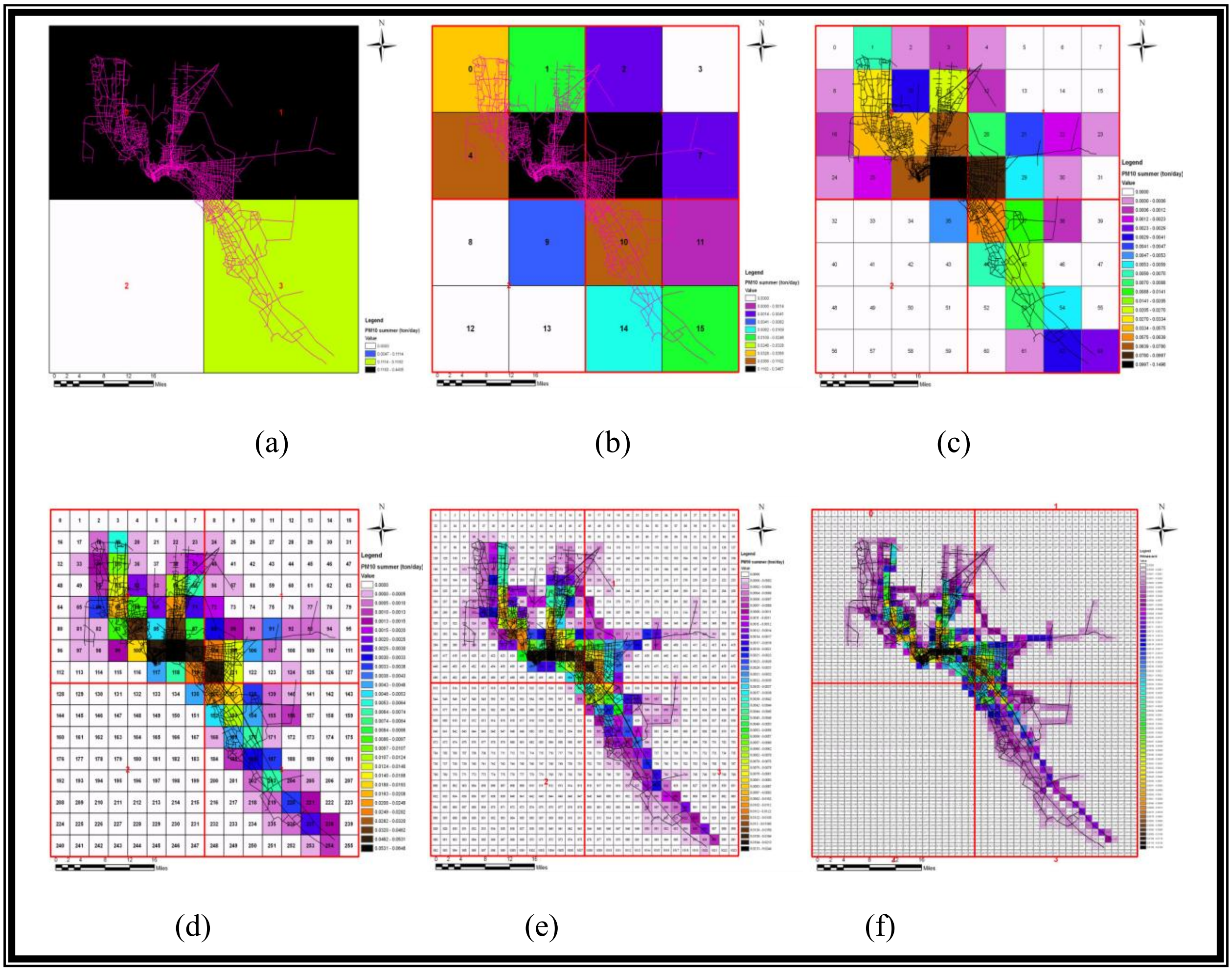


Figure 9.7: Summer PM10 emission grids.

In the case of PM10 and PM2.5, Cell 0 of the 2x2 summer emission grid has a value of 0.443 ton/day. Cells of the summer 4x4 PM10 emission grid have a total of 0.442 ton/day (Figure 9.7(a)). Cells of the summer 8x8 PM10 emission grid have a total of 0.442 ton/day (Figure 9.7(b)). In case of the 16x16 summer PM10 emission grid, the total amount of emission of these cells is equal to 0.422 ton/day (Figure 9.7(c)). In the 32x32 summer PM10 emission

grid, the cells located in same area as the aforementioned emission grids have a total of 0.422 ton/day, and in the case of 50x50, the cells in the same area have a total of 0.403 ton/day. Cell 0 of the 2x2 PM2.5 summer emission grid has a 0.271 ton/day. Cells of the 4x4 summer PM2.5 emission grid have a total of 0.271 ton/day. The cells in the same area of the 8x8 summer PM2.5 emission grid have a total of 0.271 ton/day. The cells in the 16x16 PM2.5 emission grid have 0.271 ton/day. The cells of the 32x32 and 50x50 PM2.5 summer emission grids have a total of 0.271 ton/day and 0.246 ton/day, respectively. Differences among emission grids result from changes in the emission factors that are estimated for the grid cells in this case cells located in the area of Cell 0 of the 2x2 grid. Figure 9.8 shows the emission factors for PM10, and Figure 9.9 shows the emission factors for PM2.5 of the cells considered in the emission comparison.

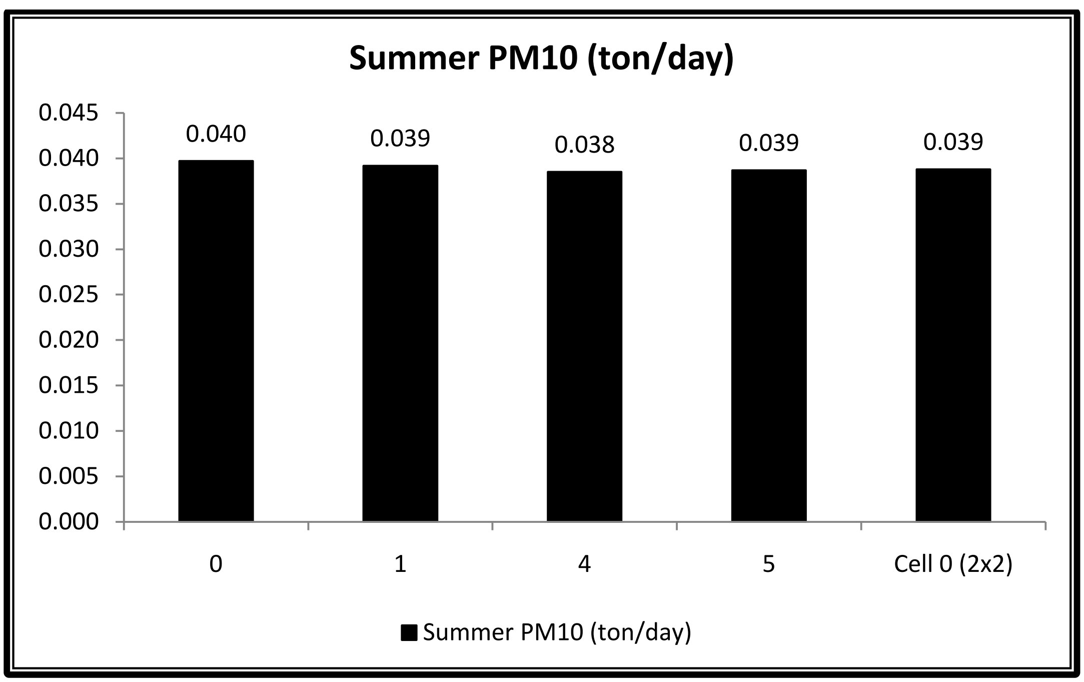


Figure 9.8: Emission factors for the summer PM10 emission grids.

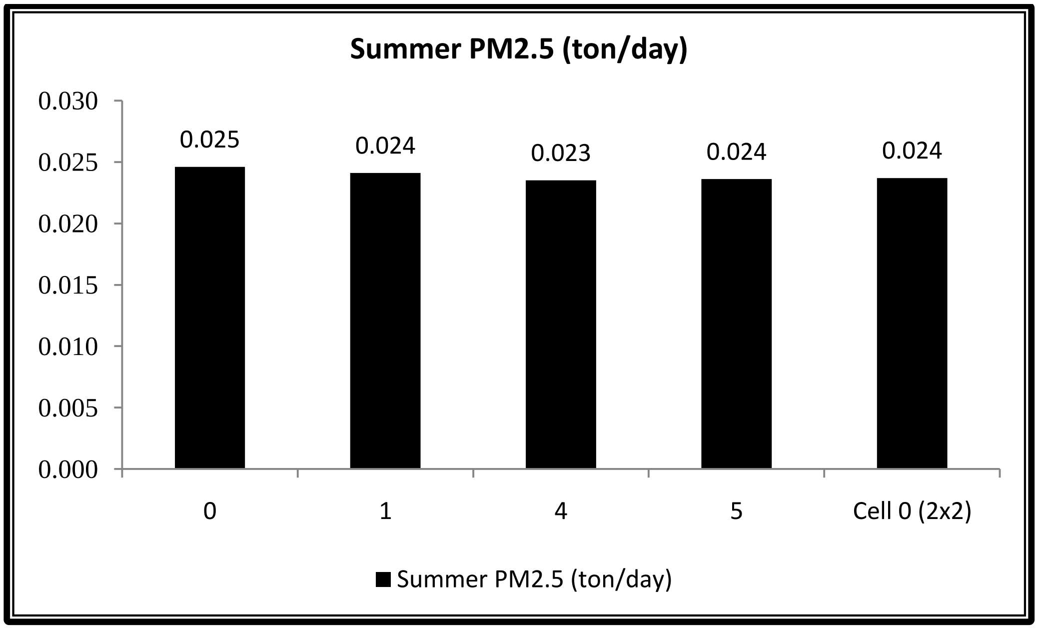


Figure 9.9: Emission factors for the summer PM2.5 emission grids.

The emission factors for PM10 and PM2.5 are not significantly affected by changes in average speed or by the road type distribution. The PM10 and PM2.5 emission factors are affected by the calendar year used and by the vehicle fleet distribution **(**Grannell et al., 2004). The calendar year influences the PM emissions significantly as older vehicles generate more PM emissions than newer vehicles because older vehicles allow generate more particles associated to lubricating oil leakage into the combustion chamber (Heirigs et al., 2004; Watson et al., 1998). For both pollutants there is no difference between arterial of freeway roads and the emission factors have the same value regardless of the road distribution used. The PM10 and PM2.5 emission factors are lower when LDV are more present in the vehicle fleet and higher as the proportion HDV are more present in the vehicle fleet (Kirchstetter et al., 1999). HDV vehicles generate more PM emission because of the higher sulfur content in diesel engines (Heirigs et al., 2004; Kockelman and Zhao, 2000). In addition, Diesel three way catalysts (TWC) temperature

lead to oxidation of sulfur dioxide into sulfur trioxide that combines with water vapor and transform into sulfate PM (Heirigs et al., 2004; Nett Technologies, 2002).

9.1.4 Resuspended PM10 and PM2.5 Emission Grids

Following the direct vehicle PM emissions, the pollutants considered were the AP-42 resuspended PM 10 and PM2.5. For these two pollutants, the emissions of cells located in the same area as Cell 0 of the 2x2 grid are summed to obtain the total emissions. As performed earlier for other pollutants, the total emissions calculated are compared to the emissions of Cell 0 of the 2x2 to determine differences among grid designs with higher resolutions. Figure 9.10 presents the resuspended PM10 summer emission grids and Figure 9.11 presents the resuspended PM2.5 summer emission grids.

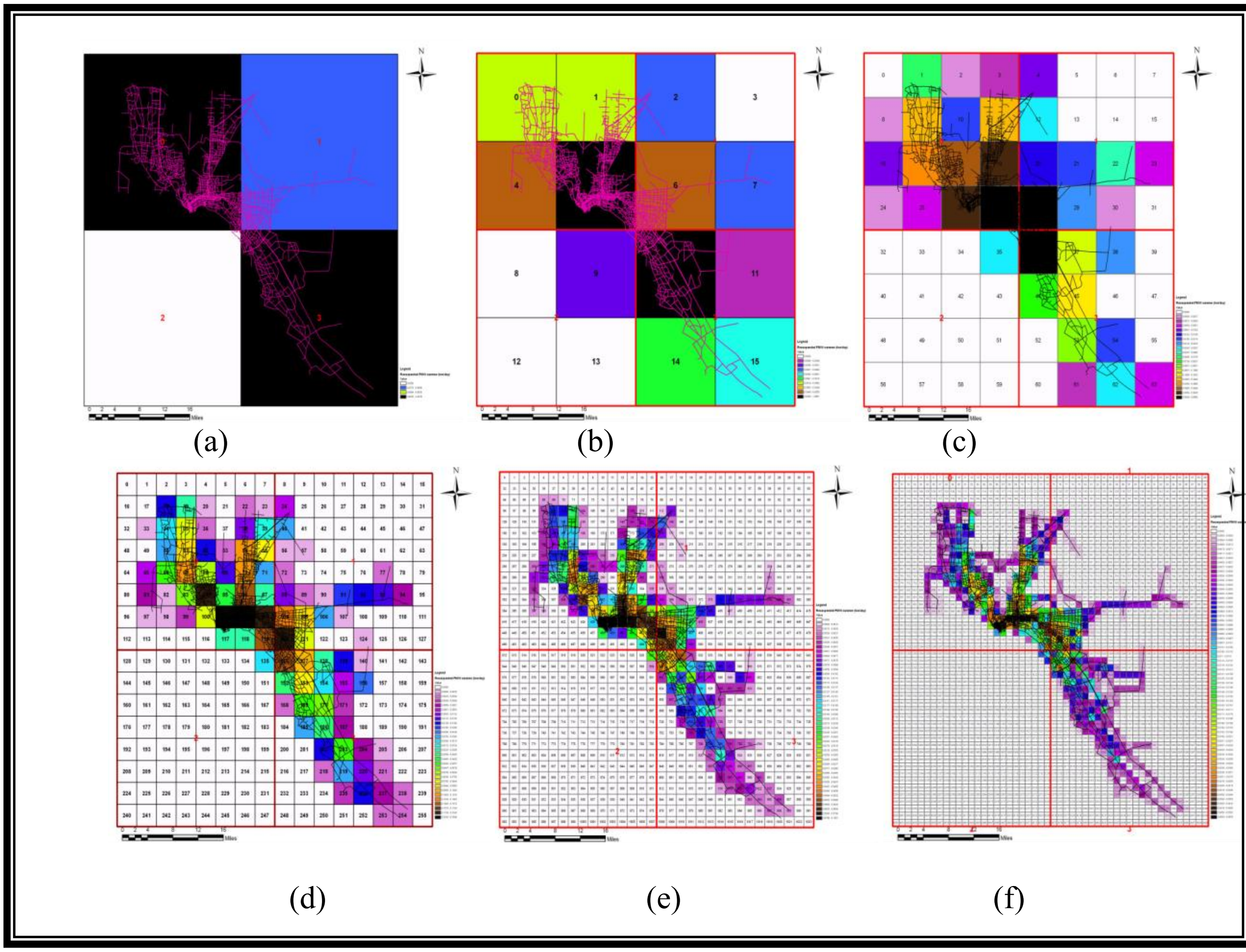
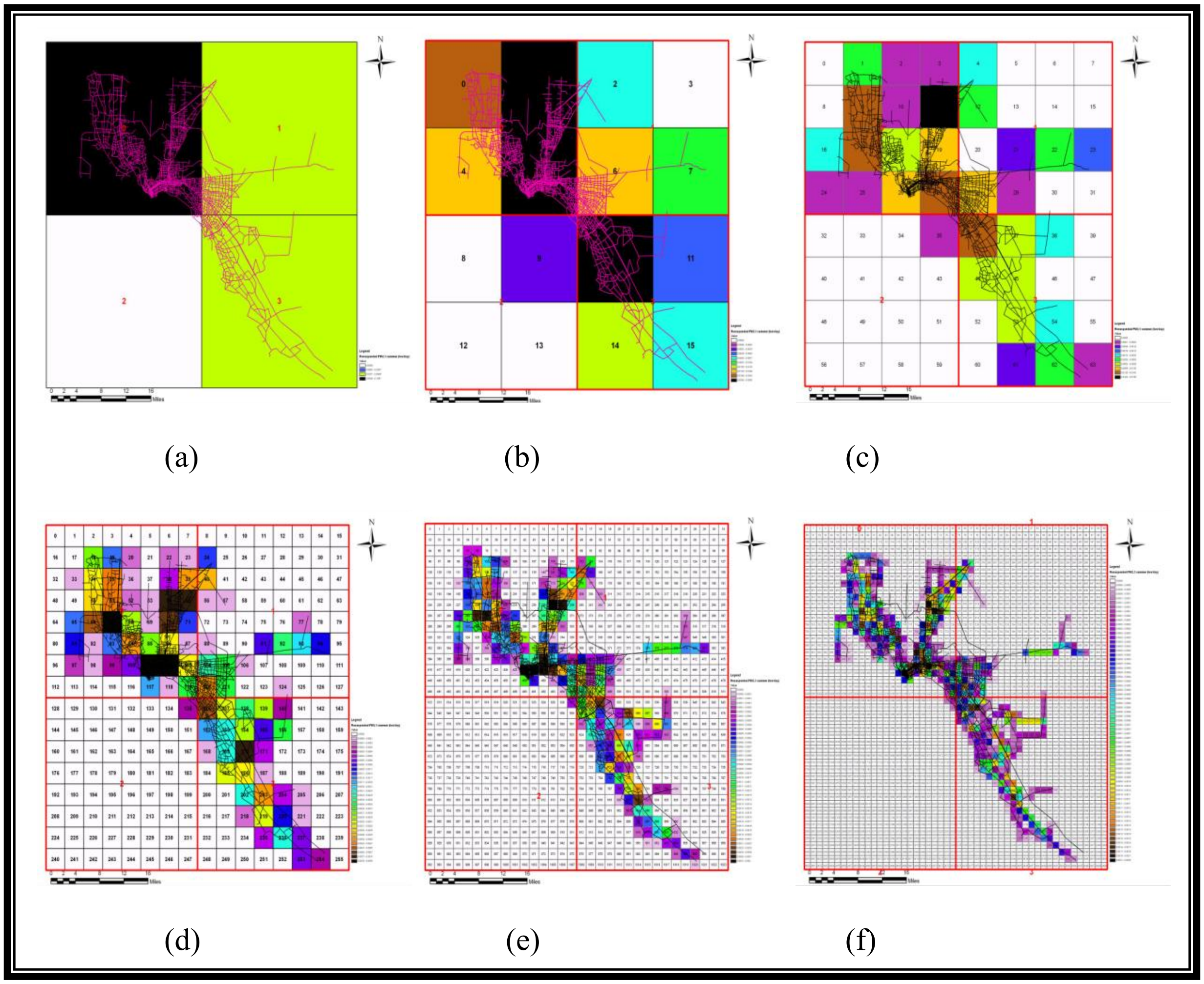


Figure 9.10: Summer resuspended PM10 emission grids.



(a) (b) (c)

(d) (e) (f)

Figure 9.11: Summer resuspended PM2.5 emission grids.

The summer resuspended PM10 emission for Cell 0 of the 2x2 emission grid has a value of 2.468 ton/day and a value in the case of resuspended PM2.5 of 0.105 ton/day. Cells of 4x4, 8x8, 16x16, and 32x32 grid located in the same area as Cell 0 of the 2x2 grid have a total of 2.468 ton/day for PM10 and 0.105 ton/day for PM2.5. Cells in the same area of the 50x50 emission grid have 2.265 ton/day for PM10 and 0.100 ton/day for PM2.5.

Different from the other pollutants described in previous sections of this chapter, resuspended PM emissions are calculated based on individual emission factors developed for every road. The emission factors estimated are multiplied by the VMT of the road to estimate the road emissions, and the cell emissions are calculated by summing the emissions of every road in the cell. The resuspended PM10 and PM2.5 emission factors are calculated for every lane-mile of road that is inside the grid cells using Equation (7.22). The emissions for every cell are calculated by following the method indicated in Section 7.6. However, the resuspended emission factor estimated for the roads inside of the grid cell has the possibility to be a negative emission factor. This is possible as the factor *C* of the Equation (7.22) may be greater than the resuspended PM emission factors. As previously described in Chapter 7, when the silt loading value and the average vehicle weight assigned to the road have low values (i.e., 0.06 g/m^2 or 0.03 g/m^2) for silt loading and below 3.0 tons for average vehicle weight, the resuspended emission factors result in a negative value. The possibility of obtaining a negative emission factor arises because silt loading is assigned based on the vehicle flow and the correction factor *C* in Equation (7.22) is based on the data that comes from the 1980's vehicle fleet.

MOBILE6.2 has updated values for the vehicle exhaust, brake wear, and tire wear PM emissions, but the AP-42 model retains the older emission factors from the 1980's vehicle fleet. The methodology used to estimate the silt loading values follows the method suggested by the latest version of Section 13.2.2 of the AP-42 Compilation of Air Pollutant Emission Factors, Volume I: Stationary and Area Sources document (EPA, 2006).

EPA recommends the use of local information when choosing the silt loading values. However, measurement of silt loading is time consuming, labor intensive, and potentially

hazardous. Furthermore, a database with silt loading data is not available at this moment. Because of this, EPA suggests the use of default silt loading values based on average daily traffic (ADT). These default silt loading values are associated with the ADT as a basis for roadway classification as it is assumed that silt loading decreases with increasing ADT. For example, local roads have the lowest traffic but the highest silt loading value (Hedges et al., 2008).

9.1.5 Total PM10 and PM2.5 Emission Grids

Once the direct vehicle PM and resuspended PM emissions are estimated the total PM emissions grids is calculated. The total PM10 emissions value of Cell 0 of the 2x2 summer is equal to 2.911 ton/day and the total PM10 emission for this cell is 0.376 ton/day. Cells located in the same area as Cell 0 of the 2x2, 4x4, 8x8, 16x16, and 32x32 summer emission grid have 2.910 ton/day for total PM10 and 0.376 ton/day for total PM2.5 in that area. The cells located in that are of the 50x50 summer emission grid have a total of 2.668 ton/day for total PM10 and 0.345 ton/day for total PM2.5. Total PM10 emission grids follow similar pattern as the resuspended PM10 emission grids (see Appendix C) because resuspended PM10 is the biggest contributor to total PM10 emissions. Different from PM 10, the majority of the PM2.5 emissions come from the direct vehicle emissions (exhaust pipe, tire wear, and brake wear) and not from the resuspended PM2.5. Thus, the value of the total PM2.5 emission grids is determined by the value of the direct vehicle PM2.5 emissions.

9.2 Results obtained From Different Grid Designs

This section presents a comparison of the results obtained from the six grid designs described in previous section. For each of the pollutants modeled, the total grid emissions are compared between grid designs. In this case the reported emissions are calculated for the whole transportation network. Figure 9.12 to Figure 9.19 present the total emissions obtained for each of the pollutants and grid designs considered in the sensitivity analysis.

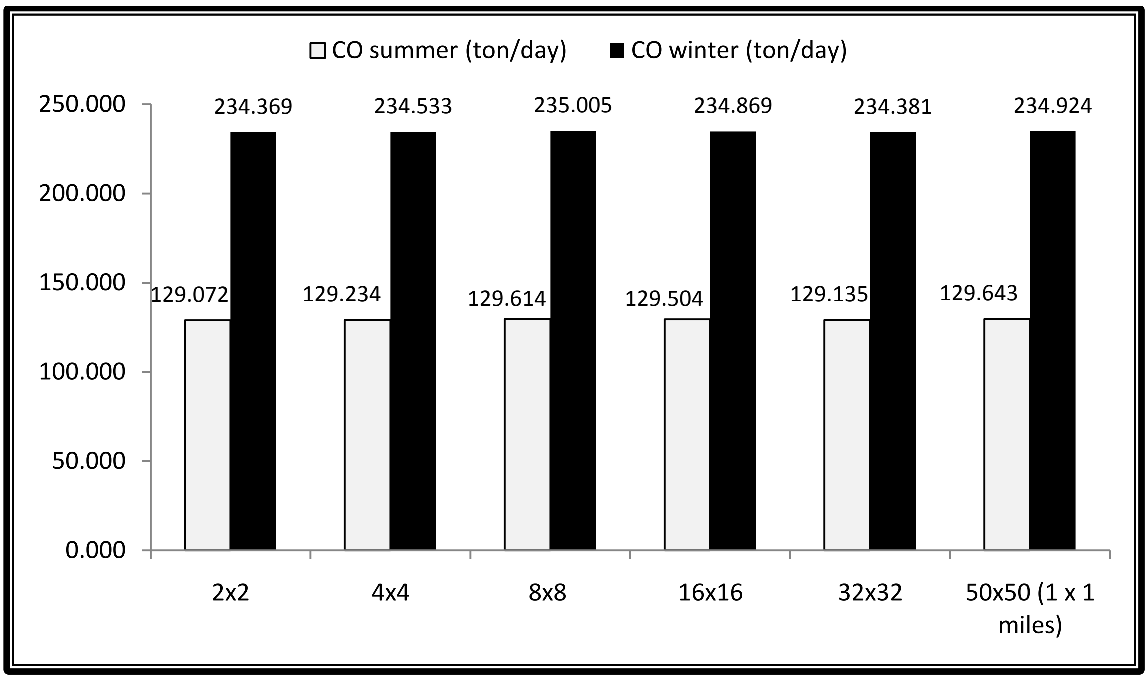


Figure 9.12: CO emissions for summer and winter.

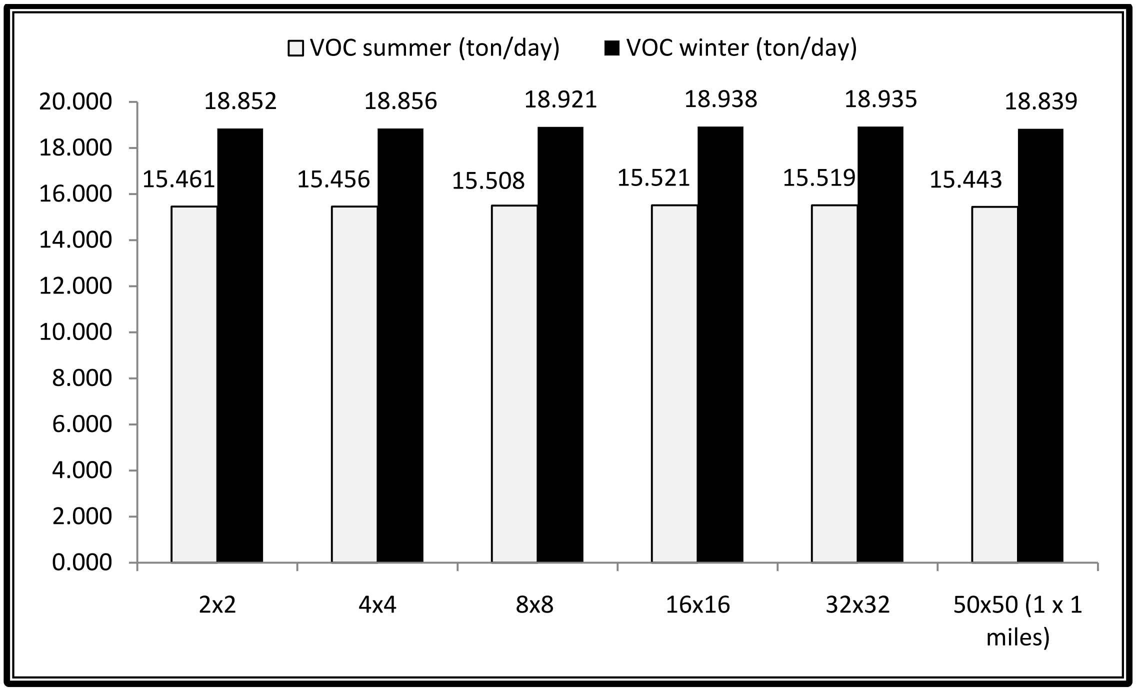


Figure 9.13: VOC emissions for summer and winter.

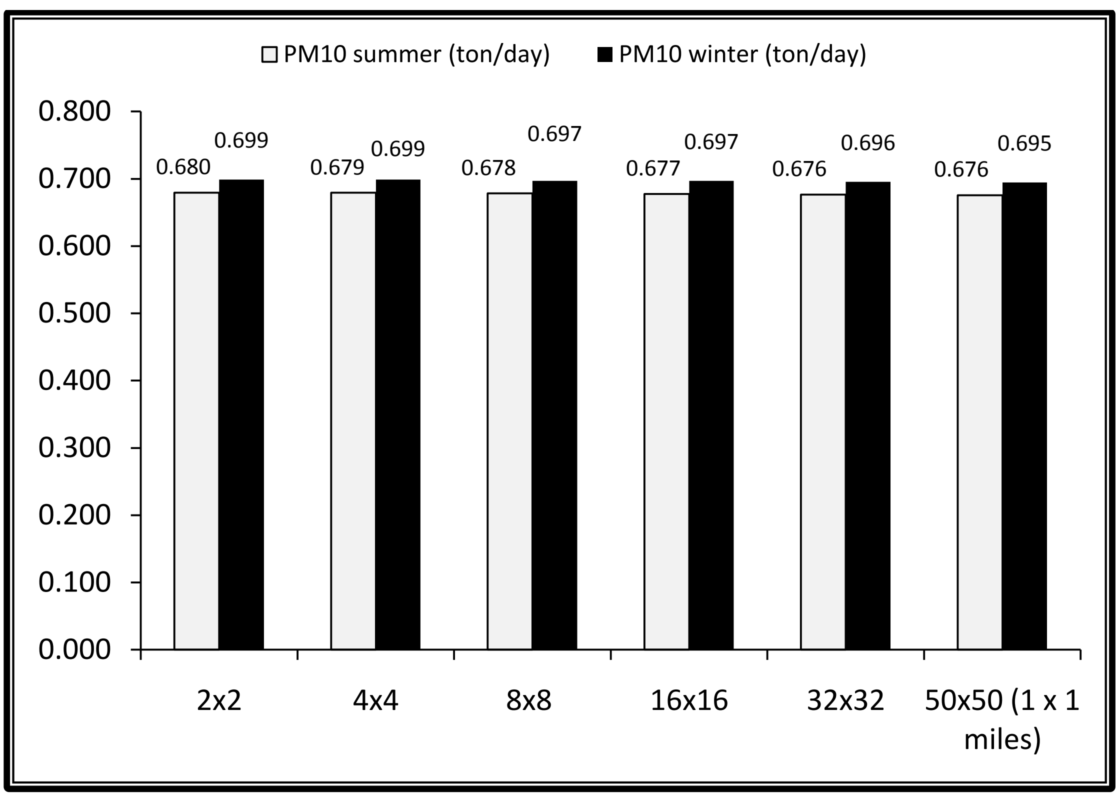


Figure 9.14: PM10 (MOBILE6.2) emissions for summer and winter.

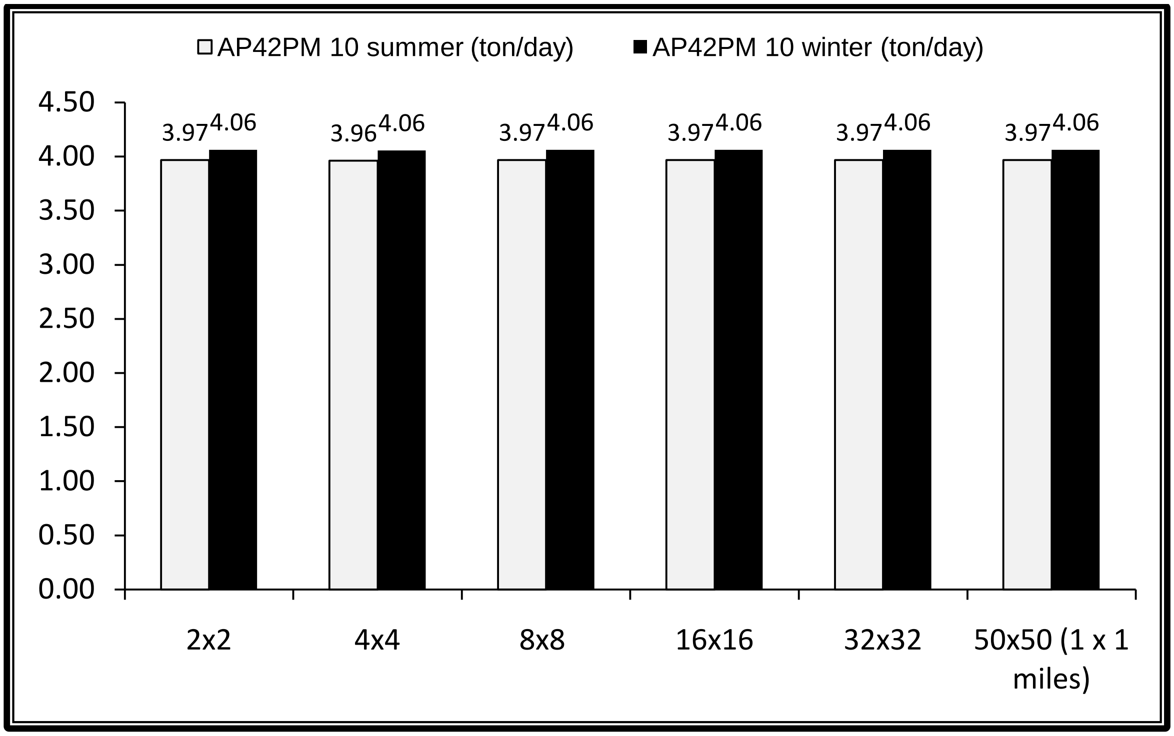


Figure 9.15: AP-42 resuspended PM10 emissions for summer and winter.

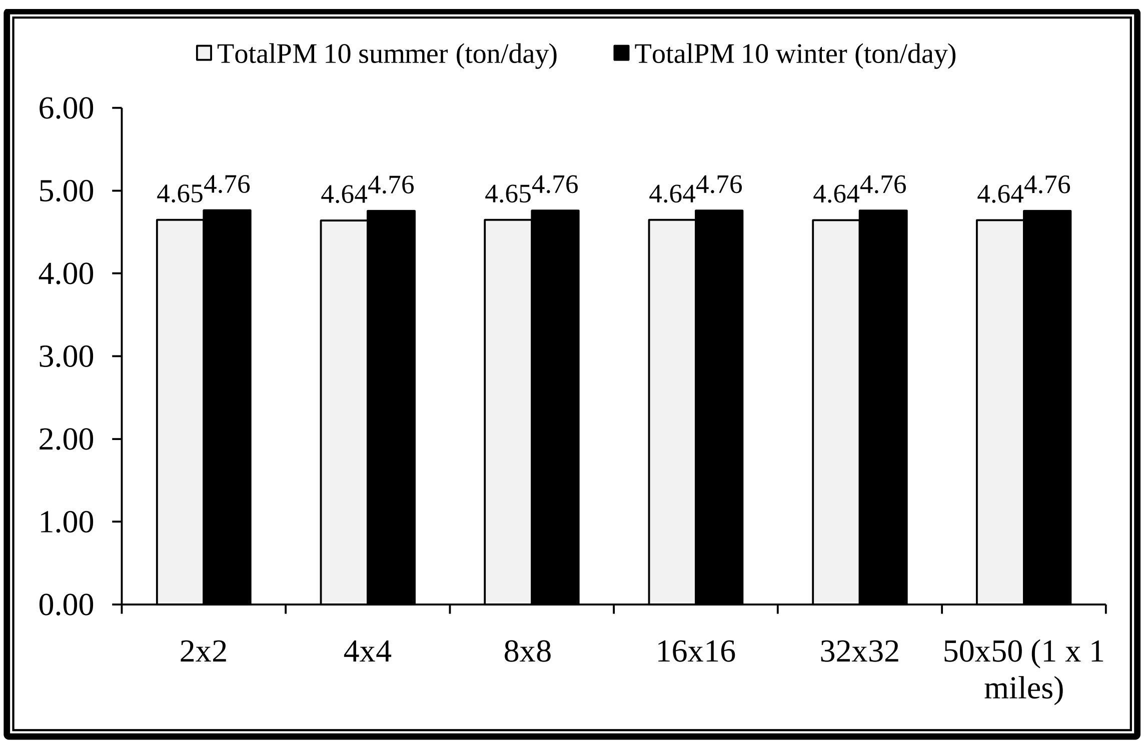


Figure 9.16: Total PM10 emissions for summer and winter.

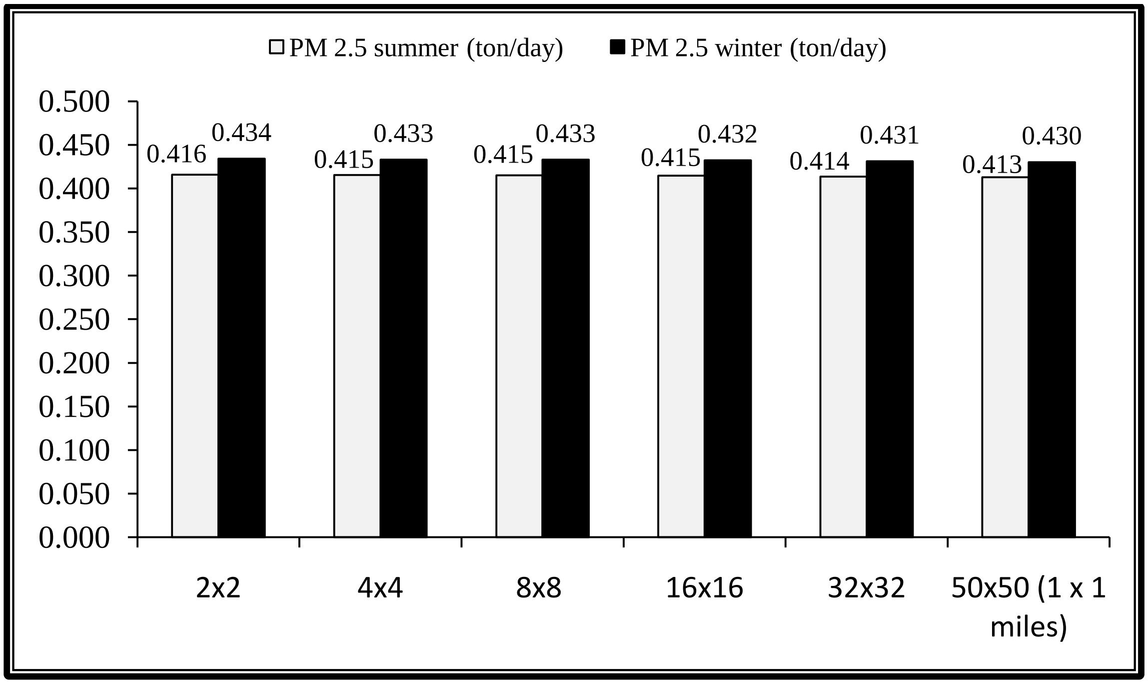


Figure 9.17: PM2.5 (MOBILE6.2) emissions for summer and winter.

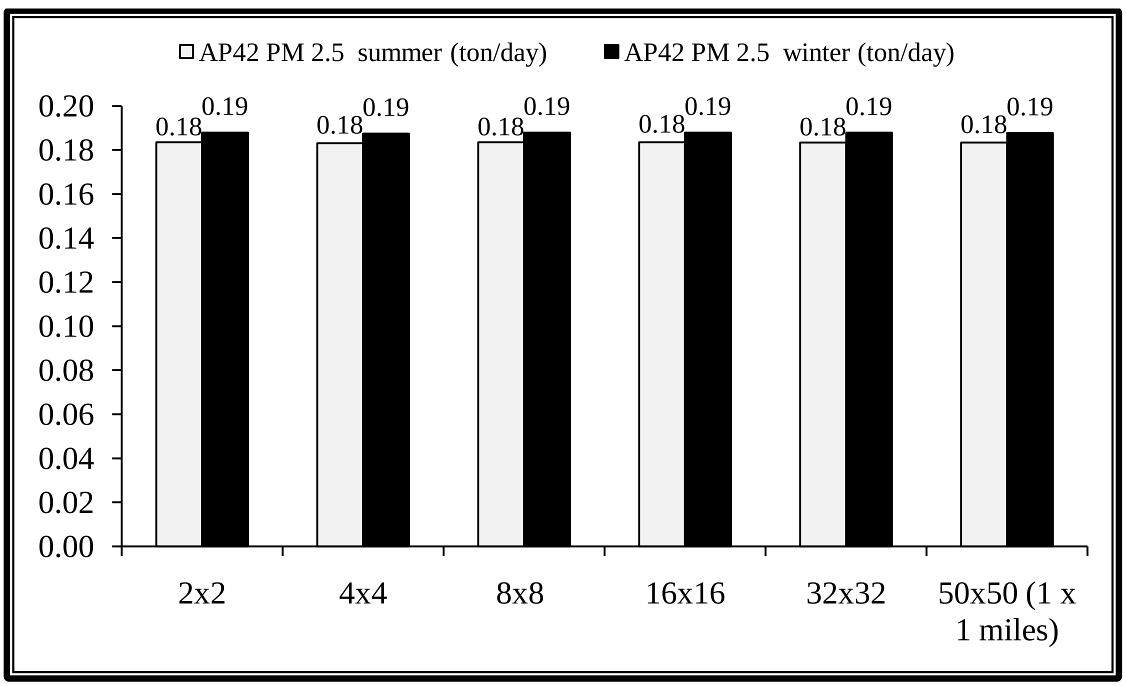


Figure 9.18: AP-42 resuspeneded PM2.5 emissions for summer and winter.

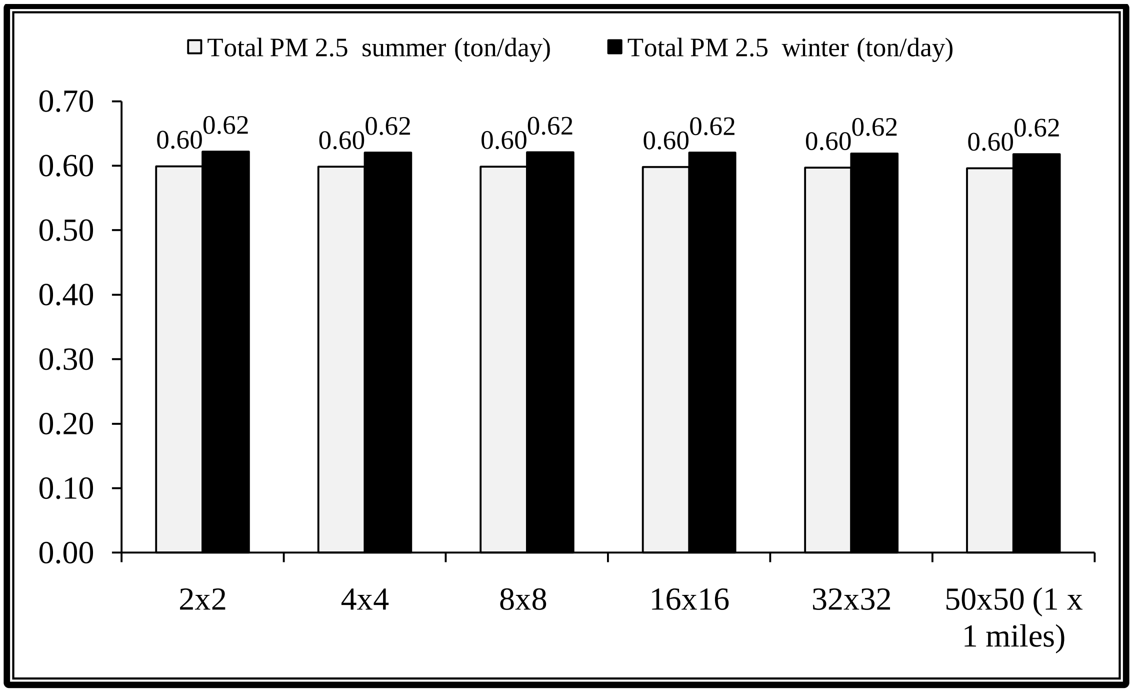


Figure 9.19: Total PM2.5 emissions for summer and winter.

As can be seen in Figures 9.12 to 9.19, most of the emissions for the defined grid sizes considered in this analysis have similar values. These results are expected as the total amount of emissions should reflect similar values for the whole transportation network. Using different cell sizes results in a small variation in the results since the calculation of the emission factors for the cells is influenced by changes in speed, road distribution and vehicle fleet between cells. These differences are particularly more important in the case of CO and VOC emissions as these two pollutants are more sensitive to these changes.

9.3 El Paso Reported Emissions and Framework Calculated Emissions

To further illustrate the accuracy of the framework, in addition to the results and comparisons presented in Chapter 8, a comparison is performed on the (whole transportation

network) emissions reported by the City of El Paso, Texas in the 2007 Transportation Conformity Report and emission calculated with the framework. This comparison is presented in Figures 9.20 to 9.25.

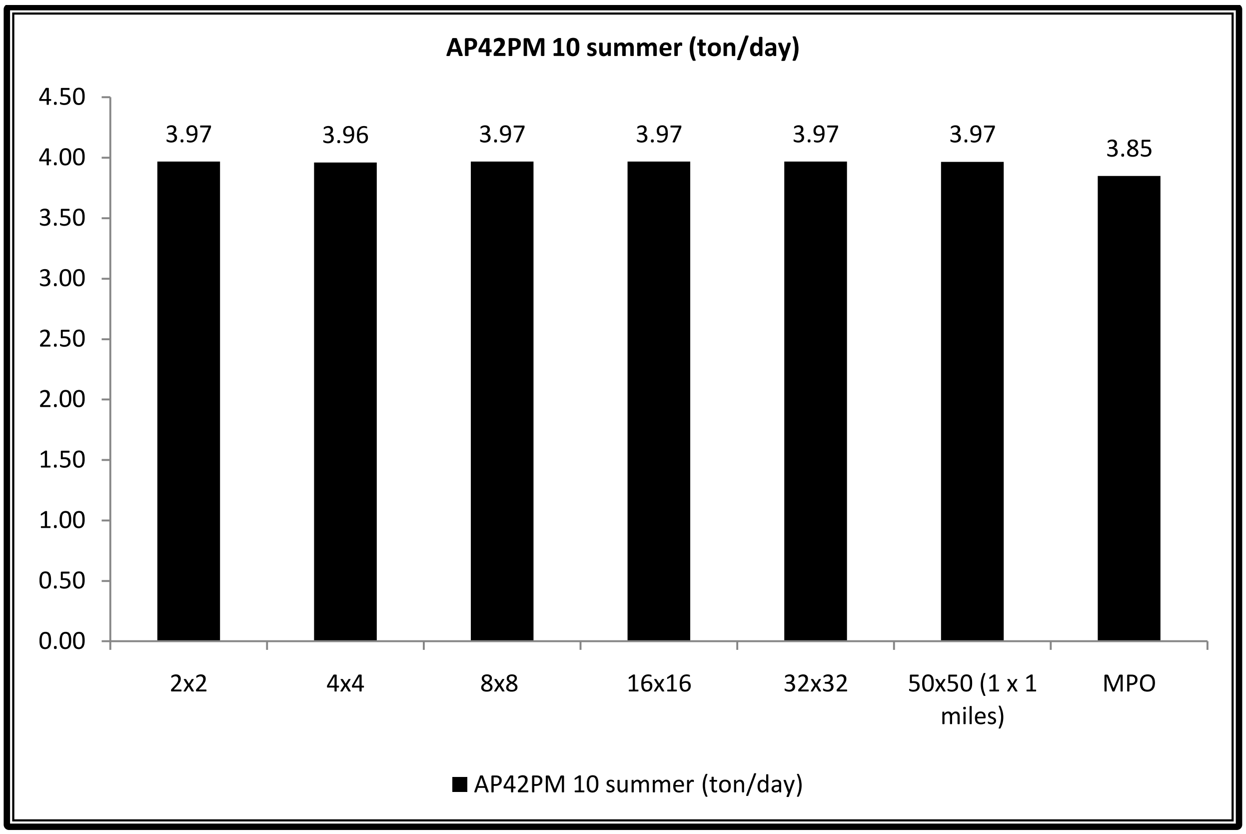


Figure 9.20: Summer AP-42 PM10 emissions.

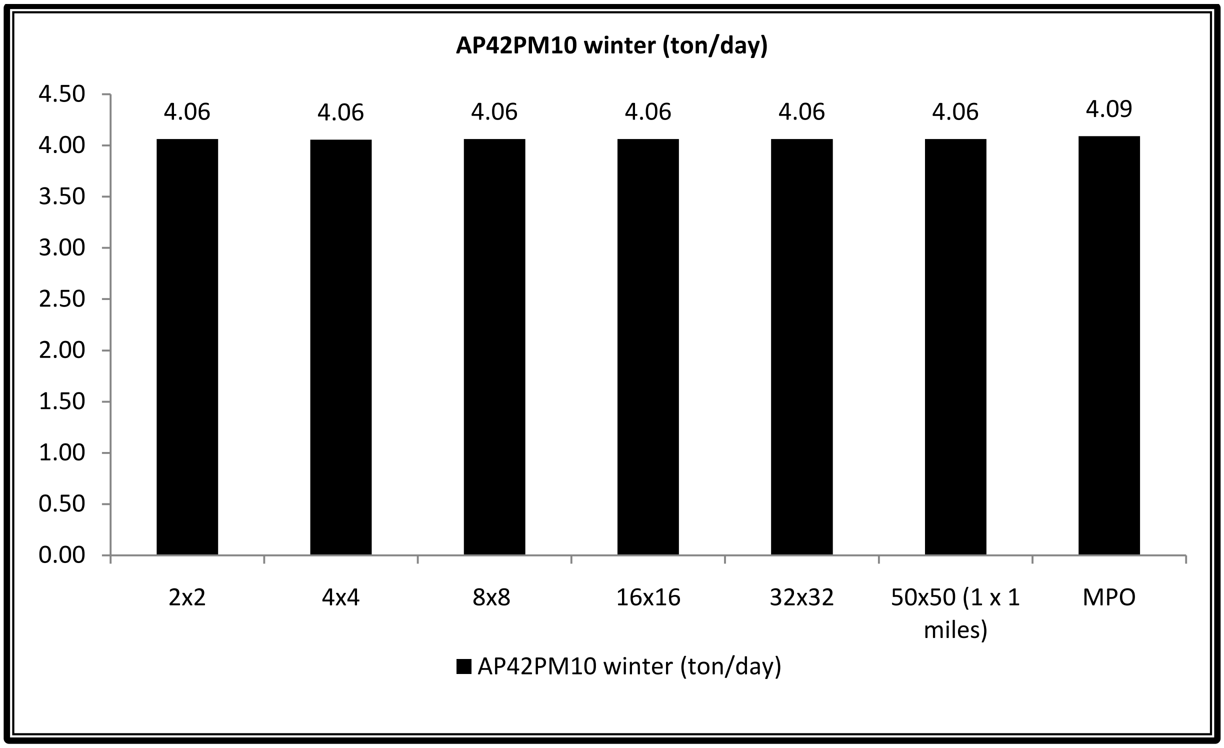


Figure 9.21: Winter AP-42 PM10 emissions.

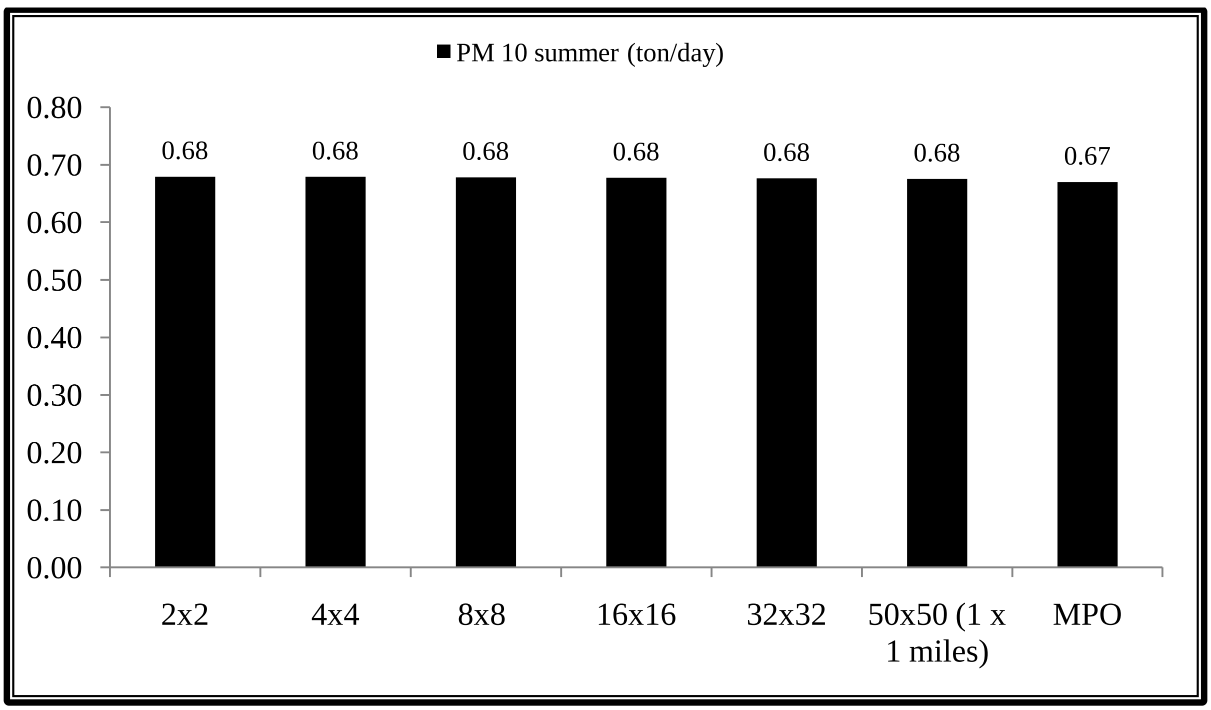


Figure 9.22: Summer PM10 (MOBILE6.2) emissions.

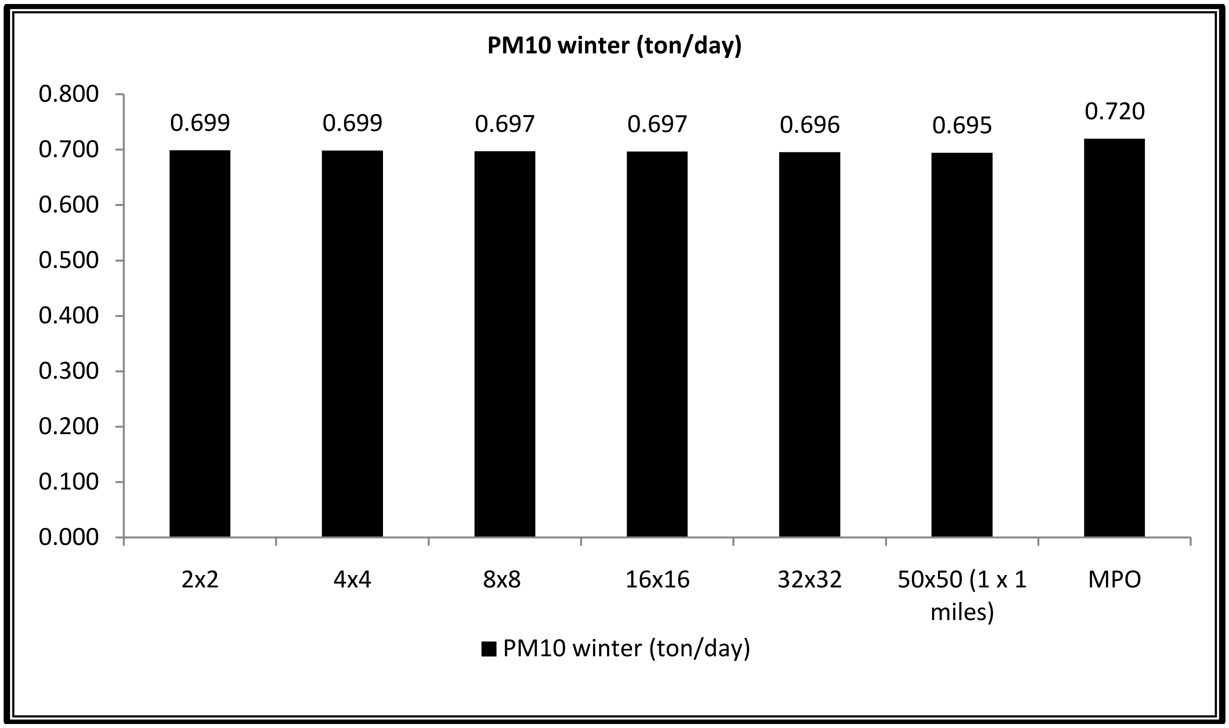


Figure 9.23: Winter PM10 (MOBILE6.2) emissions.

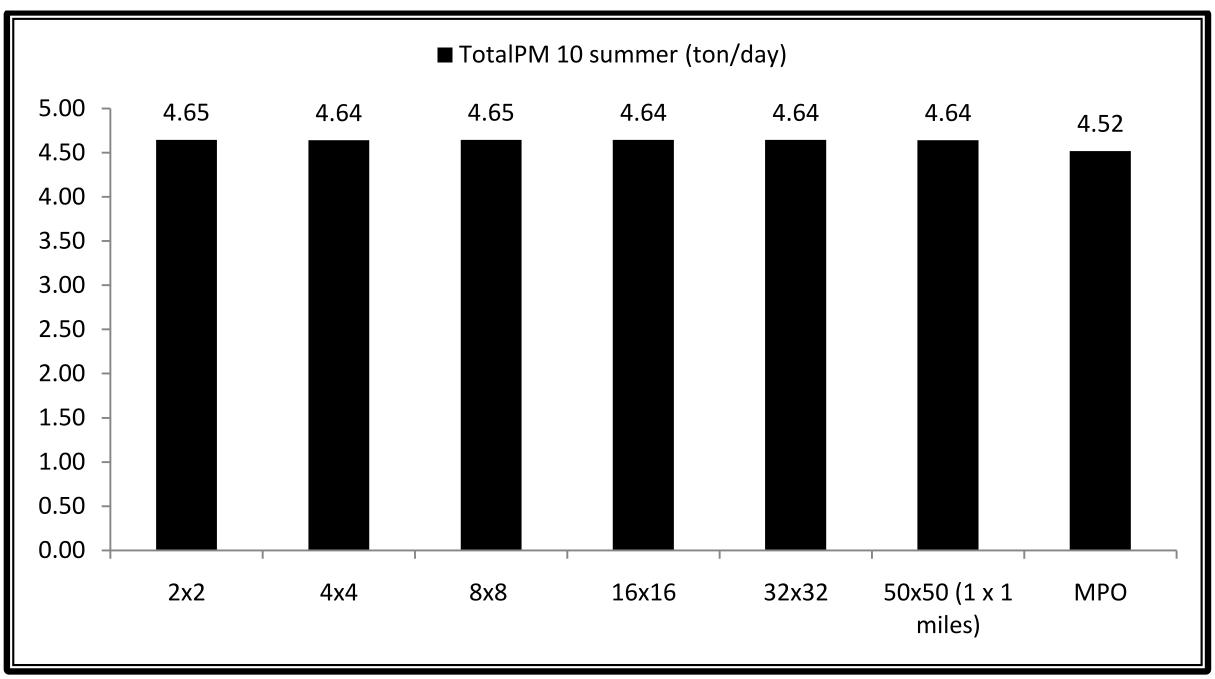


Figure 9.24: Total summer PM10 emissions.

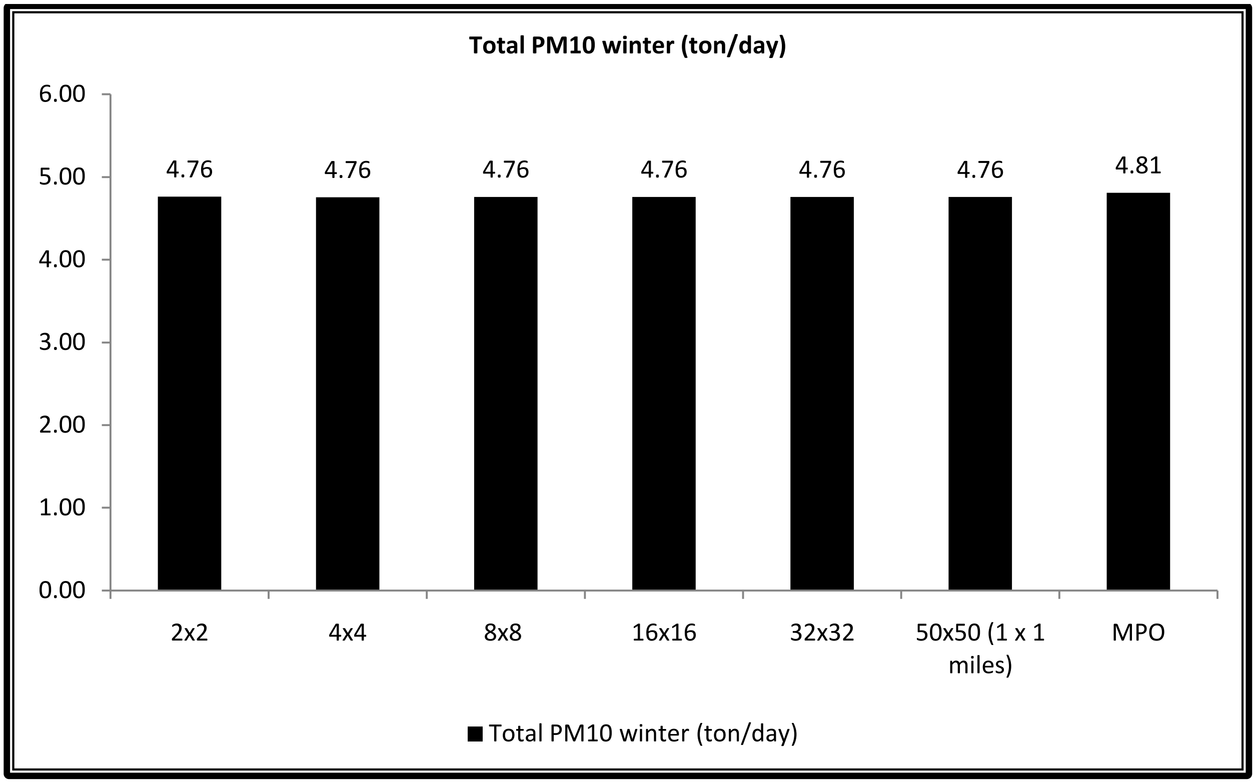


Figure 9.25: Total winter PM10 emissions.

9.4 Summary

The framework has the capability of defining very small grid size to determine the emissions on the transportation network. This feature offers the advantage of calculating more accurately the input parameters that influence the emissions. Different portions of the transportation network have different proportion of road types, different vehicle fleet, and average speeds. The ability of the framework to use different grid designs adds the possibility of calculating the VOC and CO emission factors more accurately, as the differences between cells are captured. PM emissions are not as sensitive to average speed and road distribution as CO or VOC. This feature adds the possibility of determining the portions of the network in which new

transportation measures might contribute to reducing emissions. Furthermore, it yields the ability to evaluate these transportation measures in real-time.

The analysis performed in this chapter show the importance of estimating the cell specific parameters. In particular, CO and VOC are influenced by these parameters more significantly than PM. Figures 9.20 to 9.25 showed that the framework produces similar results to the ones obtained by El Paso MPO. However, one important distinction should be made: El Paso MPO reported only PM emission at the transportation network level and not VOC or CO emissions at this level. As discussed throughout the chapter, PM emissions are not sensitive to changes in speed or road type distribution within a cell. Therefore the fact that El Paso MPO used only one average speed value and a network road distribution resulted in similar results to the ones obtained with the framework. On the other hand, the framework calculated the emissions based on emission factors that result from the estimation of cell specific the average speed, road distribution, and vehicle fleet. Thus, the emission factors obtained by the framework are more accurate as they reflect the differences that exist in the non-attainment area as compared to the whole network that El Paso MPO used. Accounting for differences that exist on different locations of the network allows for capture of the impact of congestion as CO and VOC are sensitive to changes in average speed. Furthermore, since the framework uses cells relatively smaller located at different geographic locations, the possibility of determining the contribution and location of the emissions is possible.

Chapter 10: Conclusions

10.1 Transportation and Emission Modeling

The framework developed by this research integrates a transportation planning model and a vehicular emission model. This integration improves the emission estimation of any transportation project, regardless of being a complete network design, a simple network modification, or a congestion mitigation measure.

The framework contributes to obtaining more accurate emission estimates. It not only integrates a transportation modeling software and an emission modeling software, but the framework also incorporates a GIS component that enables much better spatial resolution in the computation of emissions, and visualization of the outputs.

The framework developed in this research has the capability to switch the complete transportation network level of analysis to a more detail level. This is possible since grid designs in the framework can vary from being a single cell over the whole regional transportation network (i.e., the first scenario used in the case study) to grids of any number of cells over a portion of the network. This feature allows the framework to generate the inputs that MOBILE6.2 needs to run, regardless of it is the whole network or only a portion of this network. Moreover, since the framework is not constrained by the size of the cells or the grid resolution, inputs are calculated at cell specific level (one for each cell). As described in Chapter 7, the framework uses as input individual cells and cells can be reduced in size and increase in number as needed.

At this point only large scale (regional transportation network) and medium scale (portions of the transportation network) levels of analysis are well suited for the framework. Microscale analysis at this point would not be possible, since the transportation module uses a macro-scale transportation modeling software. However, future updates of the framework may incorporate a micro simulation model in the transportation module.

The framework also incorporates the possibility of assessing PM10 resuspended dust emissions. This feature of the framework is important and unique as it is not incorporated in any current emission modeling application. At this moment the only computational application available is the AP-42 calculation spreadsheet, but this spreadsheet only estimates the emissions for one road. The framework developed instead has the ability to estimate the resuspended dust emissions for all the roads in the cells of interest in the transportation network. Moreover, the framework provides better accuracy as it considers characteristics specific to every individual road (i.e., vehicle flow) and to each of the four road types (i.e., vehicle fleet distribution).

Another important feature of this approach is that it has the capability to add maps (e.g., census tracks maps, land use maps, elevation maps) and use the same grid to perform different analysis (e.g., analysis of dispersion). It also has the flexibility to use many of the already built-in tools in ArcGIS, such as determining the emissions with respect to a certain point of a cell and to build buffers. This is useful because not only can the mobile emission estimates be considered, but also emissions of several different sources (e.g., industrial source emissions) can be incorporated into the analysis by using the same grid.

The sensitivity analysis presented in Chapter 9 not only illustrates the ability of the framework to calculate emissions from different grid designs, but also showed that results obtained are accurate since they do not deviate more than 5% from the ones obtained by El Paso, MPO.

In conclusion, this research not only contributes to science by developing a new tool that can be used to assess the emissions arising from different transportation measures, but also by establishing a guideline to be followed by other researchers. In the future, this research can be used to integrate similar transportation modeling software with an emission modeling software. The post-processor module proposed here can be used to adapt the inputs or outputs to local conditions. Furthermore, regardless of the computational applications used, this research provides a method to integrate transportation modeling and emission modeling. The framework also provides the grounds to even change from large scale emission modeling to medium-scale emission modeling and to determine transportation related inputs in a cell base level.

The research provides a more complete and efficient method that not only has the capacity to perform activities such as the ones in the El Paso, Texas TCR, but also more advanced ones. For example, the framework has the capacity to generate and use an emission grid, to model PM emissions, and more importantly, to perform all these activities in a semi-automated manner.

10.2 Further Research

This section has the purpose of identifying areas where further research can be done to increase the framework potentials. As with every model, the framework has areas for

improvement and new requirements are expected from the models over times. While it is true that the model provides an up to date transportation-emission modeling framework, future research can be done to improve it even further.

The case study developed for this dissertation only incorporated the regional transportation network of the City of El Paso. However, since the city is located on the border with Cuidad Juarez, Chihuahua, it is important to incorporate the transportation network of Cuidad Juarez to the analysis. Integrating the two transportation network requires developing OD matrixes between the two cities and requires the incorporation of new vehicle fleet characteristics in the model. In addition, further research can also include the use of a micro-scale transportation model to enable the framework to perform more detail analysis.

In terms of MOBILE6.2 the following research can be performed to improve the accuracy of the model. FTP tests are limited as discussed in Chapter 4, especially in the case of heavy duty vehicles. Factors that influence the heavy truck performances such as wind resistance, driveline losses, tire pressure, friction from the tires and real acceleration and decelerations patterns cannot be captured with the engine dynamometer test. Alternatively, the best approach would be to perform in-use driving cycles and test a statistically significant amount of heavy duty vehicles. The in-use vehicle testing should be performed on heavy duty vehicles that have newer emission control devices, without failing to consider the proportion of heavy duty vehicles that do not have them. In addition, parameters like the aerodynamic and tire surface designs should also be considered in the test to determine the impact they have on the emission factors.

The emission factors can be measured with in-vehicle emission measuring devices such as the OEM-2100 developed by Clean Air Technologies International Inc. to determine more realistic emission factors especially for heavy duty vehicles. This is particularly important as these vehicles behave very differently than passenger cars. Furthermore, heavy vehicles have different acceleration patterns particularly in step roads, and these differences can be captured to improve the accuracy of the model.

The vehicle registration distribution by age for the vehicle fleet describes what fractions of vehicles type are and certain age at given point in time (calendar year). In fact the model accounts only for model of 0 to 25 years of age, giving a small fraction to vehicles in the oldest age range. MOBILE6.2 considers this based on the registration distributions obtained throughout the U.S. However, this limits the use of the model in developed countries, leaving out countries under development. Furthermore, U.S. border cities with Mexico need to account that vehicle fleet from Mexico is in most cases on the 25 years of age or even more. An additional research opportunity would be to perform a testing of vehicles that are representative of the border cities and determine more realistic emission factors.

The latest AP-42 model has many shortcomings and limitations as the assumptions made for many of the parameters are limited. As discussed in Chapter 3, researchers found that the silt loading values suggested by EPA in the AP-42 document significantly vary. This causes the PM emissions to be inaccurate. One way to fix the uncertainties found in the model would be to measure silt loading and develop at least a county level database that could be used. Another research that can be performed is to use a mobile point and stationary source tracer techniques as a researcher cited in chapter 3. In addition to measuring the PM emissions set, Muleski and

Cowherd (1993) experimental setting and performed the same regression analysis to determine if the same algorithm is obtained. The main idea is to determine more precisely the contribution of each parameter to PM emissions, and at best develop a new algorithm that is more accurate. For example, determine what fraction of PM can be removed by the passage of a single vehicle as identified by certain **s**tudies. The studies found that that resuspension rates decline after the initial deposition (Nicholson, 1992; Garland, 1979).

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Appendix A

In order to illustrate how the framework operates an example is developed in this appendix. The example is based on a network that is composed of 46 roads, (3 freeway, 19 local, and 24 arterial roads). The transportation network is shown below in Figure A.1. The transportation network was developed using the techniques and procedures explained in Section 7.3.

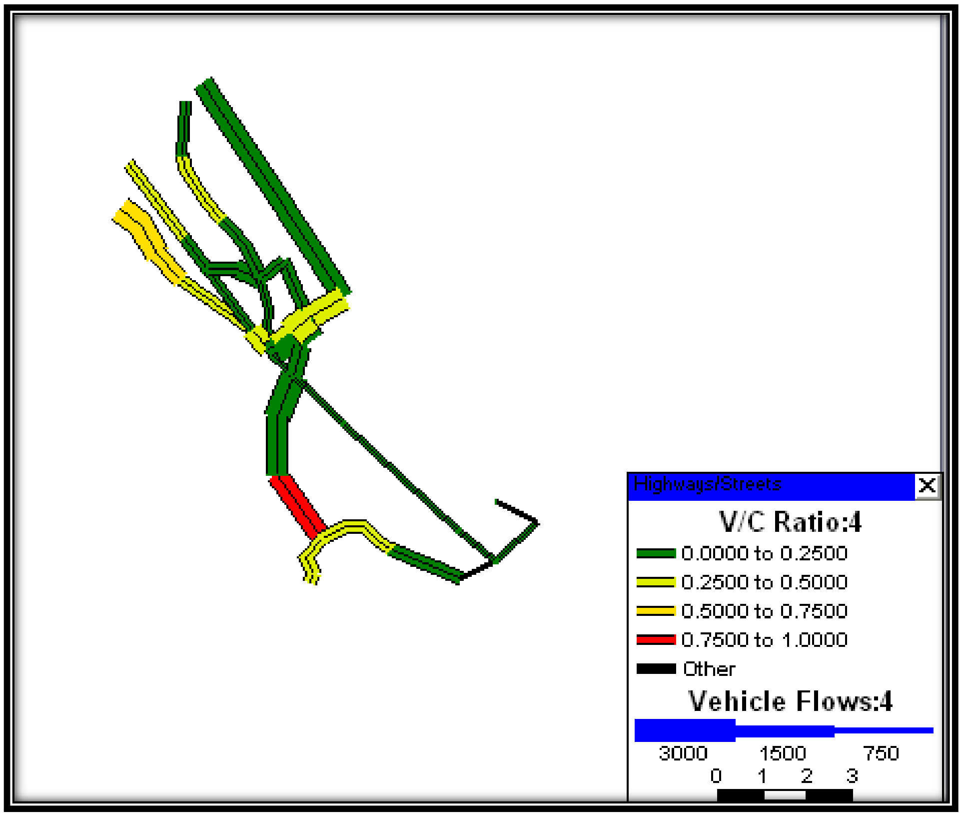

Figure A.1: Transportation network.

The transportation network shown in Figure A.1 not only represents the roads on the network and its physical characteristics but also contains the length, capacity, and types of roads. As explained in Section 7.3, the network has information that is associated to it before traffic assignment and after traffic assignment. This information is shown partially in Table A.1.

Table A.1: Transportation Network Information (before traffic assignment).

Appendix A Transportation Network Information (Before traffic assigment)					
ID	LENGTH	FUNCL	AB_CAP	BA_CAP	TOTCAP
1	0.21	9	1700	1700	3400
2	1.00	9	1700	1700	3400
3	1.72	9	1700	1700	3400
4	1.73	9	1700	1700	3400
6	1.69	0	40000	40000	80000
7	0.79	5	5600	5600	11200
8	0.83	0	40000	40000	80000
9	1.06	5	3900	3900	7800
11	1.25	0	40000	40000	80000
12	1.01	0	40000	40000	80000
33	0.97	0	40000	40000	80000
34	1.48	5	5600	5600	11200
36	0.56	5	5600	5600	11200
37	0.17	5	5600	5600	11200
38	0.79	5	5600	5600	11200
39	0.43	5	5600	5600	11200
40	1.50	7	3750	3750	7500
41	0.42	0	40000	40000	80000

Table A.1 Cont.: Transportation Network Information (before traffic assignment).

Appendix A Transportation Network (Before traffic assignment)					
ID	LENGTH	FUNCL	AB_CAP	BA_CAP	TOTCAP
41	0.42	0	40000	40000	80000
42	0.64	0	40000	40000	80000
43	0.46	5	5600	5600	11200
44	1.38	0	40000	40000	80000
45	0.93	5	5600	5600	11200
46	2.66	5	5600	5600	11200
47	0.62	0	40000	40000	80000
48	0.65	0	40000	40000	80000
49	3.4	2	23500	23500	47000
50	6.05	2	23500	23500	47000
51	1.47	9	3150	3150	6300
52	4.29	0	40000	40000	80000
53	3.88	0	40000	40000	80000
54	2.89	7	2400	2400	4800
55	2.61	0	40000	40000	80000
56	3.73	0	40000	40000	80000
577	0.36	0	40000	40000	80000
578	1.36	4	12500	12500	25000
617	0.37	7	3750	3750	7500
618	0.33	7	3750	3750	7500
619	0.47	7	3750	3750	7500
3000	1.94	7	2400	2400	4800
3001	1.68	5	5600	5600	11200
3002	1.52	7	2400	2400	4800
3003	0.49	0	40000	40000	80000
3004	1.29	7	2400	2400	4800
3005	1.88	0	40000	40000	80000
3006	1.52	5	3900	3900	7800
3007	0.72	9	1700	1700	3400
3008	0.59	5	5600	5600	11200

Table A.1 has information related to each roads of the transportation network. The first column identifies the road link. The second column represents the length of each road link in miles. The third column associates the road to certain functional classification (e.g., 5 for arterial, 0 for local, 12 for freeway ramp and 2 for freeway roads). The fourth fifth and sixth column represents the capacity in AB direction, BA direction and the total capacity of the roads respectively. This information exists before any traffic assignment technique is applied. Once the network is set, the origin destination matrixes are defined and the network is built, the traffic assignment technique is implemented. Table A.2 shows the value of these parameters after the User-equilibrium traffic assignment was implemented.

Table A.2: Transportation network information (after traffic assignment).

Appendix A Transportation Network Parameters														
ID	LENGTH	FUNCL	LANES	AB_CAP	BA_CAP	TOTCAP	AB_FLOW1	BA_FLOW1	TOT_FLOW1	AB_VOC	BA_VOC	MAX_VOC	AB_SPEED	BA_SPEED
1	0.21	9	2	1700	1700	3400	821.6297	822.7900	1644.4197	0.4833	0.4840	0.4840	42.3697	42.3677
2	1.00	9	2	1700	1700	3400	821.6297	822.7900	1644.4197	0.4833	0.4840	0.4840	41.8630	41.8610
3	1.72	9	2	1700	1700	3400	1589.6548	1572.6889	3162.3437	0.9351	0.9251	0.9351	37.5853	37.7485
4	1.73	9	2	1700	1700	3400	835.2582	819.4526	1654.7107	0.4913	0.4820	0.4913	41.7055	41.7321
6	1.69	0	2	40000	40000	80000	819.4526	835.2582	1654.7107	0.0205	0.0209	0.0209	40.0138	40.0138
7	0.79	5	2	5600	5600	11200	92.7954	90.9389	183.7343	0.0166	0.0162	0.0166	32.0707	32.0707
8	0.83	0	2	40000	40000	80000	81.8075	81.4428	163.2502	0.0020	0.0020	0.0020	39.9391	39.9391
9	1.06	5	2	3900	3900	7800	92.7954	90.9389	183.7343	0.0238	0.0233	0.0238	44.0590	44.0590
11	1.25	0	2	40000	40000	80000	172.3817	174.6028	346.9845	0.0043	0.0044	0.0044	40.0959	40.0959
12	1.01	0	2	40000	40000	80000	91.0284	93.3592	184.3875	0.0023	0.0023	0.0023	39.8295	39.8295
33	0.97	0	2	40000	40000	80000	1973.2393	1972.1638	3945.4031	0.0493	0.0493	0.0493	40.0781	40.0781
34	1.48	5	2	5600	5600	11200	92.7954	90.9389	183.7343	0.0166	0.0162	0.0166	32.0619	32.0619
36	0.56	5	2	5600	5600	11200	1424.3659	1425.3787	2849.7447	0.2544	0.2545	0.2545	31.9476	31.9478
37	0.17	5	2	5600	5600	11200	1302.1665	1304.0156	2606.1821	0.2325	0.2329	0.2329	32.6202	32.6200
38	0.79	5	2	5600	5600	11200	737.2069	734.3523	1471.5593	0.1316	0.1311	0.1316	31.9899	31.9900
39	0.43	5	2	5600	5600	11200	1558.8202	1560.6202	3119.4404	0.2784	0.2787	0.2787	32.0949	32.0945
40	1.50	7	2	3750	3750	7500	729.3176	729.2685	1458.5861	0.1945	0.1945	0.1945	31.0195	31.0195
41	0.42	0	2	40000	40000	80000	3671.2192	3679.0204	7350.2396	0.0918	0.0920	0.0920	32.8803	32.8803
42	0.64	0	2	40000	40000	80000	1327.7522	1329.8259	2657.5781	0.0332	0.0332	0.0332	33.0865	33.0865
43	0.46	5	2	5600	5600	11200	2283.2219	2273.6207	4556.8426	0.4077	0.4060	0.4077	32.0397	32.0428
44	1.38	0	2	40000	40000	80000	869.0583	868.6624	1737.7207	0.0217	0.0217	0.0217	33.0397	33.0397
45	0.93	5	2	5600	5600	11200	1706.8876	1716.0928	3422.9804	0.3048	0.3064	0.3064	31.8475	31.8463
46	2.66	5	2	5600	5600	11200	92.7954	90.9389	183.7343	0.0166	0.0162	0.0166	32.0193	32.0193
47	0.62	0	2	40000	40000	80000	1229.4195	1230.3990	2459.8185	0.0307	0.0308	0.0308	32.9975	32.9975
48	0.65	0	2	40000	40000	80000	1032.3073	1033.4092	2065.7165	0.0258	0.0258	0.0258	33.0763	33.0763
49	3.40	2	4	23500	23500	47000	1395.0321	1383.6302	2778.6623	0.0594	0.0589	0.0594	38.0553	38.0553
3000	1.94	7	2	2400	2400	4800	921.5754	922.0807	1843.6561	0.3840	0.3842	0.3842	39.6505	39.6430
3001	1.68	5	2	5600	5600	11200	503.8034	502.2852	1006.0886	0.0900	0.0897	0.0900	31.9810	31.9810
3004	1.29	7	2	2400	2400	4800	1724.4433	1724.1210	3448.5643	0.7185	0.7184	0.7185	36.9087	36.8953
3012	0.77	7	2	2400	2400	4800	1285.9612	1286.4503	2572.4115	0.5358	0.5360	0.5360	38.3125	38.2999
3015	0.84	5	2	5600	5600	11200	996.4849	994.9178	1991.4027	0.1779	0.1777	0.1779	32.0044	32.0044
3016	2.03	5	2	3900	3900	7800	996.4849	994.9178	1991.4027	0.2555	0.2551	0.2555	44.0975	44.0976
3018	0.63	0	2	40000	40000	80000	855.7117	855.7115	1711.4232	0.0214	0.0214	0.0214	32.7540	32.7540
3019	1.63	7	2	3750	3750	7500	828.4967	826.3660	1654.8627	0.2209	0.2204	0.2209	31.0147	31.0148
3020	1.64	7	2	2400	2400	4800	828.4967	826.3660	1654.8627	0.3452	0.3443	0.3452	40.9023	40.9031
3023	1.19	0	2	40000	40000	80000	771.5074	735.7482	1507.2556	0.0193	0.0184	0.0193	40.1148	40.1148
3024	2.22	2	4	15200	15200	30400	1395.0321	1383.6302	2778.6623	0.0918	0.0910	0.0918	48.9878	48.9878
3093	1.30	0	2	40000	40000	80000	1672.0085	1653.7253	3325.7338	0.0418	0.0413	0.0418	39.9399	39.9399
5325	0.06	9	2	3150	3150	6300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	28.4260	28.4260

After the traffic assignment technique is applied, Table A.1 converts to Table A.2. Table A.2 has new information that is related to the traffic assignment used (i.e., the vehicle flows, the average speed, and the VOC ratio).

Once the transportation network is designed and all the proper transportation parameters are estimated (i.e., the vehicle flows, the average speed, and the VOC ratio). The GIS data module is used to generate a grid over the transportation network (four cells in this example). Figure A.2 shows the grid over the transportation network and Table A.3 shows the matrix developed by the GIS data module.

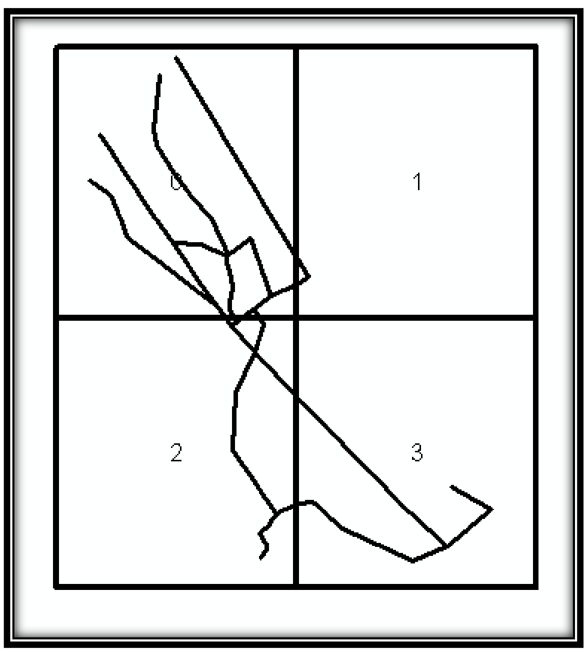

Figure A.2: Four cell grid over the transportation network.

Table A.3: Matrix generated by the GIS data Module (Equation 7.1).

Matrix for appendix A example					
Cell ID	Length	Functional	Speed	AB_Flow	BA_Flow
0	0.559717	5	32	3112	3010
0	0.431664	5	32	4569	4491
0	1.50124	7	31	1155	1188
0	0.418481	0	33	5374	5375
0	0.462493	5	32	5806	5883
0	1.381662	0	33	710	710
0	0.926767	5	32	5483	5406
0	0.619953	0	33	1117	1134
0	0.651502	0	33	2087	2087
0	3.404954	2	38	14387	16398
0	1.938861	7	41	1127	1127
0	1.679001	5	32	1883	1985
0	1.293922	7	41	1358	1358
0	0.772982	7	41	1116	1115
0	0.840123	5	32	2592	2711
0	2.034578	5	44	2877	2996
0	0.625304	0	33	678	661
0	1.631317	7	31	2246	2262
0	1.639352	7	41	2246	2262
0	1.193414	0	40	79	79
0	2.219471	2	49	14387	16398
1	0.926767	5	32	5483	5406
1	3.404954	2	38	14387	16398
2	0.213582	9	42	1626	1696
2	1.004895	9	42	1626	1696
2	1.715733	9	42	1760	1688
2	1.732885	9	42	165	163
2	0.971895	0	40	973	945
2	1.482865	5	32	1588	1852
2	0.559717	5	32	3112	3010
2	0.173368	5	32	4557	4446
2	0.789849	5	32	1958	2243
2	0.431664	5	32	4569	4491
2	1.50124	7	31	1155	1188
2	0.418481	0	33	5374	5375

Table A.3 Cont.: Matrix generated by the GIS data Module (equation 7.1).

Matrix for appendix A example					
Cell ID	Length	Functional	Speed	AB_Flow	BA_Flow
2	0.43	5	32	4569	4491
2	0.56	5	32	3112	3010
2	0.64	0	33	574	581
2	0.79	5	32	1958	2243
2	0.97	0	40	973	945
2	1	9	42	1626	1696
2	1.3	0	40	108	107
2	1.48	5	32	1588	1852
2	1.5	7	31	1155	1188
2	1.72	9	42	1760	1688
2	1.73	9	42	165	163
3	0.79	5	32	1606	1869
3	0.83	0	40	1148	1170
3	1.01	0	40	192	225
3	1.06	5	44	1636	1895
3	1.25	0	40	209	184
3	1.48	5	32	1588	1852
3	1.69	0	40	123	124
3	1.73	9	42	165	163
3	2.66	5	32	1588	1852

Every row in Table A.3 represents a road in the transportation network. the first column represents the cell to which every road belongs to (e.g., the first road on Table A.3 belongs to Cell 0), the second column represents the length of every road, the third column represents the estimated speed on the roads, the fourth column represents the flow in direction AB, and the fifth column represents the flow in BA direction.

In this appendix Equation (7.1) is a matrix of six columns and 46 rows (one for every road in the network Table A.4 shows of VMT for every road on the grid. Figure A.3 show the roads that belong to each of the cell in the grid. Every road is labeled by the cell it belongs to.

Table A.4: Matrix generated with the GIS Database Module with VMT estimated.

Matrix estimated by GIS Database Module with VMT						
Cell ID	Length	Functional	Speed	AB_Flow	BA_Flow	VMT
0	0.559717	5	32	3112	3010	3427
0	0.431664	5	32	4569	4491	3911
0	1.50124	7	31	1155	1188	3517
0	0.418481	0	33	5374	5375	4498
0	0.462493	5	32	5806	5883	5406
0	1.381662	0	33	710	710	1963
0	0.926767	5	32	5483	5406	10091
0	0.619953	0	33	1117	1134	1396
0	0.651502	0	33	2087	2087	2720
0	3.404954	2	38	14387	16398	104824
0	1.938861	7	41	1127	1127	4371
0	1.679001	5	32	1883	1985	6495
0	1.293922	7	41	1358	1358	3514
0	0.772982	7	41	1116	1115	1725
0	0.840123	5	32	2592	2711	4455
0	2.034578	5	44	2877	2996	11950
0	0.625304	0	33	678	661	838
0	1.631317	7	31	2246	2262	7354
0	1.639352	7	41	2246	2262	7390
0	1.193414	0	40	79	79	189
0	2.219471	2	49	14387	16398	68328
1	0.926767	5	32	5483	5406	10091
1	3.404954	2	38	14387	16398	104824
2	0.213582	9	42	1626	1696	709
2	1.004895	9	42	1626	1696	3337
2	1.715733	9	42	1760	1688	5916
2	1.732885	9	42	165	163	567
2	0.971895	0	40	973	945	1864
2	1.482865	5	32	1588	1852	5100
2	0.559717	5	32	3112	3010	3427
2	0.173368	5	32	4557	4446	1561
2	0.789849	5	32	1958	2243	3318
2	0.431664	5	32	4569	4491	3911
2	1.50124	7	31	1155	1188	3517
2	0.418481	0	33	5374	5375	4498
2	0.641678	0	33	574	581	742
2	1.298046	0	40	108	107	278

Table A.4 Cont.: Matrix generated with the GIS Database Module with VMT estimated.

Matrix estimated by GIS Database Module with VMT						
Cell ID	Length	Functional	Speed	AB_Flow	BA_Flow	VMT
3	1.732885	9	42	165	163	567
3	1.690582	0	40	123	124	418
3	0.791746	5	32	1606	1869	2752
3	0.828736	0	40	1148	1170	1921
3	1.061422	5	44	1636	1895	3747
3	1.252996	0	40	209	184	493
3	1.005695	0	40	192	225	419
3	1.482865	5	32	1588	1852	5100
3	2.661606	5	32	1588	1852	9154

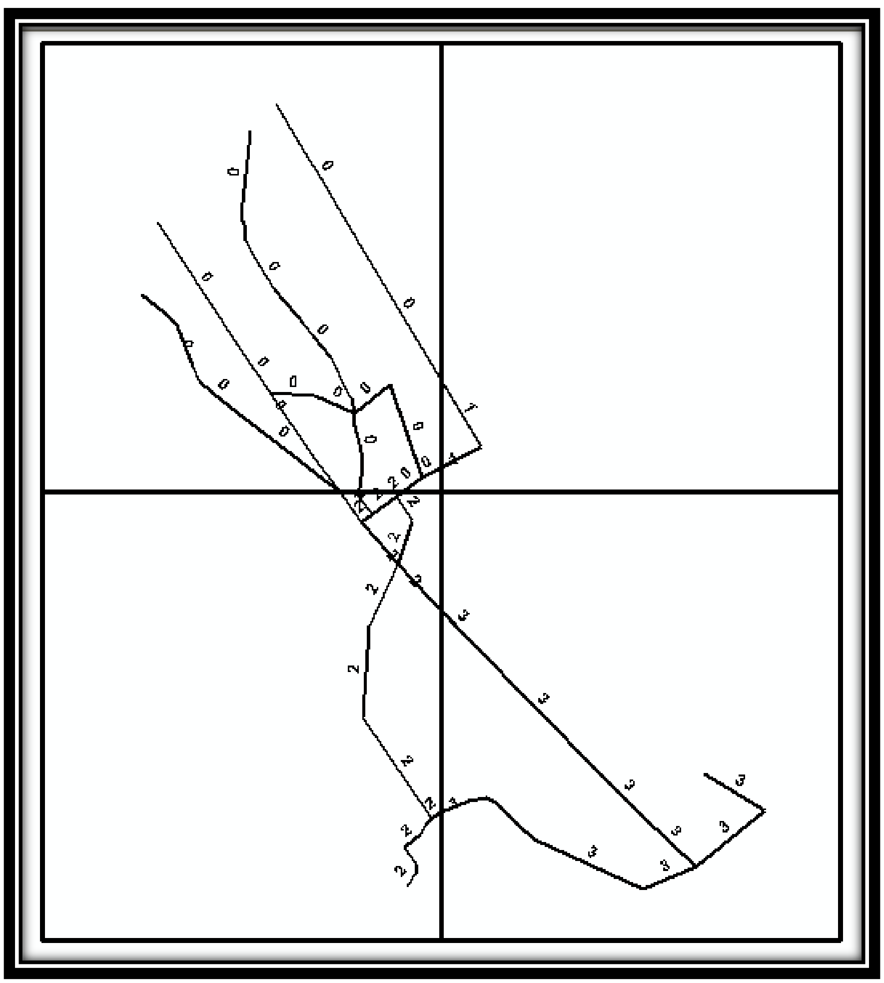

Figure A.3: Labeled roads for each cell.

The process starts by comparing the first value in the cell ID column and the row below, if the value in the current row and the row below are equal this means the current and following roads belong to the same cell. In Table A.3 the process compares the value of the first row to the value of the row below. For the current example, the value of zero is the value for the first 21 rows this means that cell zero has 21 roads. Following this, the roads are distributed by road classification. Then the value under the Functional column compared to the road coding that determines the functional class of the roads. If the value is identified to be one of the four road categories then corresponding VMT, speed, and MOBILE6.2 vehicle fleet is assigned to their corresponding vector e.g., $[freewayVMT], [arterialVMT], [localVMT]$, $[frampVMT]$ for the first cell. This process keeps happening until the cell value is unequal. Following the road identification process the Post-processor estimates the fraction of VMT, the speed and the MOBILE6.2 vehicle fleet for each roads. For example, in cell zero of the example the fist road is an arterial type so the road is stored in$[arterialVMT]$. The same happens for the second road which is also arterial. This road VMT is divided by the total VMT in the cell and is stored in its corresponding vector. When the road code changes the VMT fraction is assigned to a different vector that correspond to it e.g., $[freewayVMT]$ when the road has a code of 2 or 14. The process keeps storing the VMT fraction for each road and assigns it to its corresponding vector until the cell number is different. Next, the calculation of the first arterial, freeway and freeway ramp VMT fractions are performed.

$$[arterialVMT] = \frac{3427}{258362} = 0.01326433,$$

$$[freewayVMT] = \frac{104824}{258362} = 0.4057253,$$

$$[localVMT] = \frac{4498}{258362} = 0.01740968,$$

$$[frampVMT] = 0.0,$$

After the road VMT fraction is estimated, then the cell VMT fraction for each of the road type categories is calculated. This operation is performed by summing the individual road VMT fractions for the cell. Table A.5 shows the VMT fraction of each road classification for the four cells on the grid.

Table A.5: Proportion of VMT for the cell.

VMT dsitribution for the grid				
Cell	Freeway	Arterial	Local	Freeway ramps
0	0.67019	0.28489	0.0000	0.04491
1	0.74469	0.22422	0.0000	0.00000
2	0.00000	0.2537	0.0000	0.07163
3	0.00000	0.28696	0.0000	0.07635

Another parameter calculated is the cell fleet distribution. In order to estimate this parameter the framework uses the road classification code as in the case of the road distribution. Considering, Cell 0 of the current example, the cell has two freeway roads, thirteen arterial roads, zero freeway ramps, and five local roads. Based on this the vehicle fleet distribution assigned for each road depends on the functional classification of the roads. First, the thirteen vehicle fleet classification averages are assigned to the roads. Then, the average FHWA vehicle fleet distribution is estimated for the cell (e.g., the average LDV for the cell). Table A. 6 shows the vehicle fleet assigned to each road of cell zero. Table A.7 shows the average vehicle fleet distribution for the cells over the transportation network shown in Figure A.3

Table A.6: FHWA vehicle fleet assigned for every road of cell zero.

Vehicle Fleet Distribution														
Cell ID	Functional	Cl 1	Cl 2	Cl 3	Cl 4	Cl 5	Cl 6	Cl 7	Cl 8	Cl 9	Cl 10	Cl 11	Cl 12	Cl 13
0	5	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	5	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	7	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	0	78.0%	19.1%	0.9%	1.6%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
0	5	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	0	78.0%	19.1%	0.9%	1.6%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
0	5	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	0	78.0%	19.1%	0.9%	1.6%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
0	0	78.0%	19.1%	0.9%	1.6%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
0	2	76.3%	16.5%	0.4%	2.3%	1.4%	0.0%	0.3%	0.3%	2.5%	0.0%	0.0%	0.0%	0.0%
0	7	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	5	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	7	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	7	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	5	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	5	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	0	78.0%	19.1%	0.9%	1.6%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
0	7	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	7	76.7%	15.9%	0.8%	2.1%	0.5%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%	3.4%	0.0%
0	0	78.0%	19.1%	0.9%	1.6%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
0	2	76.3%	16.5%	0.4%	2.3%	1.4%	0.0%	0.3%	0.3%	2.5%	0.0%	0.0%	0.0%	0.0%

Table A.7: FHWA cell vehicle fleet average for each of the four cells in the grid.

Cell FHWA average vehicle fleet distribution													
Cell	Cl1	Cl2	Cl3	Cl4	Cl5	Cl6	Cl7	Cl8	Cl9	Cl10	Cl11	Cl12	Cl13
0	0.7703	0.1687	0.0079	0.0198	0.0050	0.0000	0.0024	0.0009	0.0039	0.0000	0.0000	0.0210	0.0000
1	0.7650	0.1620	0.0060	0.0220	0.0095	0.0000	0.0030	0.0020	0.0135	0.0000	0.0000	0.0170	0.0000
2	0.7744	0.1773	0.0086	0.0181	0.0033	0.0000	0.0019	0.0004	0.0014	0.0000	0.0000	0.0146	0.0000
3	0.8001	0.1591	0.0077	0.0159	0.0028	0.0000	0.0016	0.0003	0.0012	0.0000	0.0000	0.0113	0.0000

Following the definition of the FHWA vehicle fleet distribution cell averages, the framework defines vehicle fleet distribution in terms MOBILE6.2 format. These vehicle fleet distributions are estimated using Equations (7.4) to (7.20) in Chapter 7. To estimate these fleet distributions the framework uses the cell average FHWA thirteen vehicle fleet values (shown in

Table A.7) and MOBILE6.2 year 2007 vehicle fleet distribution default values (2007 default values shown in Appendix B). The vehicle fleet distribution in MOBILE6.2 format is estimated below for the first cell in the grid (cell 0), the same calculations are performed in the same manner for the rest of the cells in the grid. Table A.8 shows the MOBILE6.2 vehicle fleet distribution for each cell of the grid.

LDV = 0.7703- 0.0058= 0.7645

LDT1 = 0.0822 x (0.1687/0.4788)= 0.0290

LDT2 = 0.2735 x (0.1687 / 0.4788) = 0.0964

LDT3 = .0843 x (0.1687 /0.4788)= 0.0297

LDT4 = .0388 x (0.1687 /.4788) = 0.01367

HDV2b = .0387 x ((0.0198 + 0.0050 + 0.00 + 0.0024 + 0.0009 + 0.0039+0.00+ 0.00+0.0210 +0.00)/0.1174)= 0.0175

HDV3 = .0038 x ((0.0198 + 0.0050 + 0.00 + 0.0024 + 0.0009 + 0.0039+0.00+ 0.00+0.0210 +0.00)/0.1174)=0.001715

HDV4 = .0031 x ((0.0198 + 0.0050 + 0.00 + 0.0024 + 0.0009 + 0.0039+0.00+ 0.00+0.0210 +0.00)/0.1174)=0.001399

HDV5 =.0023 x ((0.0198 + 0.0050 + 0.00 + 0.0024 + 0.0009 + 0.0039+0.00+ 0.00+0.0210 +0.00)/0.1174)=0.0010

HDV6 =.0086 x ((0.0198 + 0.0050 + 0.00 + 0.0024 + 0.0009 + 0.0039+0.00+ 0.00+0.0210 +0.00)/0.1174)=0.0039

HDV7 = .0102 x ((0.0198 + 0.0050 + 0.00 + 0.0024 + 0.0009 + 0.0039+0.00+ 0.00+0.0210 +0.00)/0.1174)=0.0046

HDV8a =.0111 x ((0.0198 + 0.0050 + 0.00 + 0.0024 + 0.0009 + 0.0039+0.00+ 0.00+0.0210 +0.00)/0.1174)=0.0050

HDV8b = .0396 x ((0.0198 + 0.0050 + 0.00 + 0.0024 + 0.0009 + 0.0039+0.00+ 0.00+0.0210 +0.00)/0.1174)=0.0179

HDBS= .002 x(0.007904 / 2.9E-3) =0.0055

HDBT=.009x(0.007904 / 2.9E-3) =0.0025

MC = 0.0058

Table A. 8: MOBILE6.2 vehicle fleet distribution for the grid.

MOBILE6.2 vehicle fleet distribution for the grid														
Cell	LDV	LDT1	LDT2	LDT3	LDT4	HDV2b	HDV3	HDV4	HDV5	HDV6	HDV7	HDV8a	HDV8b	HDBS
0	0.7645	0.02896	0.0964	0.0297	0.01367	0.0175	0.0017	0.0014	0.0010	0.0039	0.00461	0.0050	0.0179	0.0055
1	0.7592	0.0278	0.0925	0.0285	0.0131	0.0221	0.0022	0.0018	0.0013	0.0049	0.0058	0.0063	0.0226	0.0041
2	0.7686	0.0304	0.1013	0.0312	0.0144	0.0131	0.0013	0.0010	0.0008	0.0029	0.0035	0.0038	0.0134	0.0059
3	0.7943	0.0273	0.0909	0.0280	0.0129	0.0109	0.0011	0.0009	0.0006	0.0024	0.0029	0.0031	0.0112	0.0053

The average speed for each cell is calculated using Equation (7.3) in Section 7.5.2. This parameter is based on the VMT for each road classification. To estimate the average speed, the fraction of VMT for each road classification is used (e.g., 0, 5, 7, and 2).

In the average speed estimations process, the first parameter that is calculated is the fraction of VMT for each of the roads in the cell accounting for every road classification. To illustrate the calculation of the VMT fractions, consider Cell 2 of the grid in Figure A.2. This cell is formed by roads with four different road classifications (i.e., 0, 5, 7, and 9), so to begin the VMT fraction calculation the total amount of VMT for each of these road classifications needs to be estimated. Table A.9 below shows the total amount of VMT for each road classification in cell zero.

Table A.9: Cell 2 VMT distribution among roads classifications.

Total VMT	
Functional	VMT
0	7381.91
5	17316.02
7	3515.90
9	10529.06
Total	38742.90

Table A.9 shows the total amount of VMT for each of the road classifications of the roads that are within Cell 2. It is important to remember that based on this road classification codes the roads are grouped into four big road types (i.e., arterial, freeway, local, and freeway ramps). However, to estimate the average speed each individual road coding is used instead of the four big road groups.

With the total amount of VMT for each road classification estimated it is possible to determine the fraction of this total amount of VMT each road has. Below, the fraction of VMT for roads with the code five is estimated. The rest of the specific road VMT is estimated using the same procedure. Table A. 10 shows the VMT fractions for the every road in Cell 2 in the grid.

$$VMTfraction\, road1_{road\ code\ 5} = \frac{1560.83}{17316.02} = 0.090$$

$$VMTfraction\, road2_{road\ code\ 5} = \frac{3318.15}{17316.02} = 0.192$$

$$VMTfraction\, road3_{road\ code\ 5} = \frac{3426.59}{17316.02} = 0.198$$

$$VMTfraction\, road4_{road\ code\ 5} = \frac{3910.88}{17316.02} = 0.226$$

$$VMTfraction\, road5_{road\ code\ 5} = \frac{5099.58}{17316.02} = 0.295$$

Table A. 10: VMT fractions of each road classification.

Cell 2 VMT fractions appendix A example				
Cell ID	Functional	Speed	VMT	VMTf
2	0	40	277.78	0.038
2	0	33	741.78	0.100
2	0	40	1864.09	0.253
2	0	33	4498.25	0.609
2	5	32	1560.83	0.090
2	5	32	3318.16	0.192
2	5	32	3426.59	0.198
2	5	32	3910.88	0.226
2	5	32	5099.57	0.295
2	7	31	3515.90	1.000
2	9	42	566.65	0.054
2	9	42	709.31	0.067
2	9	42	3337.26	0.317
2	9	42	5915.85	0.562

The VMT fractions are then divided by the speed of each road (e.g., 0.038 / 40). This result in the time spent at certain velocity (e.g., 9.416×10^{-4} hrs at 40 mph). These calculations are performed for every road in the cell. Table A.11 shows the results of these calculations for Cell 2.

Table A.11: VMT fractions and time spent for Cell 2.

Cell 2 VMT fractions appendix A example					
Cell ID	Functional	Speed	VMT	VMTf	VMTf/speed
2	0	40	277.78	0.038	9.41E-04
2	0	33	741.78	0.100	3.05E-03
2	0	40	1864.09	0.253	6.31E-03
2	0	33	4498.25	0.609	1.85E-02
2	5	32	1560.83	0.090	2.82E-03
2	5	32	3318.16	0.192	5.99E-03
2	5	32	3426.59	0.198	6.18E-03
2	5	32	3910.88	0.226	7.06E-03
2	5	32	5099.57	0.295	9.20E-03
2	7	31	3515.90	1.000	3.23E-02
2	9	42	566.65	0.054	1.28E-03
2	9	42	709.31	0.067	1.60E-03
2	9	42	3337.26	0.317	7.55E-03
2	9	42	5915.85	0.562	1.34E-02

The final calculation to obtain the average speed for the cell is shown below. These Formula sums the ratios of VMT fractions over road speed for every road classification and then estimates the inverse to obtain the average speed value.

$$\bar{s_0} = \frac{1}{9.41E-4 + 3.05E-03 + 6.31E-03 + 1.85E-02} = 34.77\ mph$$

$$\bar{s_5} = \frac{1}{2.82E-03 + 5.99E-03 + 6.18E-03 + 7.06E-03 + 9.20E-03} = 32.00\ mph$$

$$\bar{s_7} = \frac{1}{3.323E-02} = 31.00\ mph$$

$$\overline{s_9} = \frac{1}{1.28E-03 + 1.60E-03 + 7.55E-03 + 1.34E-02} = 42.00\ mph$$

The cell average speed used as input in the Emission Module is the average speed defined for the freeway roads. This is a limitation MOBILE6.2 model has the model does not allow the definition of average speed of local or freeway ramps, it only allows the definition of freeway and arterial roads average speed. However, in this research an average speed of all road types is used for every cell. Table A.12 shows the average speed estimated for every cell on the grid.

Table A.12: Grid Average speed.

Grid Average speed (mph)	
Cell	Average Speed
0	35.32
1	35.00
2	35.58
3	37.40

Following the calculation of the transportation parameters the framework develops the input file necessary to run the Emission Module (MOBILE6.2). Table 8.1 and Table 8.2 describe the inputs that are estimated by the framework and those taken from the El Paso, Texas MPO Transportation Conformity Report. The input and out files generated before and after running MOBILE6.2 are included at the end of this appendix (Figure A.4 to Figure A.11). The results from the Emission Module in terms of emissions are shown in Table A.13.

Table A.13: Emission estimates for the grid.

Summer Season Grid Emissions		
Cell	CO Emissions (ton/day)	PM 10 Emissions (ton/day)
0	2.662	0.0117
1	1.152	0.0050
2	0.404	0.0016
3	0.263	0.0010

The silt loading factor is estimated for every road based on the flow each road has. This is estimated following the process defined in Figure 7.6. The first road of the grid has a vehicle flow equal to 6122 vehicles, 3112 in AB direction and 3010 BA direction based on this the silt loading assigned is equal to 0.06 g/m^2.

The average weight value is estimated for every road in the network. This parameter is estimated based on the vehicle flow and the distribution of vehicles on the road. The average weight of vehicles is estimated for the first road in Table A.3. Tables A.14 and Table A.15 shows the Cell resuspended PM10 emissions and the resuspended PM10 emission for every road in the transportation network, respectively.

Class1 avg. Weight= (0.7670 x (3112 + 3010) x 1.875 tons/veh) = 8804.201 tons

Class2 avg. Weight = (0.1590 x (3112 + 3010)x 1.875 tons/veh = 1825.12 tons

Class3 avg. Weight = (0.0080 x (3112 + 3010) x 2.875 tons/veh = 140.806 tons

Class4 avg. Weight = (0.0210 x (3112 + 3010) x 2.875 tons/veh = 369.6157 tons

Class5 avg. Weight = (0.0050 x (3112 + 3010) x 4.25 tons/veh = 130.0925 tons

Class6 avg. Weight = 0 tons

Class7 avg. Weight = (0.0030 x (3112 + 3010) x 7 tons/veh = 128.562 tons

Class8 avg. Weight = (0.001 x (3112 + 3010) x 8 tons/veh = 48.9760 tons

Class9 avg. Weight = (0.0020 x (3112 + 3010) x 9.75 tons/veh = 119.379 tons

Class10 avg. Weight = 0 tons

Class11 avg. Weight = 0 tons

Class12 avg. Weight = (0.034 x (3112 + 3010) x 30 tons/veh = 6244.44 tons

Class13 avg. Weight = 0 tons

Then, the average vehicle weight for the road is equal to:

$$Av.weight = \frac{8804.201 \ \ + 1825.12 + 140.804 + 369.61 + 130.09 + 128.56 + 48.97 + 119.37 + 6244.44}{(3112 + 3010)}$$

$$= \ 2.909 \ tons$$

Since the first road in Table A.3 is an arterial type of road the vehicle fleet distribution used to estimate the average vehicle weight, corresponds to the FHWA vehicle fleet distribution defined for arterial roads. After the silt loading and the average vehicle weight is calculated the framework uses Equation (7.22) to estimate the value of the resuspended dust emissions.

Table A.14: Cells resuspended PM10 emissions for the summer.

Resuspended PM10 emissions for the summer	
Cell	Resusp. PM10 Emissions (ton/day)
0	0.076
1	0.010
2	0.028
3	0.019

Table A.15: PM10 Resuspended dust emissions for the summer season.

Average weight , sL, and Resuspended PM 10 Emissions							
Cell ID	Functional	AB_Flow	BA_Flow	VMT	sL	Avg.vehicle Weight	Resuspended PM 10 Emissions Summer (g/VMT)
0	5	3112	3010	3427	0.06	2.9094	0.0016
0	5	4569	4491	3911	0.06	2.9094	0.0019
0	7	1155	1188	3517	0.2	2.9094	0.0045
0	0	5374	5375	4498	0.03	1.9178	0.0001
0	5	5806	5883	5406	0.03	2.9094	0.0012
0	0	710	710	1963	0.2	1.9178	0.0012
0	5	5483	5406	10091	0.03	2.9094	0.0023
0	0	1117	1134	1396	0.2	1.9178	0.0008
0	0	2087	2087	2720	0.2	1.9178	0.0016
0	2	14387	16398	104824	0.03	2.1659	0.0080
0	7	1127	1127	4371	0.2	2.9094	0.0056
0	5	1883	1985	6495	0.2	2.9094	0.0083
0	7	1358	1358	3514	0.2	2.9094	0.0045
0	7	1116	1115	1725	0.2	2.9094	0.0022
0	5	2592	2711	4455	0.06	2.9094	0.0021
0	5	2877	2996	11950	0.06	2.9094	0.0057
0	0	678	661	838	0.2	1.9178	0.0005
0	7	2246	2262	7354	0.2	2.9094	0.0094
0	7	2246	2262	7390	0.2	2.9094	0.0094
0	0	79	79	189	0.6	1.9178	0.0003
0	2	14387	16398	68328	0.03	2.1659	0.0052

Table A.15 Cont: PM10 Resuspended dust emissions for the summer season.

Average weight , sL, and Resuspended PM 10 Emissions							
Cell ID	Functional	AB_Flow	BA_Flow	VMT	sL	Avg.vehicle Weight	Resuspended PM 10 Emissions Summer (g/VMT)
1	5	5483	5406	10091	0	2.9094	0.0023
1	2	14387	16398	1E+05	0	2.1659	0.0080
2	9	1626	1696	709.3	0	1.9178	0.0004
2	9	1626	1696	3337	0	1.9178	0.0020
2	9	1760	1688	5916	0	1.9178	0.0035
2	9	165	163	566.7	1	1.9178	0.0008
2	0	973	945	1864	0	1.9178	0.0011
2	5	1588	1852	5100	0	2.9094	0.0065
2	5	3112	3010	3427	0	2.9094	0.0016
2	5	4557	4446	1561	0	2.9094	0.0007
2	5	1958	2243	3318	0	2.9094	0.0042
2	5	4569	4491	3911	0	2.9094	0.0019
2	7	1155	1188	3516	0	2.9094	0.0045
2	0	5374	5375	4498	0	1.9178	0.0001
2	0	574	581	741.8	0	1.9178	0.0004
2	0	108	107	277.8	1	1.9178	0.0004
3	9	165	163	566.7	1	1.9178	0.0008
3	0	123	124	417.6	1	1.9178	0.0006
3	5	1606	1869	2751	0	2.9094	0.0035
3	0	1148	1170	1921	0	1.9178	0.0011
3	5	1636	1895	3748	0	2.9094	0.0048
3	0	209	184	493.7	1	1.9178	0.0007
3	0	192	225	419.4	1	1.9178	0.0006
3	5	1588	1852	5100	0	2.9094	0.0065
3	5	1588	1852	9153	0	0.0000	0.0000

```
MOBILE6 INPUT FILE :
*12345678901234567 8:
POLLUTANTS         : HC CO NOX
PARTICULATES       :
RUN DATA
EXPRESS HC AS VOC  :
NO REFUELING       :
REG DIST           : El Paso.D
DIESEL FRACTIONS   :
0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090
0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090
0.00060 0.00010 0.00030 0.00060 0.00060
0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000 0.00000 0.00000 0.00000 0.00000
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0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
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0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260
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0.01260 0.01260 0.01260 0.01260 0.01260
0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069
0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.79428
0.82902 0.82610 0.77125 0.74456 0.69969
0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270
0.79270  0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.77914
0.70657 0.67995 0.64242 0.63914 0.62871
0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692
0.92692  0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.84000
0.82326 0.77034 0.73103 0.68836 0.69637
0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661
0.96661  0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.91566
0.89723 0.88205 0.86364 0.88027 0.83927
0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885
0.97885  0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.90202
0.89349 0.90285 0.89732 0.89821 0.89956
0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163
0.98163  0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.92121
0.96186 0.95759 0.98025 0.91082 0.92060
0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434
0.99434  0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.97289
0.97672 0.94856 0.95499 0.94893 0.94679
0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682
0.99682  0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99181
0.99786 0.99289 0.99228 0.98305 0.98176
0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850
0.95850  0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850
0.95850 0.95850 0.95850 0.95850 0.95850
VMT BY HOUR        : Summer.def
MIN/MAX TEMPERATURE: 66 97
SCENARIO REC       : EL PASO
CALENDAR YEAR      : 2007
EVALUATION MONTH   : 7
AVERAGE SPEED      : 35.3165 Areawide 0.6702 0.2849 0.0449 0.0000
VMT FRACTIONS      :
0.8367238044738769 53 0.0168981384485960 01 0.0562243424355983 73 0.0173298418521881 10 0.0079762497916817 67 0.0178320761770009 99 0.0017509531462565 06 0.0014284091303125 02
0.0010597874643281 10 0.0039626834914088 25 0.0046999268233776 09 0.0051146266050636 77 0.0182467754930257 80 0.0034154350869357 59 0.0015369458124041 56 0.0057999999262392 52
PARTICLE SIZE      : 10
FUEL RVP           : 7.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 330
END OF RUN
```

Figure A.4: Cell 0 input MOBILE6.2 file.

```
MOBILE6 INPUT FILE :
*12345678901234567 8:


POLLUTANTS         : HC CO NOX
PARTICULATES       :
RUN DATA
EXPRESS HC AS VOC  :
NO REFUELING       :
REG DIST           : El Paso.D
DIESEL FRACTIONS   :
0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090
0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090
0.00060 0.00010 0.00030 0.00060 0.00060
0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
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0.00000 0.00000 0.00000 0.00000 0.00000
0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260
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0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069
0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.79428
0.82902 0.82610 0.77125 0.74456 0.69969
0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270
0.79270  0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.77914
0.70657 0.67995 0.64242 0.63914 0.62871
0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692
0.92692  0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.84000
0.82326 0.77034 0.73103 0.68836 0.69637
0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661
0.96661  0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.91566
0.89723 0.88205 0.86364 0.88027 0.83927
0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885
0.97885  0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.90202
0.89349 0.90285 0.89732 0.89821 0.89956
0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163
0.98163  0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.92121
0.96186 0.95759 0.98025 0.91082 0.92060
0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434
0.99434  0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.97289
0.97672 0.94856 0.95499 0.94893 0.94679
0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682
0.99682  0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99181
0.99786 0.99289 0.99228 0.98305 0.98176
0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850
0.95850  0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850
0.95850 0.95850 0.95850 0.95850 0.95850
VMT BY HOUR        : Summer.def
MIN/MAX TEMPERATURE: 66 97
SCENARIO REC       : EL PASO
CALENDAR YEAR      : 2007
EVALUATION MONTH   : 7
AVERAGE SPEED      : 35.0000 Areawide 0.2808 0.7192 0.0000 0.0000
VMT FRACTIONS      :
0.860700011253356934 0.013648496009409428 0.045411966741085052 0.013997180387377739 0.006442355923354626 0.016482112929224968 0.001618398586288095 0.001320272567681968
0.000979557051323354 0.003662691684439778 0.004344122484326363 0.004727427382022142 0.016865417361259460 0.002758620772510767 0.001241379301063716 0.005799999926239252
PARTICLE SIZE      : 10
FUEL RVP           : 7.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 330
END OF RUN
```

Figure A.5: Cell 1 input MOBILE6.2 file.

```
MOBILE6 INPUT FILE :
*12345678901234567 8:


POLLUTANTS         : HC CO NOX
PARTICULATES       :
RUN DATA
EXPRESS HC AS VOC  :
NO REFUELING       :
REG DIST           : El Paso.D
DIESEL FRACTIONS   :
0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090
0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090
0.00060 0.00010 0.00030 0.00060 0.00060
0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
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0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260
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0.01260 0.01260 0.01260 0.01260 0.01260
0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069
0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.79428
0.82902 0.82610 0.77125 0.74456 0.69969
0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270
0.79270  0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.77914
0.70657 0.67995 0.64242 0.63914 0.62871
0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692
0.92692  0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.84000
0.82326 0.77034 0.73103 0.68836 0.69637
0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661
0.96661  0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.91566
0.89723 0.88205 0.86364 0.88027 0.83927
0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885
0.97885  0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.90202
0.89349 0.90285 0.89732 0.89821 0.89956
0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163
0.98163  0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.92121
0.96186 0.95759 0.98025 0.91082 0.92060
0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434
0.99434  0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.97289
0.97672 0.94856 0.95499 0.94893 0.94679
0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682
0.99682  0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99181
0.99786 0.99289 0.99228 0.98305 0.98176
0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850
0.95850  0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850
0.95850 0.95850 0.95850 0.95850 0.95850
VMT BY HOUR        : Summer.def
MIN/MAX TEMPERATURE: 66 97
SCENARIO REC       : EL PASO
CALENDAR YEAR      : 2007
EVALUATION MONTH   : 7
AVERAGE SPEED      : 35.5758 Areawide 0.0000 0.9284 0.0716 0.0000
VMT FRACTIONS      :
0.87434285879135l318 0.011698710732161999 0.038924545049667358 0.011997583322227001 0.005522019229829311 0.015917010605335236 0.001562910736538470 0.001275006099604070
0.000945972278714180 0.003537113545462489 0.004195181187242270 0.004565344192087650 0.016287174075841904 0.002364532090723515 0.001064039417542517 0.005799999926239252
PARTICLE SIZE      : 10
FUEL RVP           : 7.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 330
END OF RUN
```
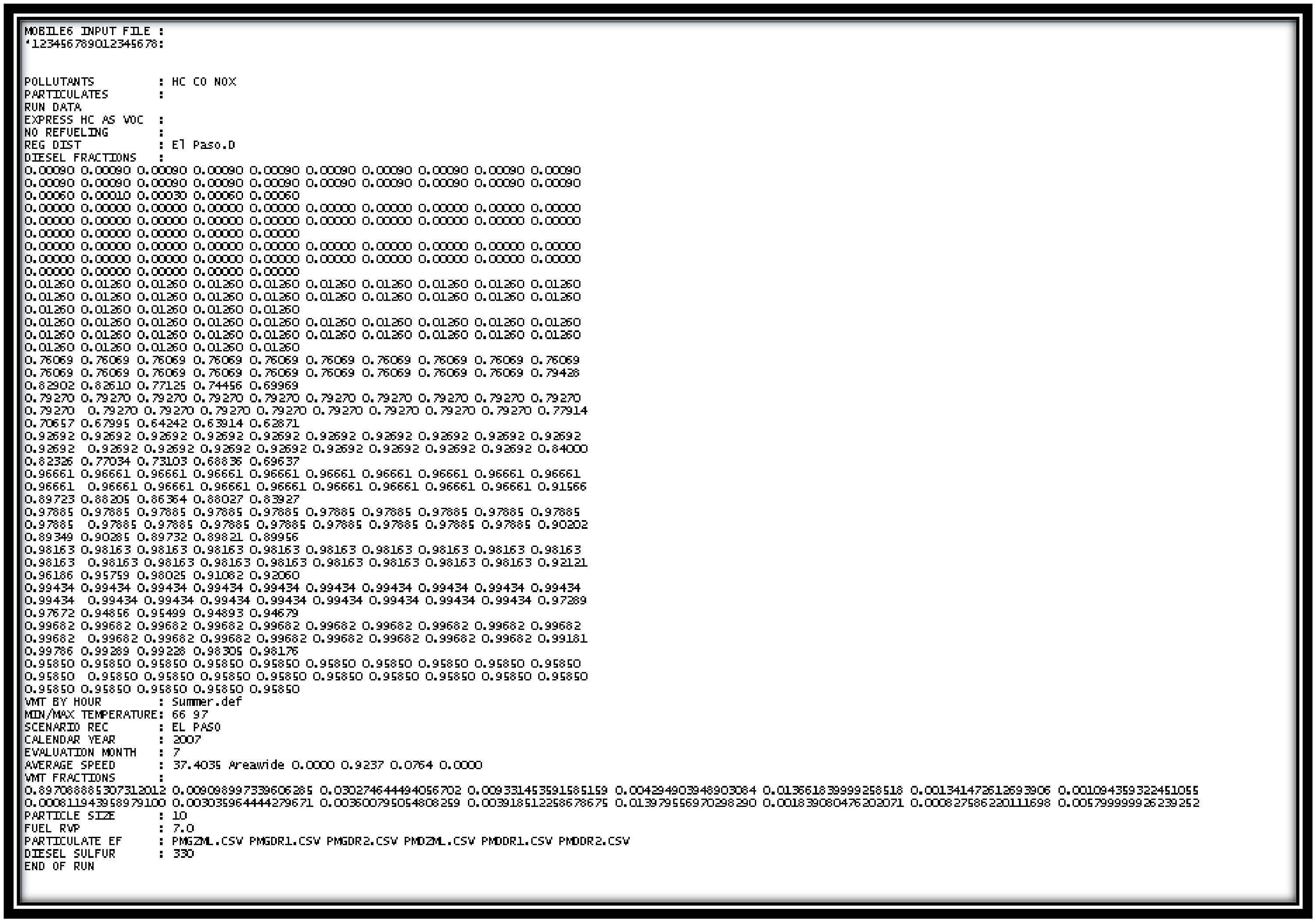
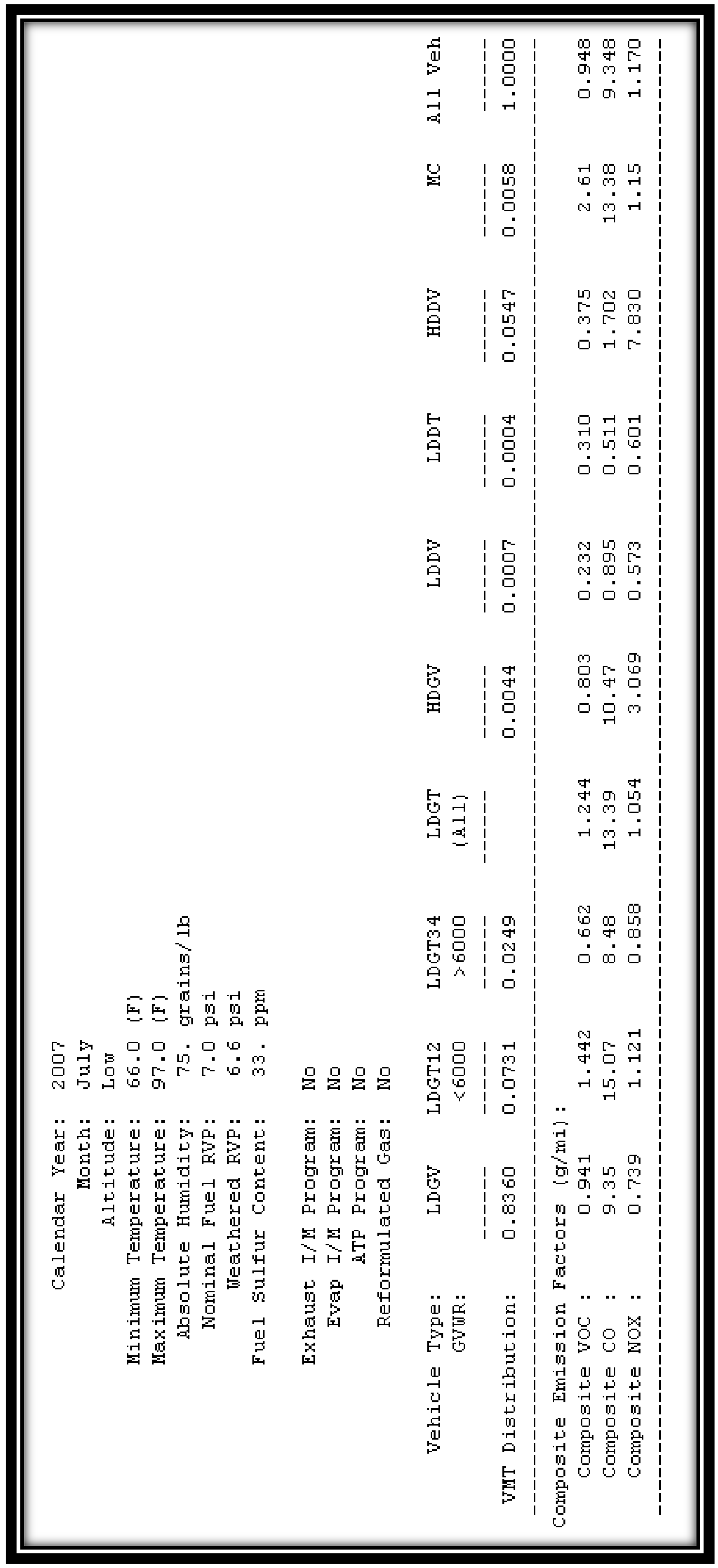

Figure A.6: Cell 2 input MOBILE6.2 file.



```
MOBILE6 INPUT FILE :
*12345678901234567 8:


POLLUTANTS         : HC CO NOX
PARTICULATES       :
RUN DATA
EXPRESS HC AS VOC  :
NO REFUELING       :
REG DIST           : El Paso.D
DIESEL FRACTIONS   :
0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090
0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090 0.00090
0.00060 0.00010 0.00030 0.00060 0.00060
0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000 0.00000 0.00000 0.00000 0.00000
0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
0.00000 0.00000 0.00000 0.00000 0.00000
0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260
0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260
0.01260 0.01260 0.01260 0.01260 0.01260
0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260
0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260 0.01260
0.01260 0.01260 0.01260 0.01260 0.01260
0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069
0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.76069 0.79428
0.82902 0.82610 0.77125 0.74456 0.69969
0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270
0.79270  0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.79270 0.77914
0.70657 0.67995 0.64242 0.63914 0.62871
0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692
0.92692  0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.92692 0.84000
0.82326 0.77034 0.73103 0.68836 0.69637
0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661
0.96661  0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.96661 0.91566
0.89723 0.88205 0.86364 0.88027 0.83927
0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885
0.97885  0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.97885 0.90202
0.89349 0.90285 0.89732 0.89821 0.89956
0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163
0.98163  0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.98163 0.92121
0.96186 0.95759 0.98025 0.91082 0.92060
0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434
0.99434  0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.99434 0.97289
0.97672 0.94856 0.95499 0.94893 0.94679
0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682
0.99682  0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99682 0.99181
0.99786 0.99289 0.99228 0.98305 0.98176
0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850
0.95850  0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850 0.95850
0.95850 0.95850 0.95850 0.95850 0.95850
VMT BY HOUR        : Summer.def
MIN/MAX TEMPERATURE: 66 97
SCENARIO REC       : EL PASO
CALENDAR YEAR      : 2007
EVALUATION MONTH   : 7
AVERAGE SPEED      : 37.4035 Areawide 0.0000 0.9237 0.0764 0.0000
VMT FRACTIONS      :
0.897088885307312012 0.009098997339606285 0.030274644494056702 0.009331453591585159 0.004294903948903084 0.013661839999258518 0.001341472612693906 0.001094359322451055
0.000811943958979100 0.003035964444279671 0.003600795054808259 0.003918512258678675 0.013979556970298290 0.001839080476202071 0.000827586220111698 0.005799999926239252
PARTICLE SIZE      : 10
FUEL RVP           : 7.0
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
DIESEL SULFUR      : 330
END OF RUN
```

Figure A.7: Cell 3 input MOBILE6.2 file.



```
          Calendar Year:  2007
                  Month:  July
               Altitude:  Low
    Minimum Temperature:  66.0 (F)
    Maximum Temperature:  97.0 (F)
      Absolute Humidity:   75. grains/lb
       Nominal Fuel RVP:   7.0 psi
          Weathered RVP:   6.6 psi
    Fuel Sulfur Content:   33. ppm

    Exhaust I/M Program:  No
       Evap I/M Program:  No
            ATP Program:  No
       Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.8360	0.0731	0.0249		0.0044	0.0007	0.0004	0.0547	0.0058	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.941	1.442	0.662	1.244	0.803	0.232	0.310	0.375	2.61	0.948
Composite CO :	9.35	15.07	8.48	13.39	10.47	0.895	0.511	1.702	13.38	9.348
Composite NOX :	0.739	1.121	0.858	1.054	3.069	0.573	0.601	7.830	1.15	1.170

Figure A.8: Cell 0 Output report.

```
              Calendar Year:  2007
                      Month:  July
                   Altitude:  Low
        Minimum Temperature:  66.0 (F)
        Maximum Temperature:  97.0 (F)
          Absolute Humidity:   75. grains/lb
           Nominal Fuel RVP:   7.0 psi
              Weathered RVP:   6.6 psi
        Fuel Sulfur Content:   33. ppm

         Exhaust I/M Program:  No
            Evap I/M Program:  No
                 ATP Program:  No
           Reformulated Gas:  No

   Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
           GVWR:             <6000     >6000     (All)
                    ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
VMT Distribution:   0.8599    0.0591    0.0201              0.0040    0.0008    0.0003    0.0500    0.0058    1.0000
----------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
   Composite VOC :    0.942     1.444     0.661     1.245     0.801     0.235     0.315     0.381      2.63     0.947
   Composite CO  :    9.13     14.77      8.28     13.12     10.19      0.891     0.508     1.682     13.50     9.095
   Composite NOX :    0.738     1.119     0.855     1.052     3.004     0.557     0.584     7.276      1.13     1.101
----------------------------------------------------------------------------------------------------------------------
```

Figure A.9: Cell 1 Output report.

Calendar Year: 2007
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 97.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 7.0 psi
Weathered RVP: 6.6 psi
Fuel Sulfur Content: 33. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.8736	0.0506	0.0173		0.0039	0.0008	0.0003	0.0478	0.0058	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.939	1.441	0.662	1.243	0.795	0.230	0.307	0.366	2.61	0.941
Composite CO :	9.54	15.32	8.65	13.62	10.57	0.899	0.513	1.701	13.33	9.459
Composite NOX :	0.742	1.126	0.863	1.059	3.085	0.587	0.617	7.320	1.15	1.089

Figure A.10: Cell 2 Output report.

Calendar Year: 2007
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 97.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 7.0 psi
Weathered RVP: 6.6 psi
Fuel Sulfur Content: 33. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.8963	0.0394	0.0134		0.0033	0.0008	0.0002	0.0408	0.0058	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.928	1.425	0.655	1.230	0.770	0.224	0.299	0.351	2.58	0.929
Composite CO :	9.81	15.64	8.86	13.92	10.50	0.889	0.507	1.664	12.94	9.705
Composite NOX :	0.747	1.136	0.871	1.069	3.143	0.608	0.639	7.547	1.16	1.052

Figure A.11: Cell 3 Output report.

Appendix B

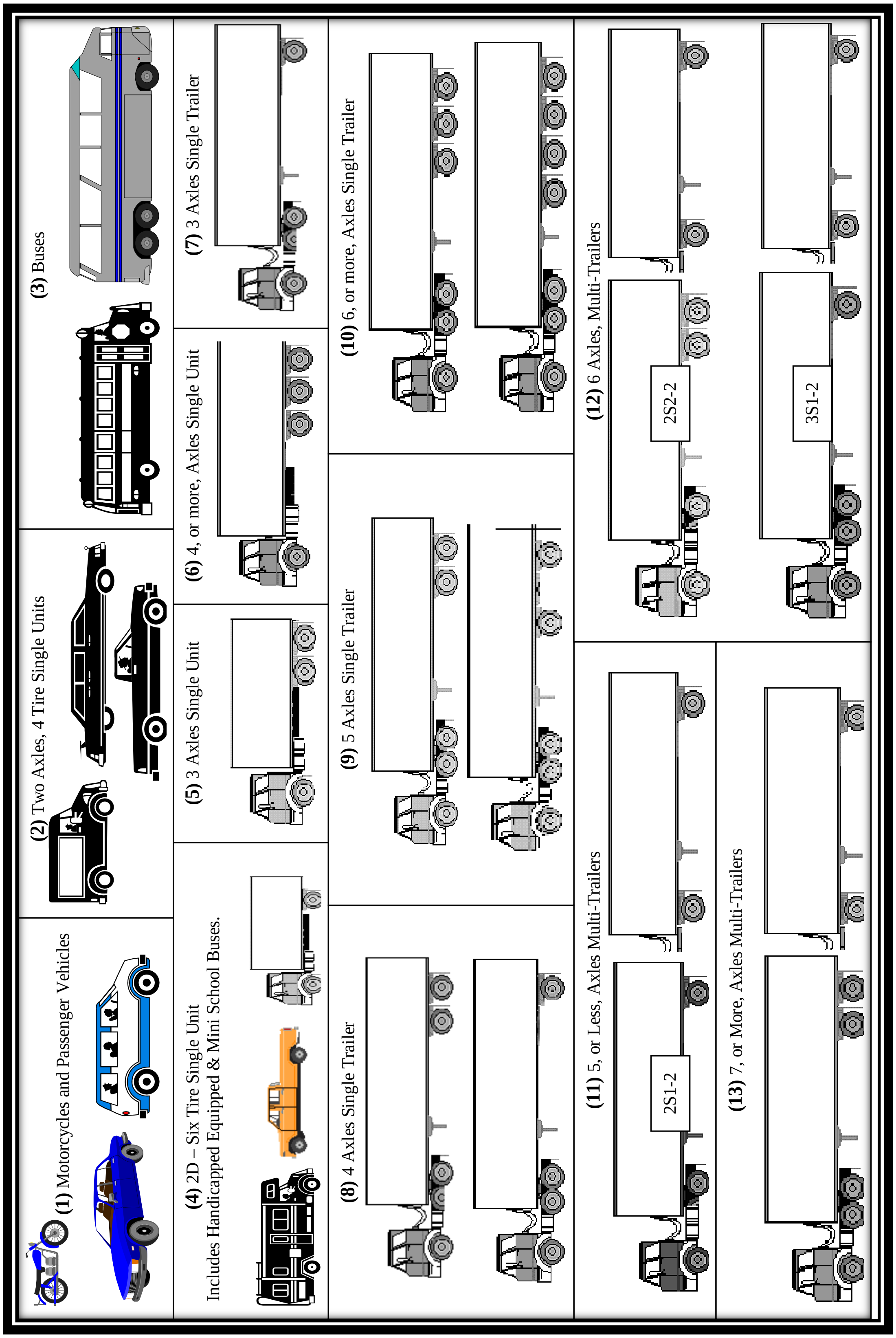


Figure B.1: FHWA vehicle classifications (Source: FHWA, 2010).

National Average Vehicle Miles Traveled Fractions By Vehicle Class
Using MOBILE6.2
(Part 2)

1997	0.5569	0.0557	0.1853	0.0571	0.0263	0.0367	0.0037	0.0026	0.0020	0.0077	0.0092	0.0104	0.0370	0.0018	0.0009	0.0067
1998	0.5360	0.0590	0.1963	0.0605	0.0278	0.0372	0.0038	0.0027	0.0021	0.0079	0.0095	0.0106	0.0376	0.0019	0.0009	0.0065
1999	0.5153	0.0622	0.2071	0.0638	0.0294	0.0377	0.0038	0.0028	0.0021	0.0081	0.0097	0.0107	0.0382	0.0019	0.0009	0.0064
2000	0.4953	0.0655	0.2179	0.0672	0.0309	0.0380	0.0038	0.0029	0.0022	0.0082	0.0098	0.0108	0.0386	0.0019	0.0009	0.0062
2001	0.4785	0.0683	0.2273	0.0700	0.0322	0.0381	0.0038	0.0029	0.0022	0.0083	0.0099	0.0109	0.0388	0.0019	0.0009	0.0061
2002	0.4646	0.0706	0.2349	0.0724	0.0333	0.0382	0.0038	0.0030	0.0022	0.0084	0.0100	0.0109	0.0390	0.0019	0.0009	0.0060
2003	0.4507	0.0729	0.2425	0.0748	0.0344	0.0384	0.0038	0.0030	0.0023	0.0085	0.0100	0.0110	0.0392	0.0019	0.0009	0.0059
2004	0.4365	0.0752	0.2503	0.0771	0.0355	0.0386	0.0038	0.0030	0.0023	0.0085	0.0101	0.0111	0.0394	0.0019	0.0009	0.0058
2005	0.4231	0.0774	0.2577	0.0794	0.0365	0.0387	0.0038	0.0031	0.0023	0.0086	0.0102	0.0111	0.0395	0.0020	0.0009	0.0057
2006	0.4096	0.0797	0.2654	0.0818	0.0376	0.0387	0.0038	0.0031	0.0023	0.0086	0.0102	0.0111	0.0396	0.0020	0.0009	0.0056
2007	0.3952	0.0822	0.2735	0.0843	0.0388	0.0387	0.0038	0.0031	0.0023	0.0086	0.0102	0.0111	0.0396	0.0020	0.0009	0.0056
2008	0.3807	0.0846	0.2817	0.0868	0.0399	0.0388	0.0038	0.0031	0.0024	0.0087	0.0102	0.0111	0.0397	0.0020	0.0009	0.0055
2009	0.3669	0.0869	0.2894	0.0892	0.0410	0.0389	0.0038	0.0032	0.0024	0.0087	0.0103	0.0112	0.0398	0.0020	0.0010	0.0054
2010	0.3544	0.0891	0.2965	0.0914	0.0420	0.0390	0.0038	0.0032	0.0024	0.0087	0.0103	0.0112	0.0399	0.0020	0.0010	0.0054
2011	0.3428	0.0911	0.3031	0.0934	0.0430	0.0390	0.0038	0.0032	0.0024	0.0087	0.0103	0.0112	0.0398	0.0020	0.0010	0.0053
2012	0.3325	0.0928	0.3090	0.0952	0.0438	0.0390	0.0038	0.0032	0.0024	0.0087	0.0103	0.0112	0.0399	0.0020	0.0010	0.0053
2013	0.3231	0.0944	0.3143	0.0969	0.0445	0.0390	0.0038	0.0032	0.0024	0.0087	0.0103	0.0112	0.0399	0.0020	0.0010	0.0053
2014	0.3145	0.0959	0.3191	0.0983	0.0452	0.0391	0.0038	0.0032	0.0024	0.0088	0.0103	0.0112	0.0400	0.0020	0.0010	0.0052
2015	0.3071	0.0971	0.3233	0.0996	0.0458	0.0391	0.0039	0.0032	0.0024	0.0088	0.0104	0.0112	0.0400	0.0020	0.0010	0.0052
2016	0.3004	0.0982	0.3270	0.1008	0.0463	0.0392	0.0039	0.0033	0.0024	0.0088	0.0104	0.0112	0.0400	0.0020	0.0010	0.0052
2017	0.2944	0.0992	0.3304	0.1018	0.0468	0.0392	0.0039	0.0033	0.0024	0.0088	0.0104	0.0113	0.0401	0.0020	0.0010	0.0051
2018	0.2892	0.1001	0.3332	0.1027	0.0472	0.0393	0.0039	0.0033	0.0024	0.0088	0.0104	0.0113	0.0402	0.0020	0.0010	0.0051
2019	0.2846	0.1008	0.3357	0.1035	0.0476	0.0394	0.0039	0.0033	0.0025	0.0088	0.0104	0.0113	0.0403	0.0020	0.0010	0.0051
2020 - 2050	0.2793	0.1017	0.3384	0.1043	0.0480	0.0396	0.0039	0.0033	0.0025	0.0089	0.0105	0.0114	0.0405	0.0020	0.0010	0.0051

Figure B.2: Vehicle Miles traveled Fraction (Source: EPA, 2003c).

El Paso Registration Distribution

Year	LDV	LDT1	LDT2	LDT3	LDT4	HDV2b	HDV3	HDV4	HDV5	HDV6	HDV7	HDV8a	HDV8b	HDBS*	HDBT*	MC
2007	0.05917	0.03092	0.03092	0.10352	0.10352	0.06474	0.01468	0.04727	0.05051	0.01420	0.01575	0.00487	0.12690	0.03930	0.03070	0.09876
2006	0.06987	0.04620	0.04620	0.13405	0.13405	0.13989	0.06608	0.05455	0.04040	0.02699	0.03150	0.01460	0.11102	0.07340	0.06140	0.17039
2005	0.06740	0.04568	0.04568	0.11632	0.11632	0.14889	0.04846	0.02545	0.05556	0.04119	0.00394	0.01703	0.09425	0.06860	0.06140	0.11824
2004	0.06517	0.05484	0.05484	0.14123	0.14123	0.09546	0.04552	0.07273	0.01010	0.04119	0.01181	0.03163	0.04263	0.06410	0.06140	0.08086
2003	0.06682	0.05846	0.05846	0.06979	0.06979	0.08979	0.03965	0.01455	0.03030	0.01847	0.02362	0.00973	0.05233	0.05990	0.06140	0.09887
2002	0.06898	0.06328	0.06328	0.07035	0.07035	0.06758	0.04846	0.03273	0.01515	0.02273	0.02756	0.00000	0.02980	0.05590	0.06140	0.07230
2001	0.06195	0.06781	0.06781	0.05202	0.05202	0.06427	0.06021	0.05455	0.05051	0.05114	0.02362	0.02676	0.06647	0.05220	0.06140	0.05068
2000	0.06727	0.06466	0.06466	0.04021	0.04021	0.04915	0.06461	0.12723	0.07071	0.08097	0.09841	0.01946	0.10496	0.04880	0.06140	0.04358
1999	0.06013	0.05543	0.05543	0.04640	0.04640	0.04679	0.08957	0.09455	0.06061	0.07670	0.07480	0.02920	0.08950	0.04560	0.06140	0.04110
1998	0.05720	0.05410	0.05410	0.02824	0.02824	0.03355	0.04552	0.03636	0.03030	0.06392	0.03937	0.03163	0.05859	0.04260	0.06130	0.02748
1997	0.05065	0.05576	0.05576	0.03399	0.03399	0.03355	0.04552	0.05818	0.04545	0.04119	0.04724	0.04136	0.04192	0.03980	0.06110	0.02016
1996	0.04230	0.03707	0.03707	0.01998	0.01998	0.00851	0.03231	0.06182	0.04545	0.04972	0.01575	0.04623	0.03445	0.03720	0.06070	0.01937
1995	0.04572	0.04294	0.04294	0.02322	0.02322	0.02268	0.04846	0.03273	0.05556	0.05682	0.06299	0.06326	0.03657	0.03470	0.05950	0.01363
1994	0.03613	0.04321	0.04321	0.01626	0.01626	0.01701	0.04846	0.00364	0.03030	0.04119	0.05118	0.04866	0.02818	0.03240	0.05680	0.01306
1993	0.03098	0.03104	0.03104	0.01401	0.01401	0.01371	0.02349	0.02182	0.03535	0.02699	0.04724	0.06083	0.02162	0.03030	0.05110	0.01002
1992	0.02556	0.02476	0.02476	0.01137	0.01137	0.00945	0.03084	0.01455	0.00000	0.03409	0.05512	0.05109	0.00576	0.02830	0.04060	0.00676
1991	0.02094	0.02100	0.02100	0.00800	0.00800	0.01323	0.02496	0.01818	0.02525	0.03125	0.04331	0.07299	0.00899	0.02640	0.02540	0.00709
1990	0.01806	0.01966	0.01966	0.00800	0.00800	0.00992	0.03231	0.03273	0.04040	0.03835	0.04331	0.06569	0.00798	0.02470	0.01210	0.00619
1989	0.01597	0.02045	0.02045	0.01033	0.01033	0.01087	0.02203	0.01818	0.01010	0.02131	0.03937	0.07056	0.00737	0.02310	0.00990	0.00315
1988	0.01278	0.02155	0.02155	0.00670	0.00670	0.01040	0.02203	0.01455	0.06061	0.01847	0.05118	0.02676	0.00566	0.02160	0.00810	0.00473
1987	0.00970	0.01453	0.01453	0.00329	0.00329	0.00520	0.01468	0.01455	0.01010	0.02983	0.01969	0.05353	0.00434	0.02010	0.00660	0.00507
1986	0.00771	0.01675	0.01675	0.00523	0.00523	0.01181	0.01468	0.02182	0.04040	0.02983	0.03937	0.04136	0.00414	0.01880	0.00540	0.00957
1985	0.00638	0.01388	0.01388	0.00493	0.00493	0.00378	0.01909	0.01091	0.02525	0.01420	0.03150	0.03163	0.00354	0.01760	0.00440	0.00687
1984	0.00493	0.01182	0.01182	0.00419	0.00419	0.00378	0.00441	0.01455	0.02020	0.01278	0.01969	0.02676	0.00313	0.01650	0.00370	0.00766
1983+	0.02823	0.08420	0.08420	0.02837	0.02837	0.02599	0.09397	0.10182	0.14143	0.11648	0.08268	0.11438	0.00990	0.07810	0.01140	0.06441

* MOBILE6 defaults.

Figure B.3: Registration Distribution (Source: TCR, 2007).

2007 Diesel Fractions

Year	LDV	LDT1	LDT2	LDT3	LDT4	HDV2b	HDV3	HDV4	HDV5	HDV6	HDV7	HDV8a	HDV8b	HDBS
2007	0.00090	0.00000	0.00000	0.01260	0.01260	0.76069	0.79270	0.92692	0.96661	0.97885	0.98163	0.99434	0.99682	0.95850
2006	0.00090	0.00000	0.00000	0.01260	0.01260	0.79428	0.77914	0.84000	0.91566	0.90202	0.92121	0.97289	0.99181	0.95850
2005	0.00090	0.00000	0.00000	0.01260	0.01260	0.82902	0.70657	0.82326	0.89723	0.89349	0.96186	0.97672	0.99786	0.95850
2004	0.00090	0.00000	0.00000	0.01260	0.01260	0.82610	0.67995	0.77034	0.88205	0.90285	0.95759	0.94856	0.99289	0.95850
2003	0.00090	0.00000	0.00000	0.01260	0.01260	0.77125	0.64242	0.73103	0.86364	0.89732	0.98025	0.95499	0.99228	0.95850
2002	0.00090	0.00000	0.00000	0.01260	0.01260	0.74456	0.63914	0.68836	0.88027	0.89821	0.91082	0.94893	0.98305	0.95850
2001	0.00090	0.00000	0.00000	0.01260	0.01260	0.69969	0.62871	0.69637	0.83927	0.89956	0.92060	0.94679	0.98176	0.95850
2000	0.00090	0.00000	0.00000	0.01260	0.01260	0.57215	0.64853	0.72013	0.89311	0.86784	0.91537	0.94026	0.98941	0.95850
1999	0.00090	0.00000	0.00000	0.01260	0.01260	0.61486	0.60990	0.64670	0.86552	0.83874	0.90040	0.95794	0.97856	0.95850
1998	0.00090	0.00000	0.00000	0.01260	0.01260	0.51449	0.48475	0.69782	0.66569	0.80527	0.84868	0.95036	0.97759	0.95850
1997	0.00090	0.00000	0.00000	0.01260	0.01260	0.44732	0.55205	0.74700	0.72997	0.79706	0.78530	0.91550	0.95181	0.95850
1996	0.00090	0.00000	0.00000	0.01260	0.01260	0.42878	0.53542	0.64602	0.78814	0.80543	0.83238	0.93012	0.98534	0.95850
1995	0.00060	0.00000	0.00000	0.01150	0.01150	0.21413	0.33631	0.42857	0.50485	0.60943	0.59714	0.77981	0.74033	0.88570
1994	0.00010	0.00000	0.00000	0.01110	0.01110	0.39673	0.53474	0.64167	0.65000	0.80293	0.85342	0.95126	0.96416	0.85250
1993	0.00030	0.00000	0.00000	0.01450	0.01450	0.36929	0.54220	0.64262	0.70667	0.77074	0.87436	0.94941	0.96729	0.87950
1992	0.00060	0.00000	0.00000	0.01150	0.01150	0.35330	0.59110	0.61905	0.61658	0.61965	0.86510	0.95359	0.98246	0.99000
1991	0.00130	0.00000	0.00000	0.01290	0.01290	0.36510	0.46833	0.69091	0.75563	0.68790	0.87537	0.93003	0.91011	0.91050
1990	0.00040	0.00000	0.00000	0.00960	0.00960	0.31779	0.57987	0.54895	0.61967	0.74823	0.85263	0.93369	0.93671	0.87600
1989	0.00040	0.00000	0.00000	0.00830	0.00830	0.27536	0.48682	0.64783	0.60727	0.75040	0.86792	0.93950	0.91781	0.77100
1988	0.00010	0.00000	0.00000	0.00720	0.00720	0.21188	0.37229	0.24865	0.37549	0.59173	0.82867	0.94277	0.92857	0.75020
1987	0.00270	0.00070	0.00070	0.00820	0.00820	0.16667	0.27841	0.25180	0.35678	0.69639	0.83721	0.94621	0.93023	0.73450
1986	0.00320	0.00330	0.00330	0.01240	0.01240	0.19508	0.28869	0.09955	0.21457	0.57041	0.76448	0.90167	0.90244	0.67330
1985	0.00970	0.00480	0.00480	0.01350	0.01350	0.15698	0.22419	0.08416	0.24402	0.45203	0.80753	0.92614	0.94286	0.51550
1984	0.01620	0.01200	0.01200	0.01690	0.01690	0.18750	0.26590	0.25610	0.21164	0.51606	0.71958	0.93053	0.96774	0.38450
1983	0.02410	0.02230	0.02230	0.02090	0.02090	0.04126	0.03706	0.04513	0.11612	0.21089	0.48889	0.71442	0.66327	0.32380

Figure B.4: Diesel Fractions (Source: TCR, 2007).

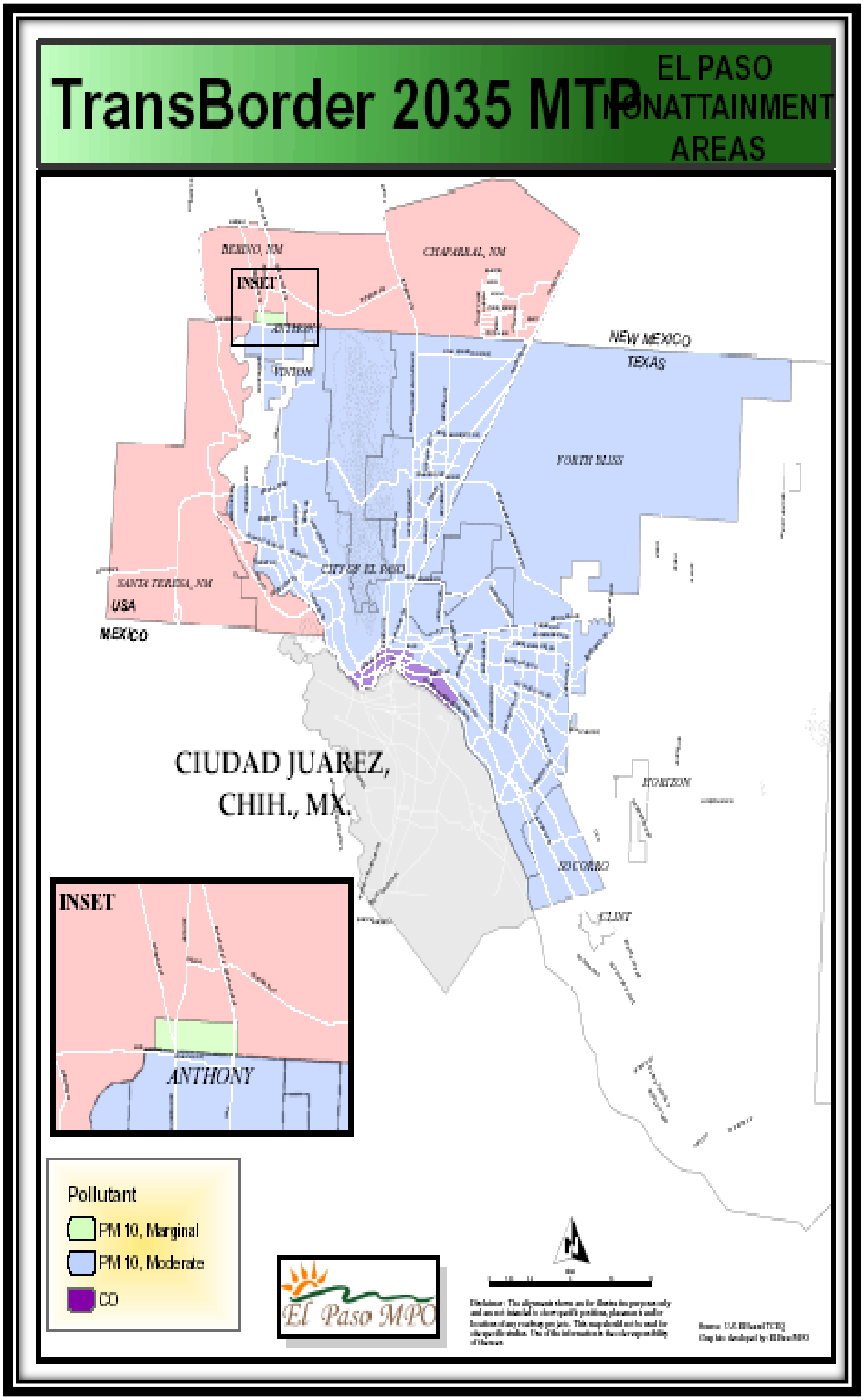


Figure B.5: CO non-attainment Zone (Source: TCR, 2007).

Appendix C

C.1 Summer emission grids

This section of Appendix C presents all summer emission grids for the pollutants and resolutions stated in Chapter 9 in the following order CO, PM10, resuspended PM10, total PM10, VOC, PM2.5, resuspended PM2.5 and total PM2.5. Figure C.1 to Figure C.6 presents the CO emission grids. Figure C.7 to Figure C.12 presents the PM10 emission grids. Figure C.13 to Figure C.18 presents the resuspended PM10 emission grids. Figure C.19 to Figure C.24 presents the total PM10 emission grids. Figure C.25 to Figure C.30 presents the VOC emission grids. Figure C.31 to Figure C.36 presents the PM2.5 emission grids followed by the resuspended PM2.5 emission grids (Figure C.37 to Figure C.42) and Figures C.43 to Figure C.48 present the total PM2.5 emission grids.

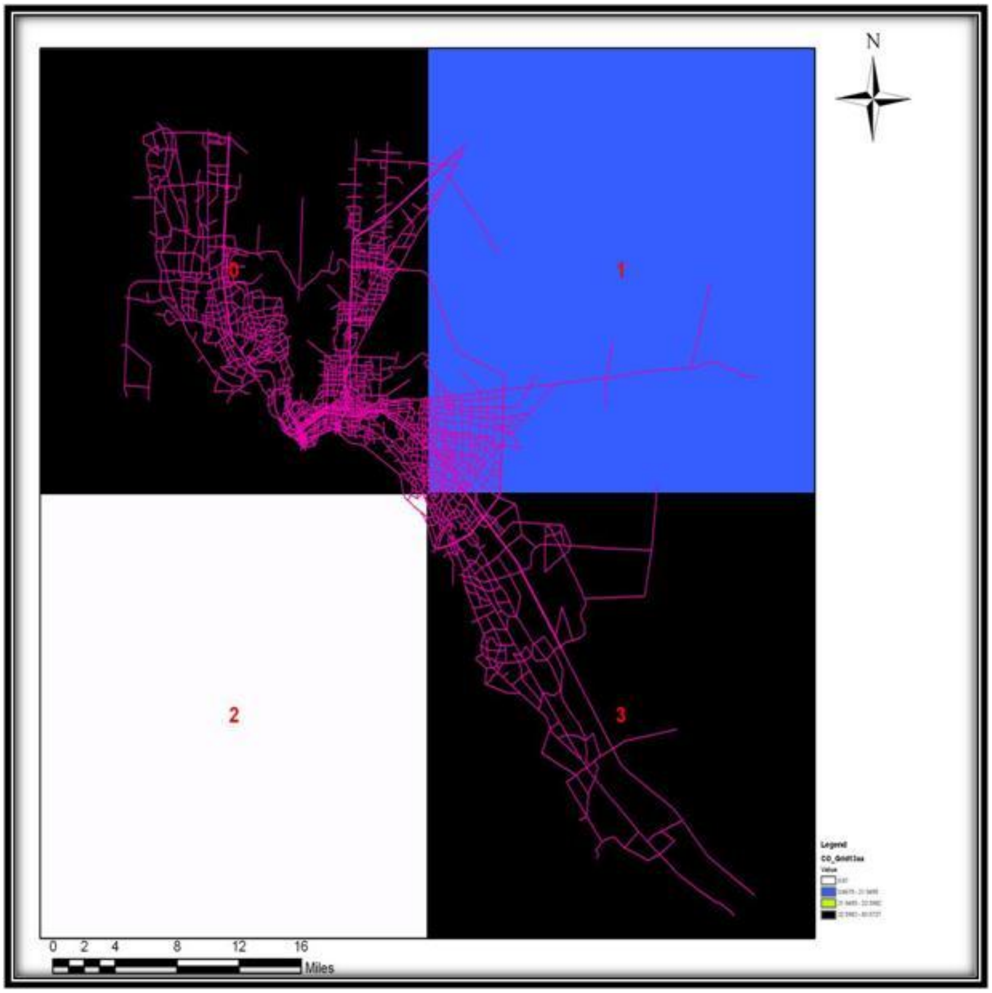


Figure C.1: Summer CO 2x2 emission grid.

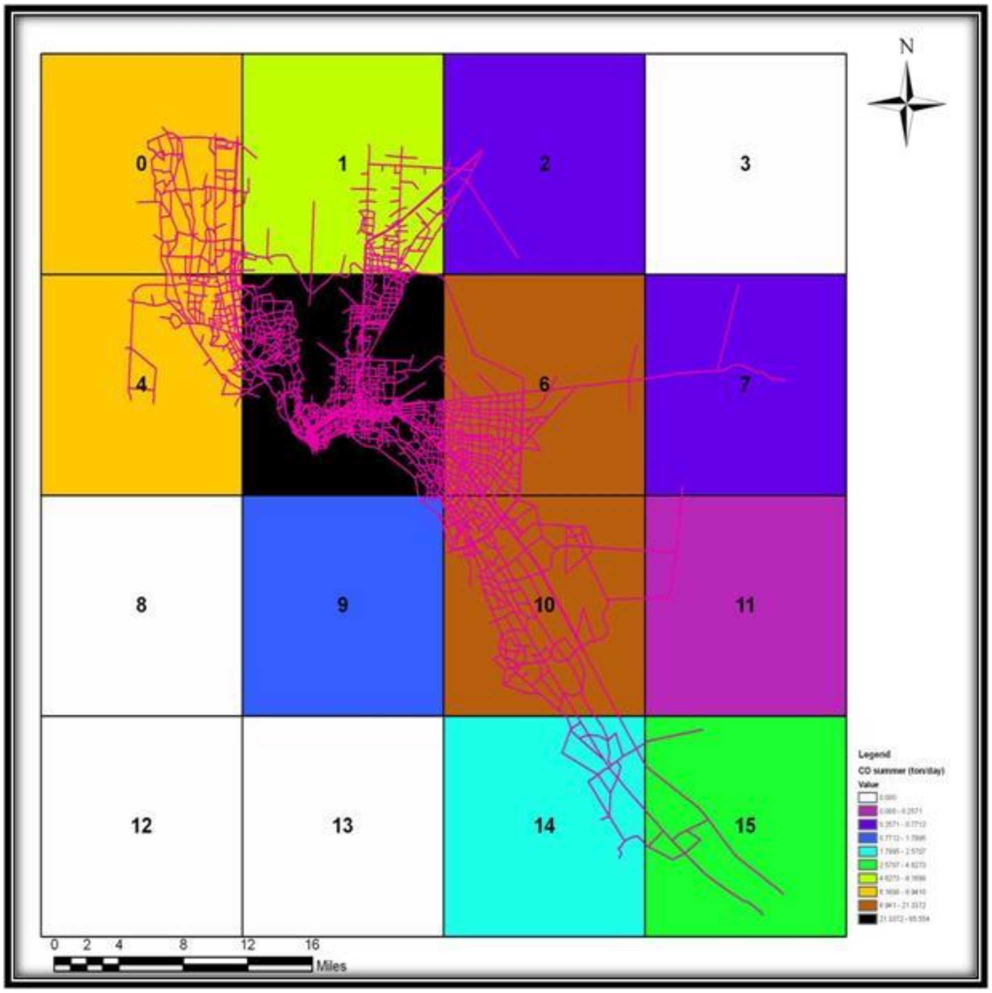


Figure C.2: Summer CO 4x4 emission grid.

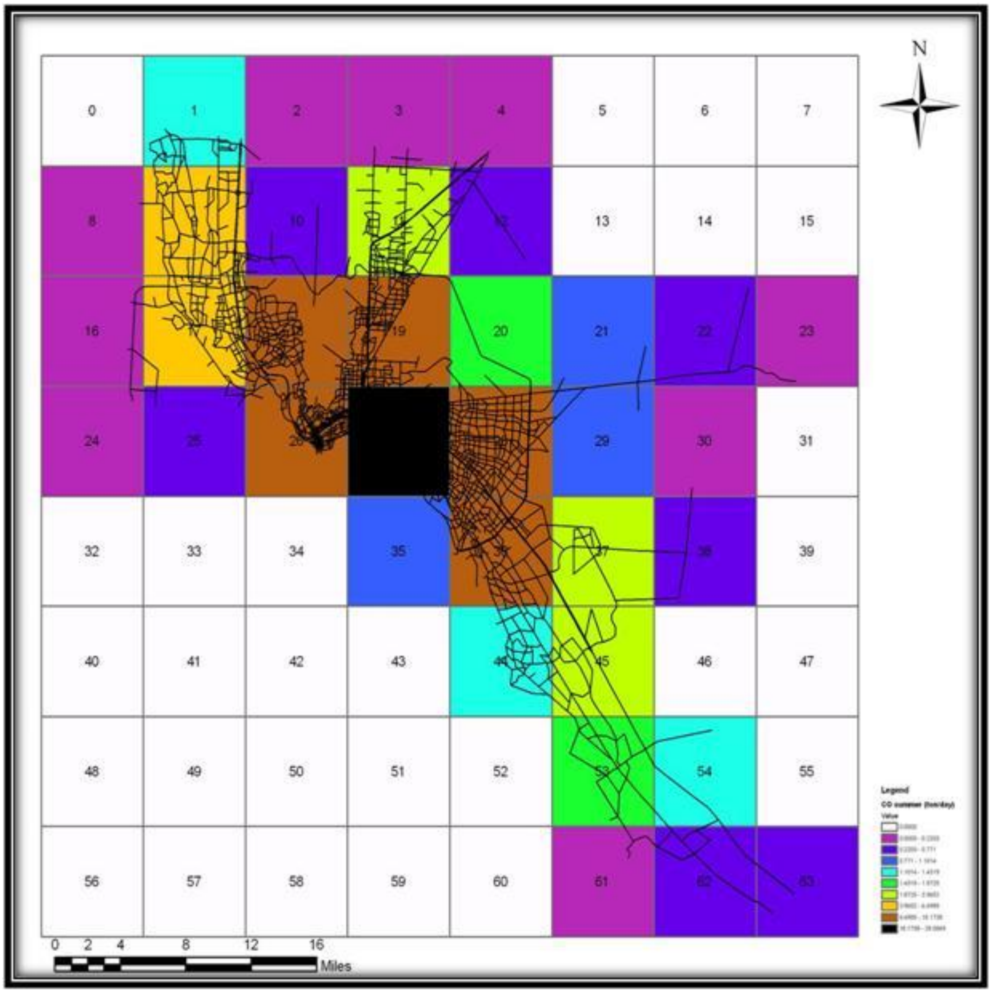


Figure C.3: Summer CO 8x8 emission grid.

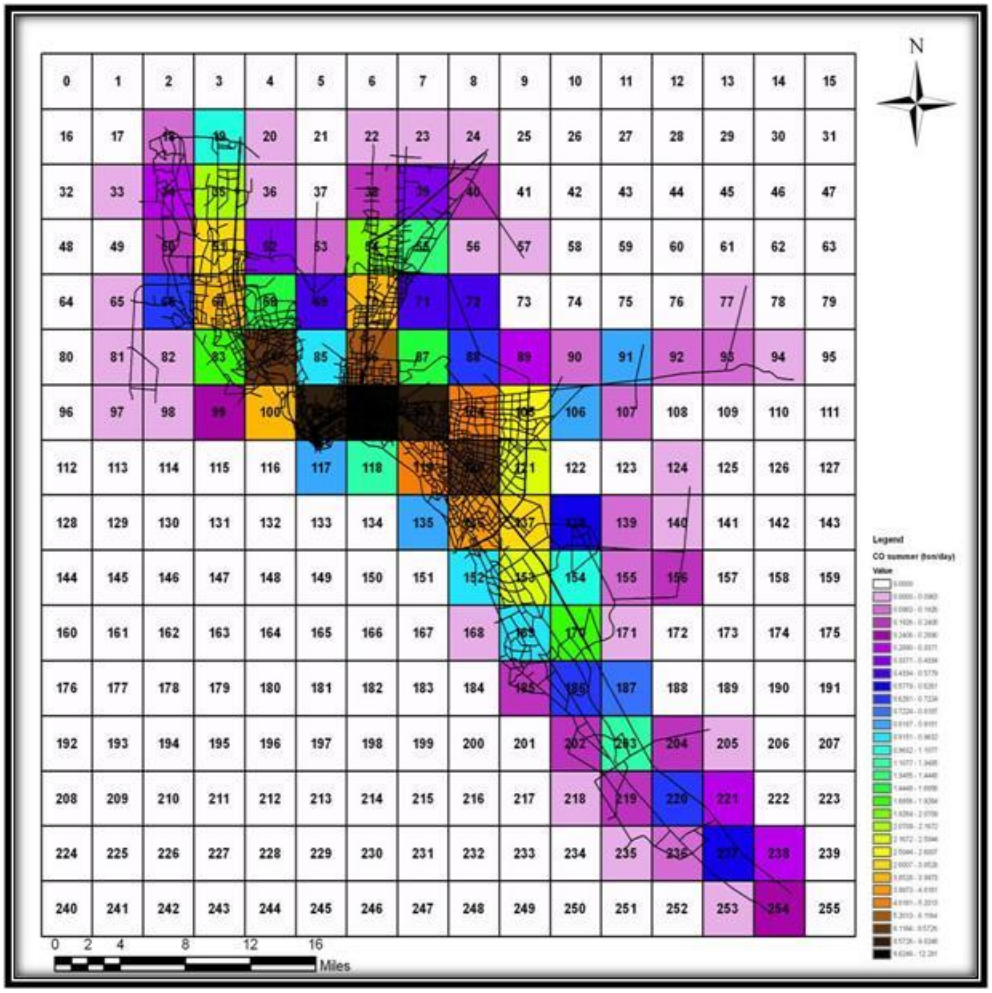


Figure C.4: Summer CO 16x16 emission grid.

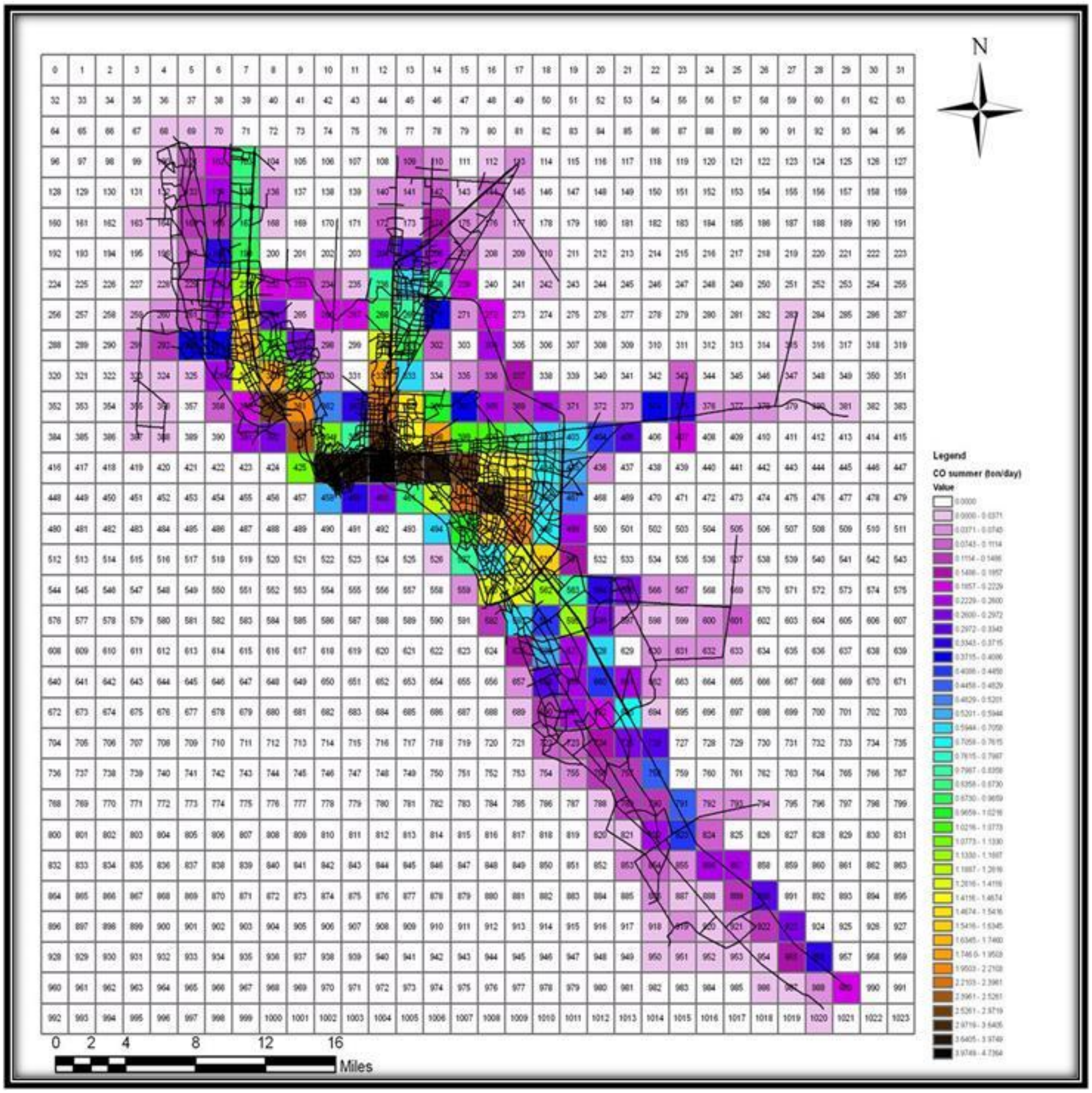


Figure C.5: Summer CO 32x32 emission grid.

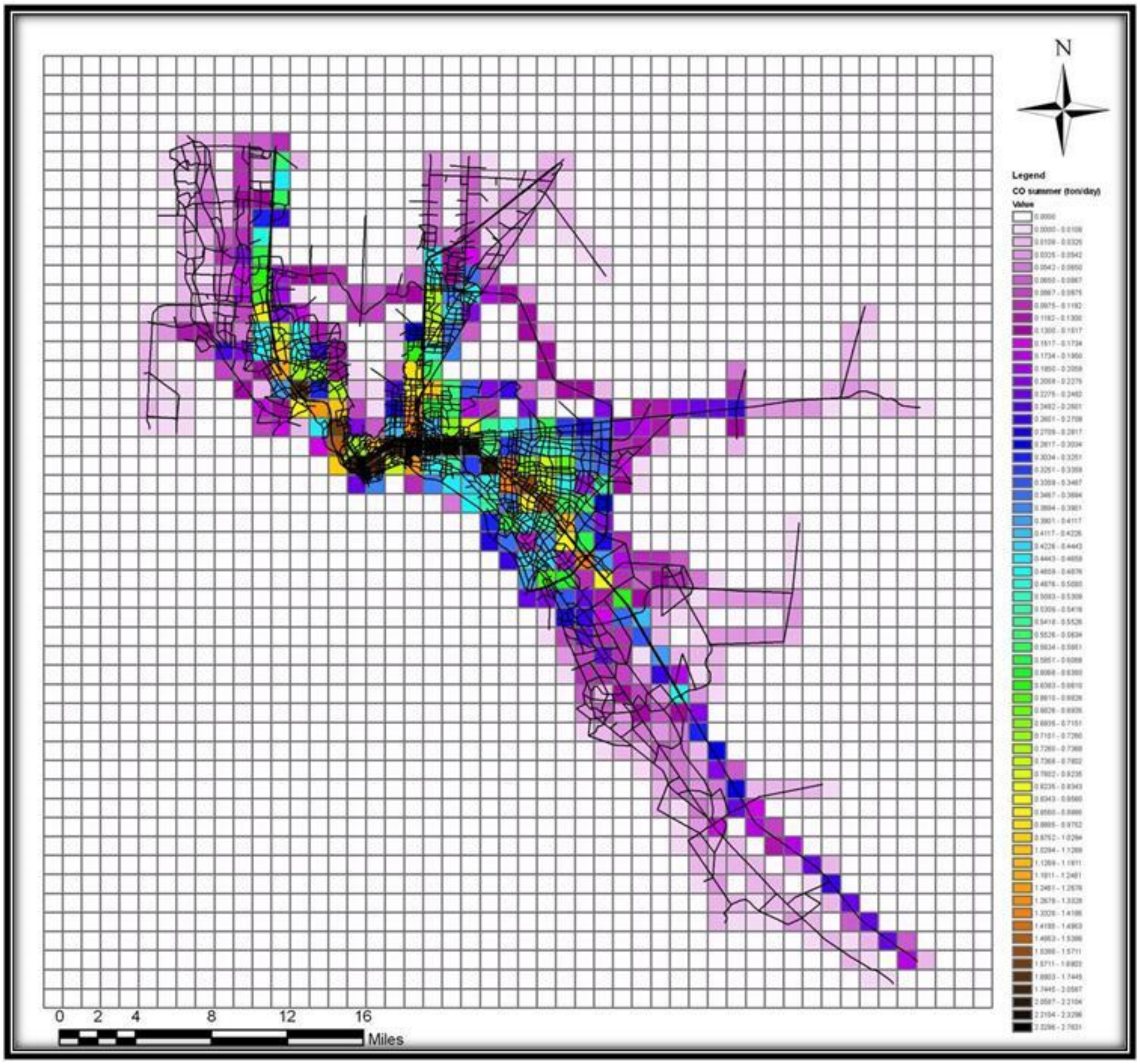


Figure C.6: Summer CO 50x50 emission grid.

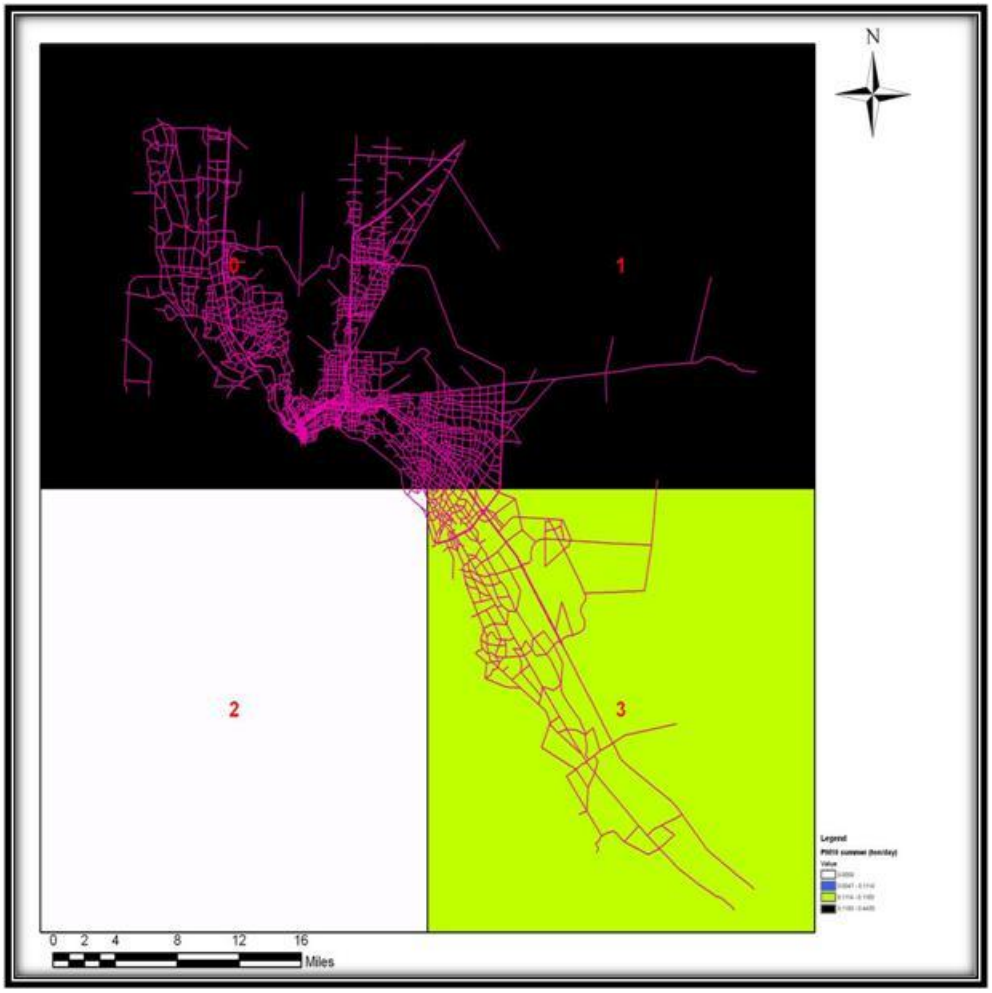


Figure C.7: Summer PM10 2x2 emission grid.

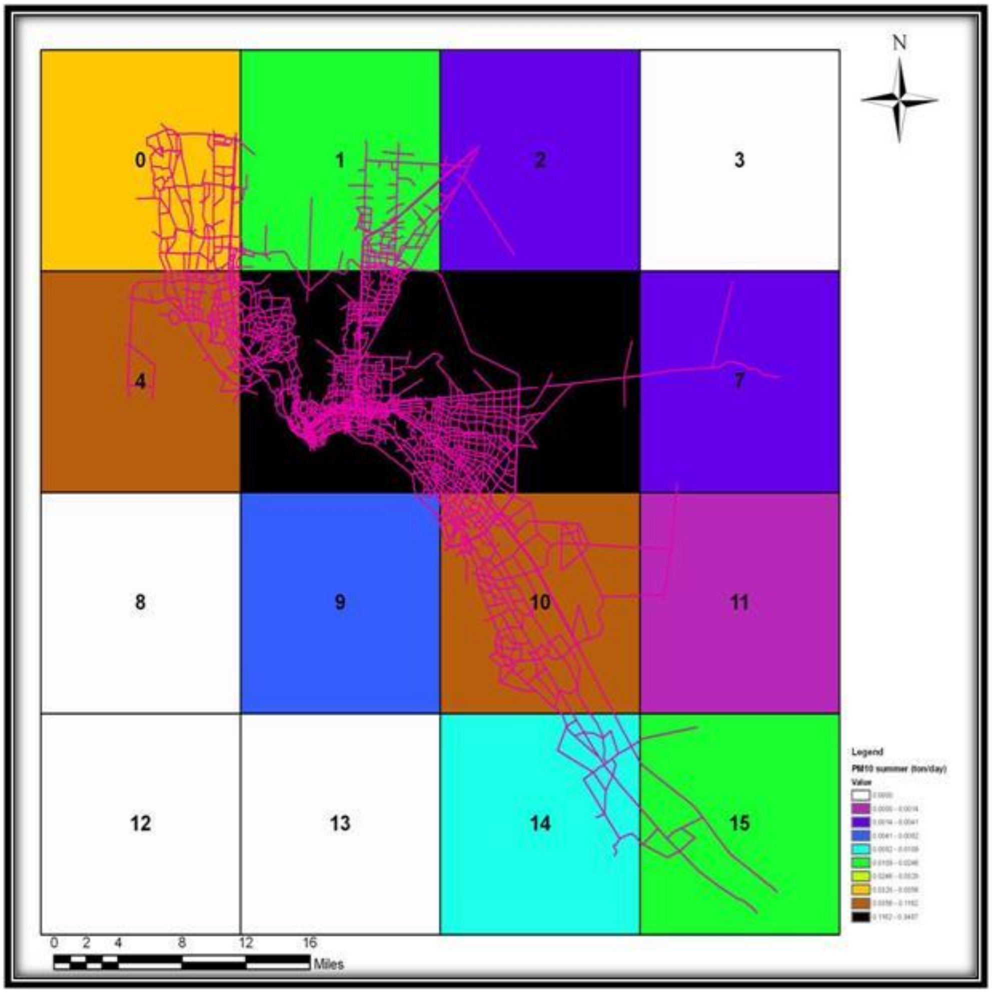


Figure C.8: Summer PM10 4x4 emission grid.

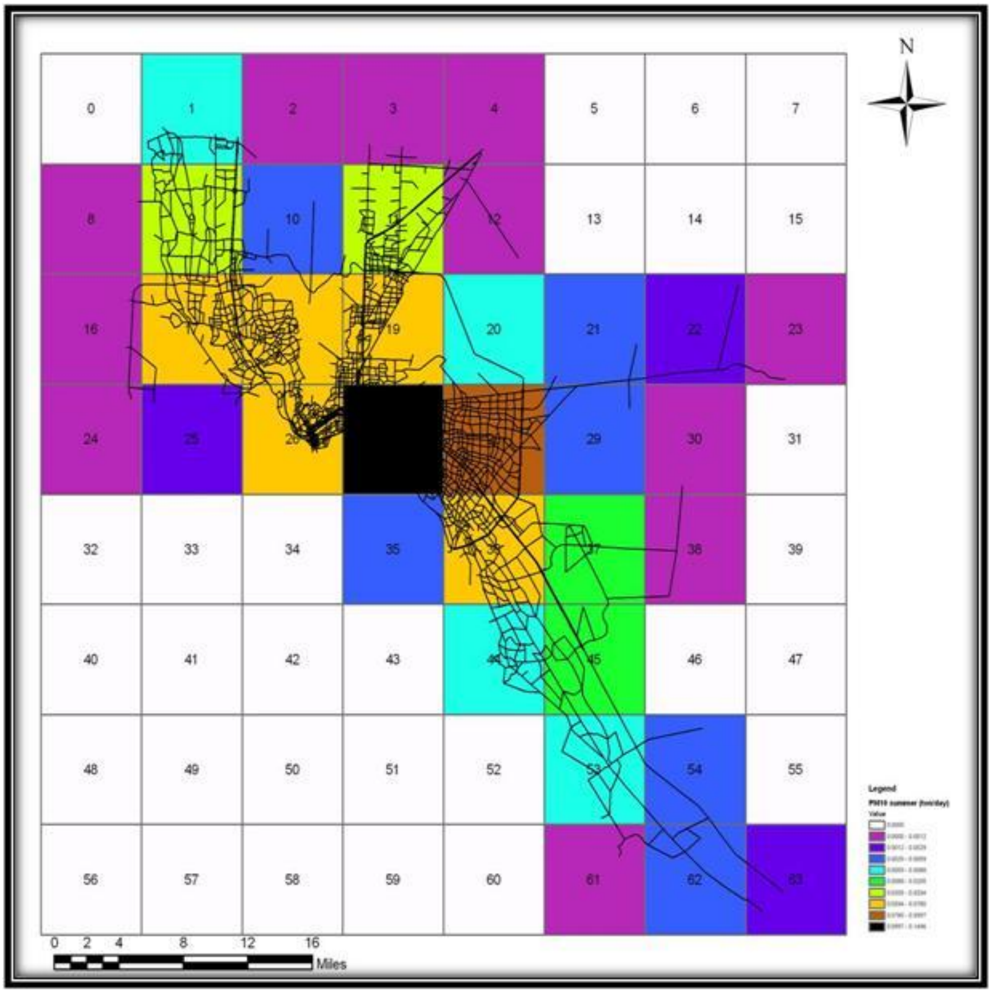


Figure C.9: Summer PM10 8x8 emission grid.

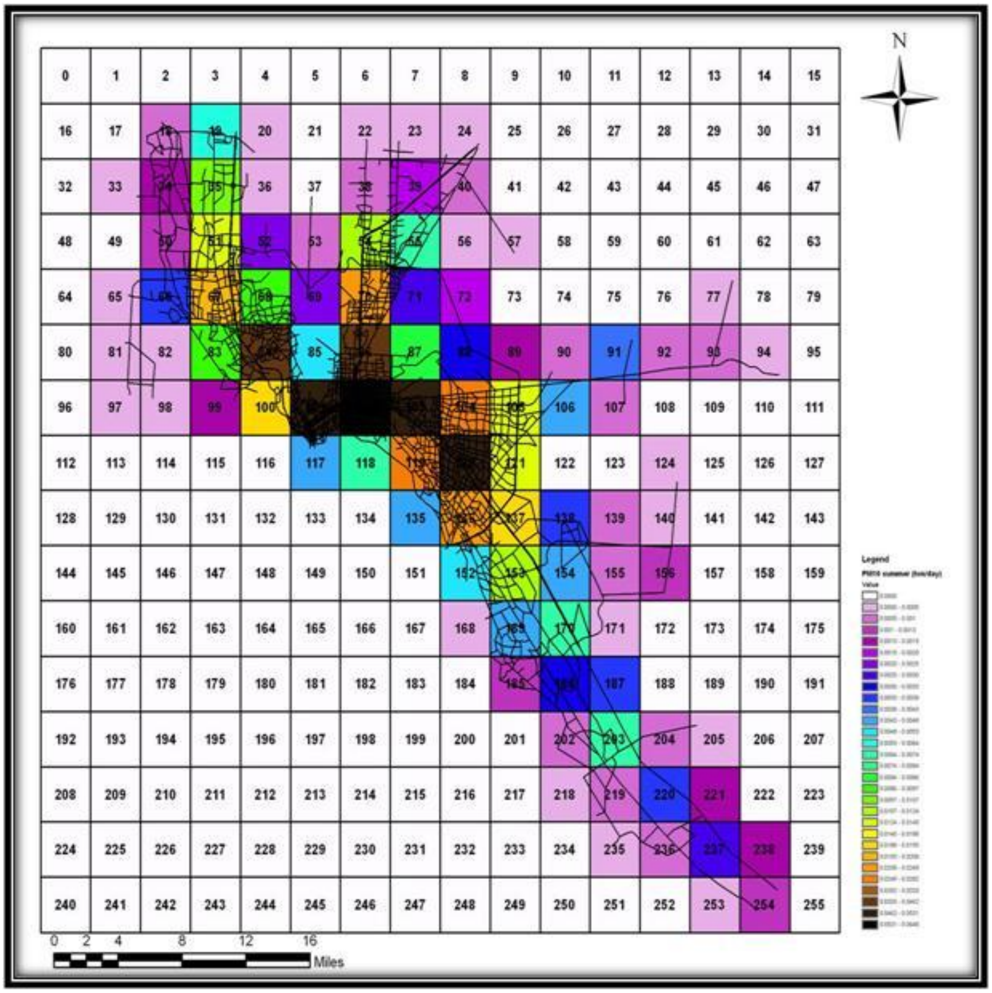


Figure C.10: Summer PM10 16x16 emission grid.

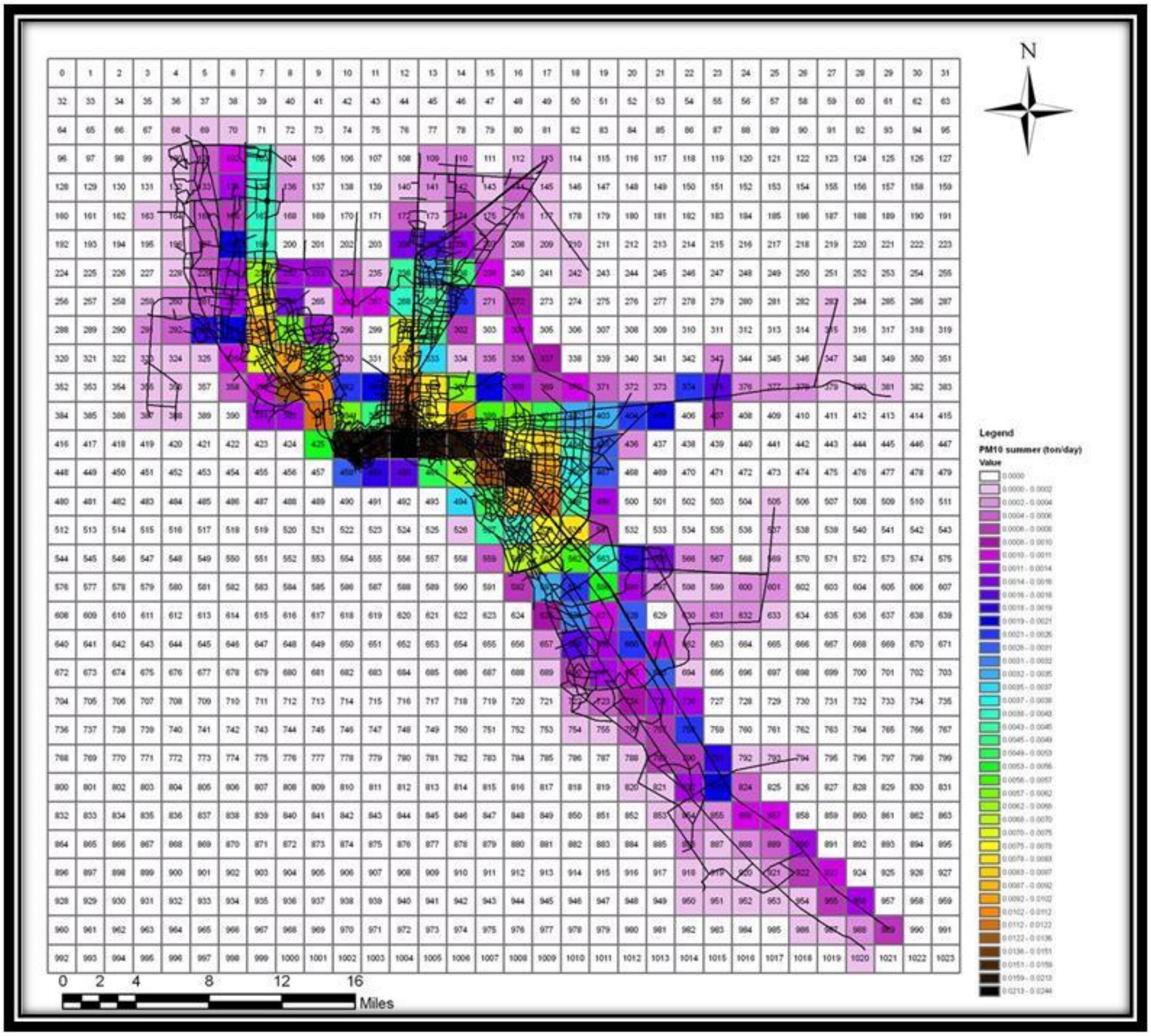


Figure C.11: Summer PM10 32x32 emission grid.

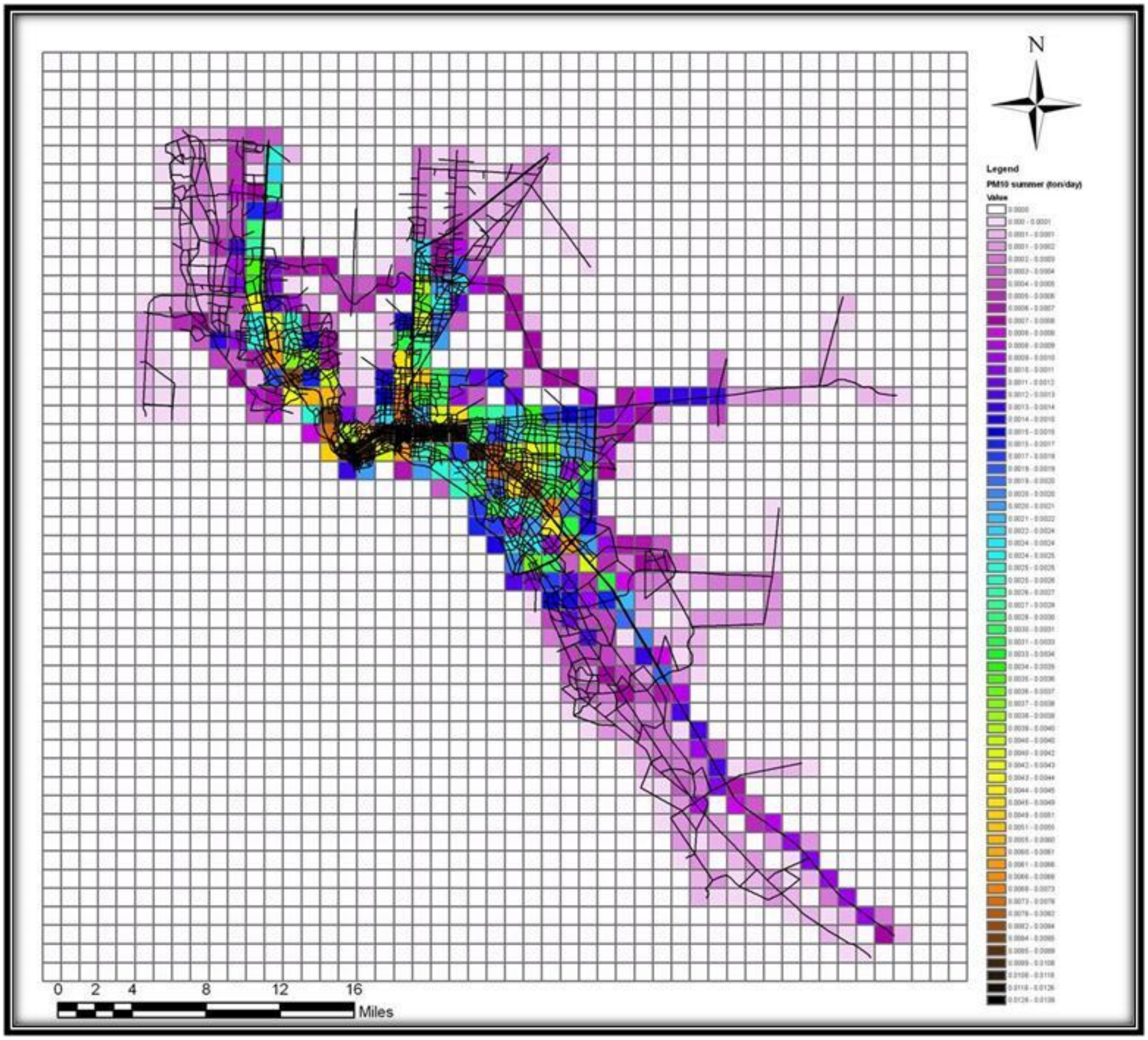


Figure C.12: Summer PM10 50x50 emission grid.

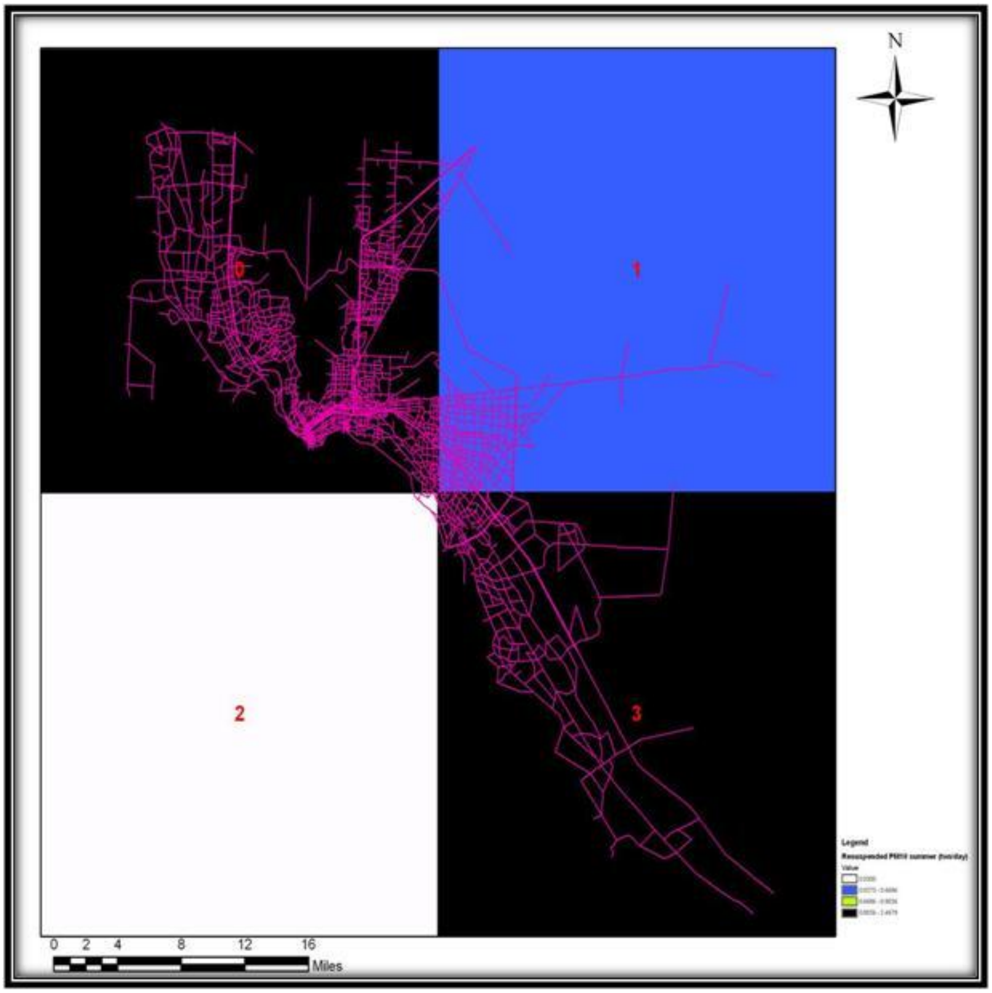


Figure C.13: Summer resuspended PM10 2x2 emission grid.

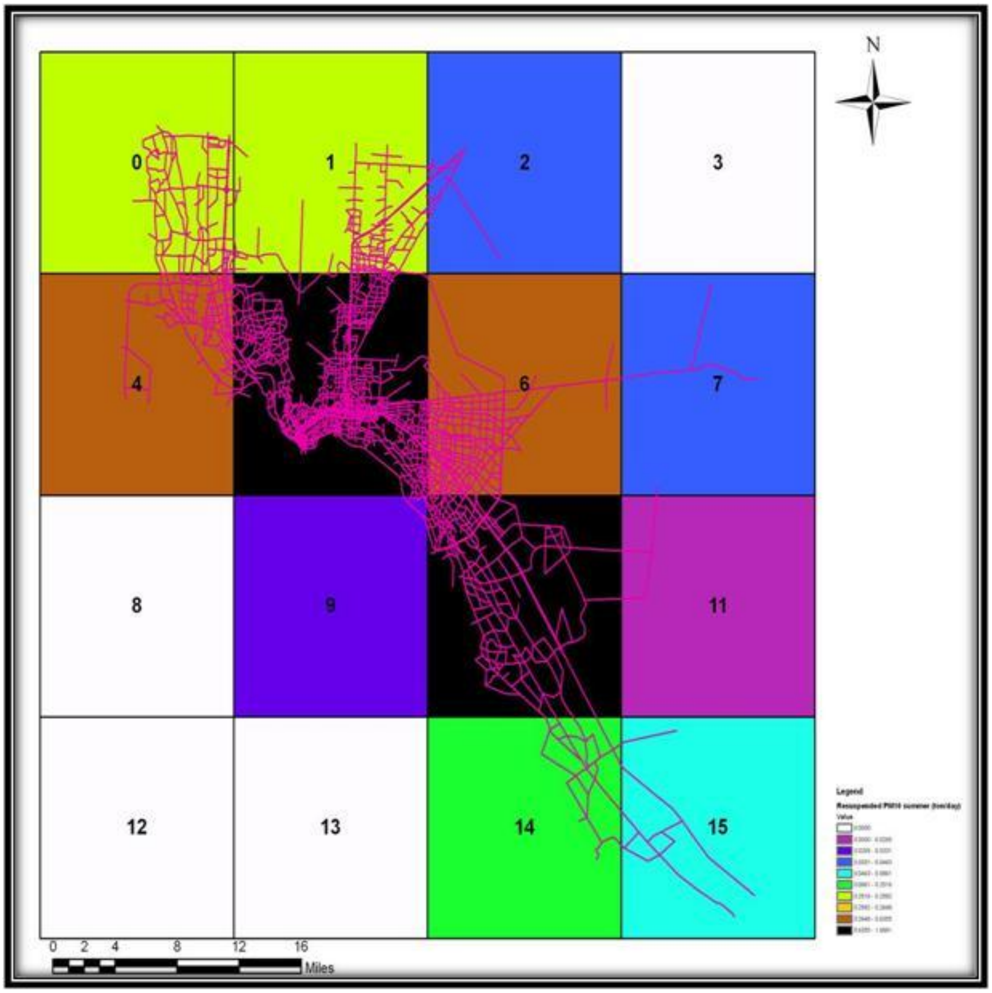


Figure C.14: Summer resuspended PM10 4x4 emission grid.

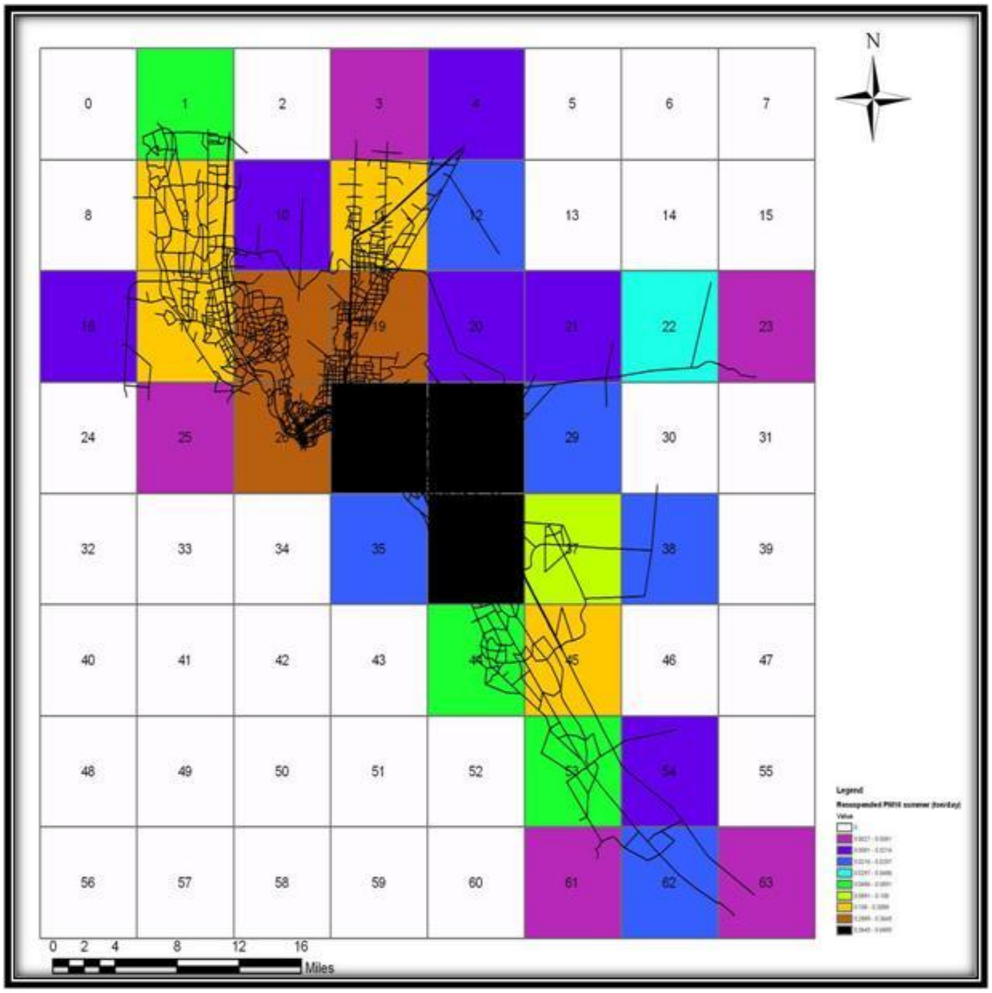


Figure C.15: Summer resuspended PM10 8x8 emission grid.

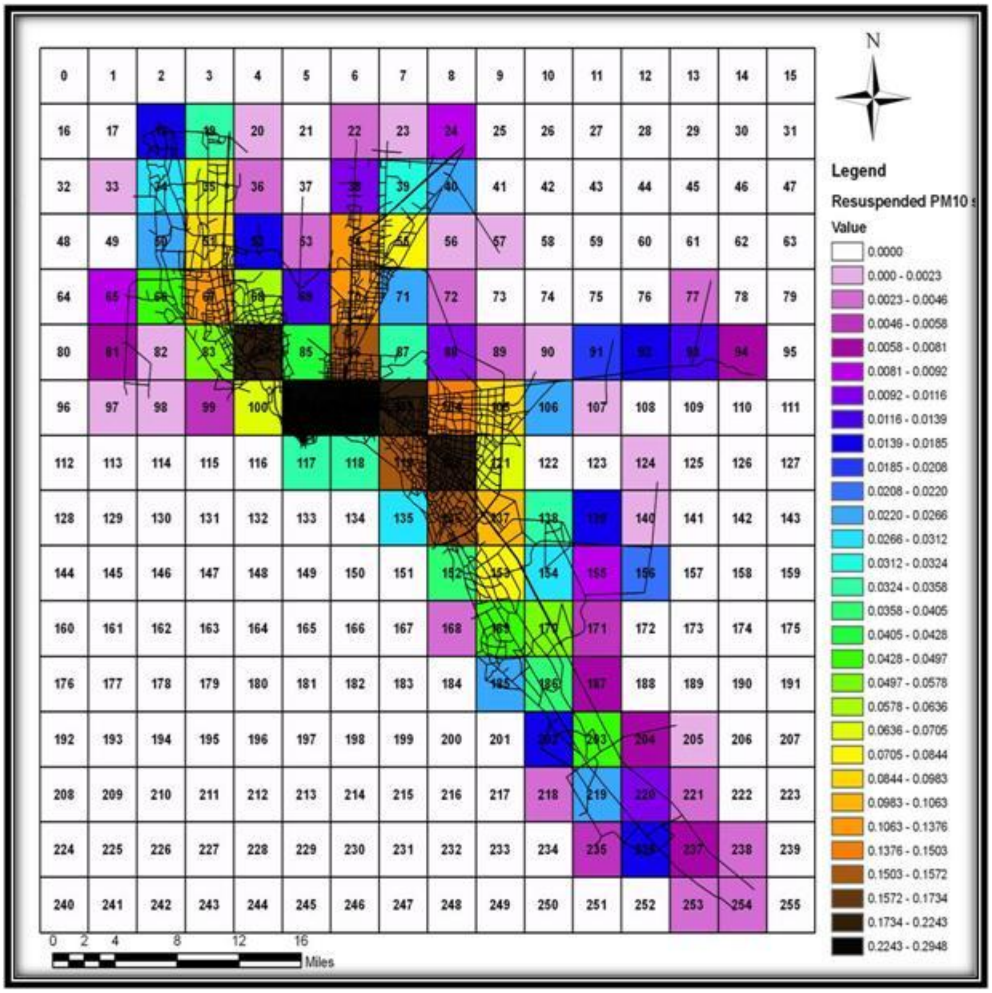


Figure C.16: Summer resuspended PM10 16x16 emission grid.

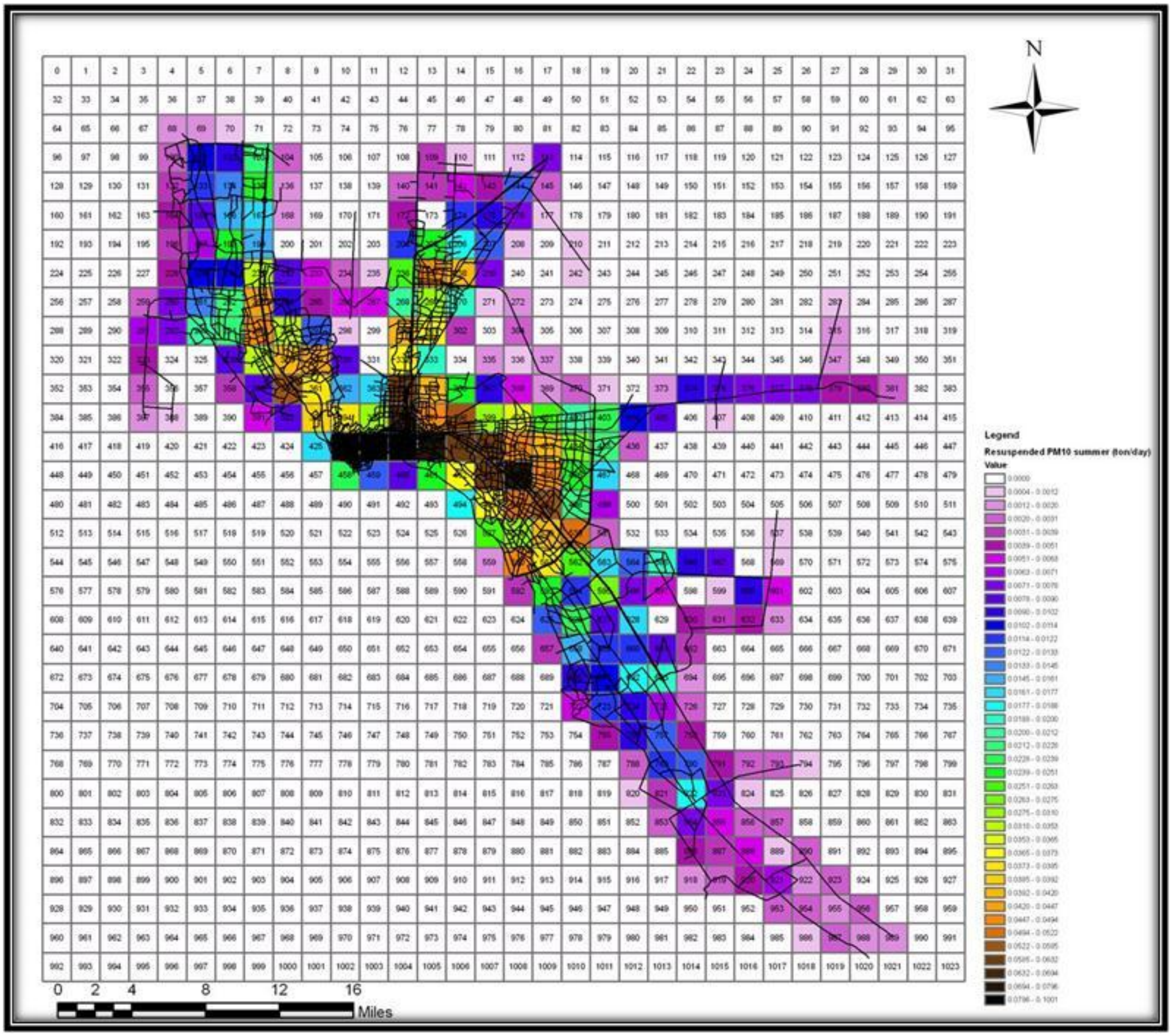


Figure C.17: Summer resuspended PM10 32x32 emission grid.

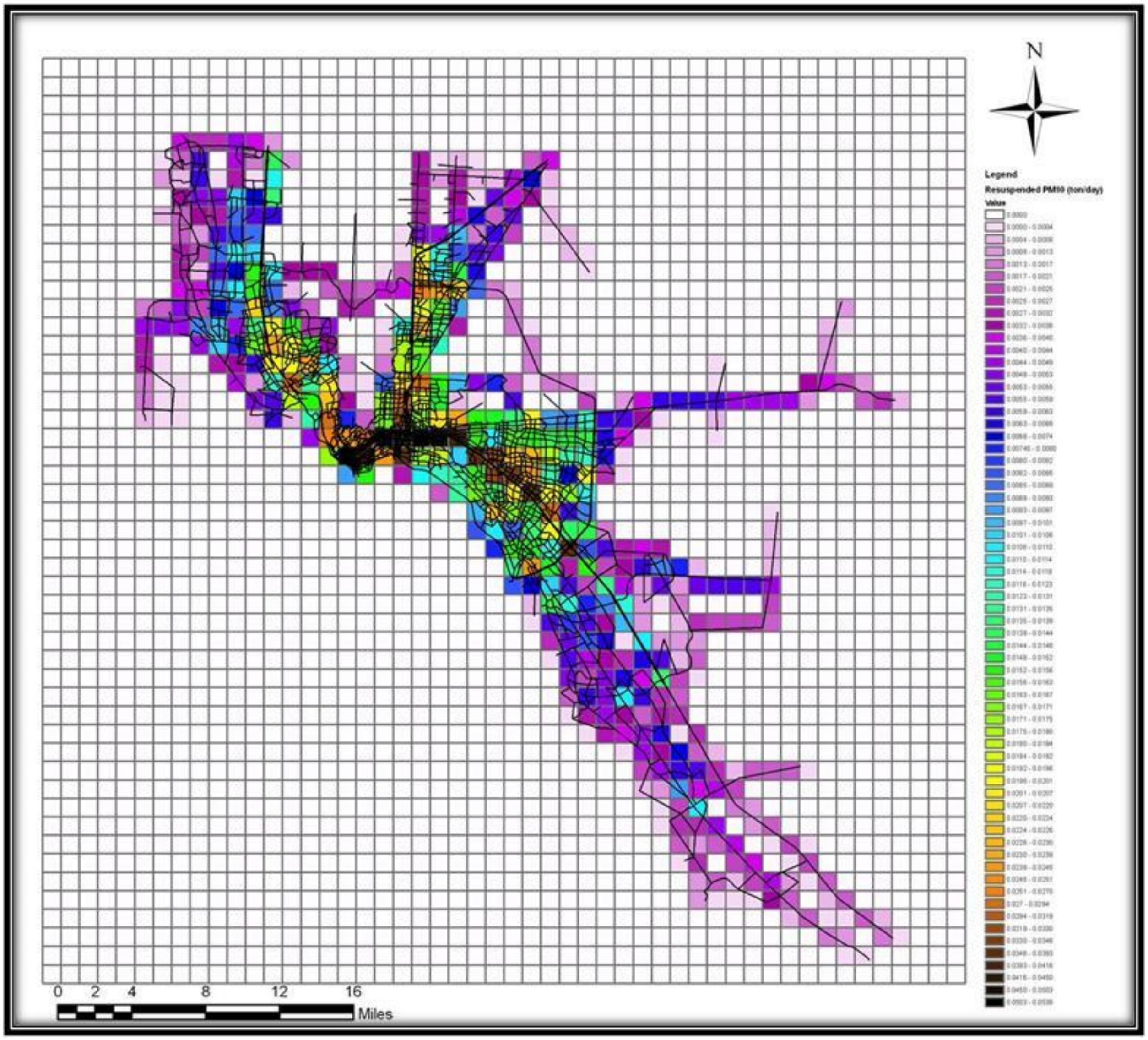


Figure C.18: Summer resuspended PM10 50x50 emission grid.

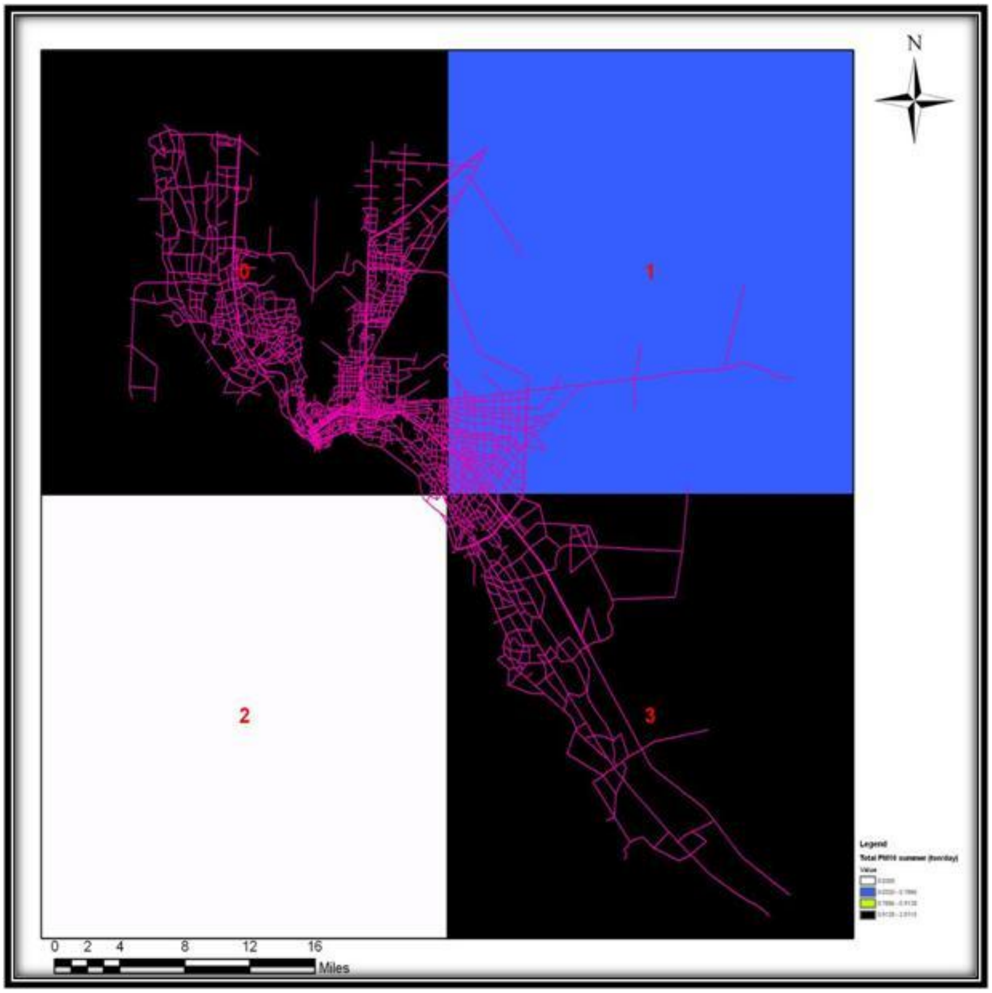


Figure C.19: Summer total PM10 2x2 emission grid.

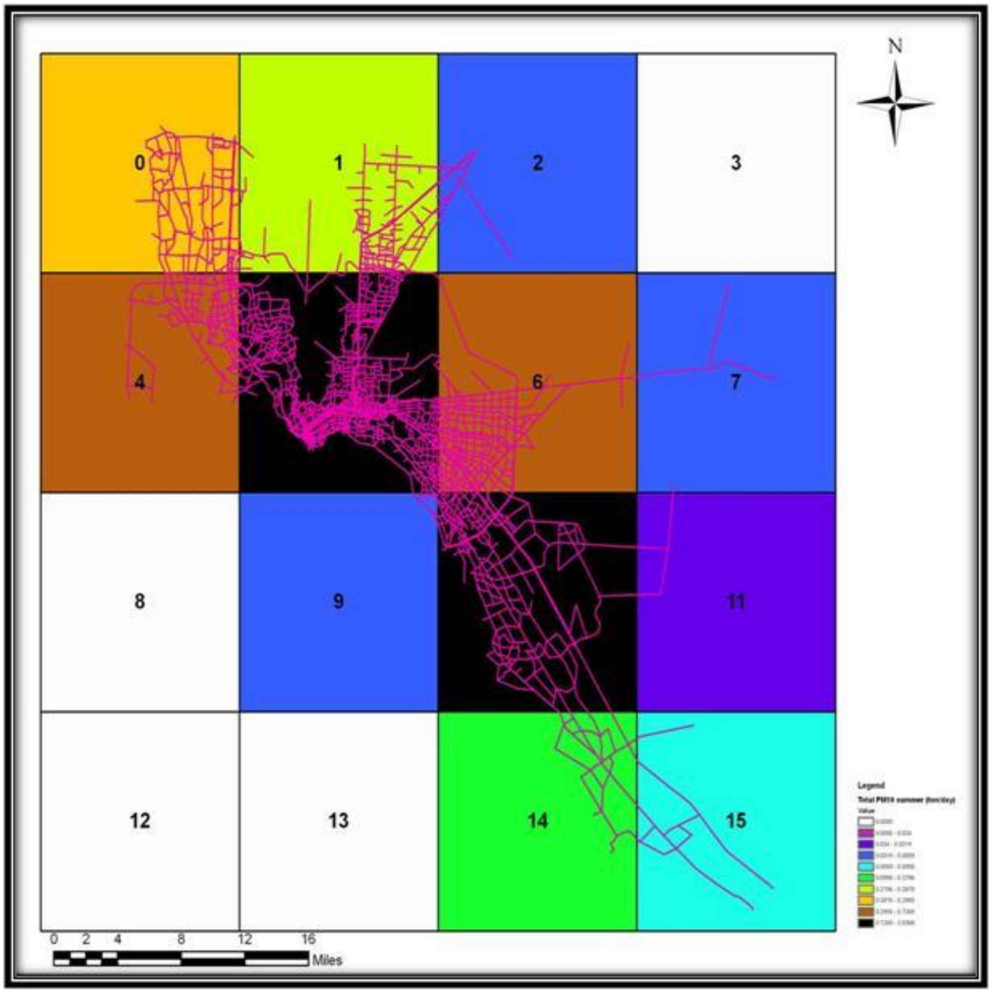


Figure C.20: Summer total PM10 4x4 emission grid.

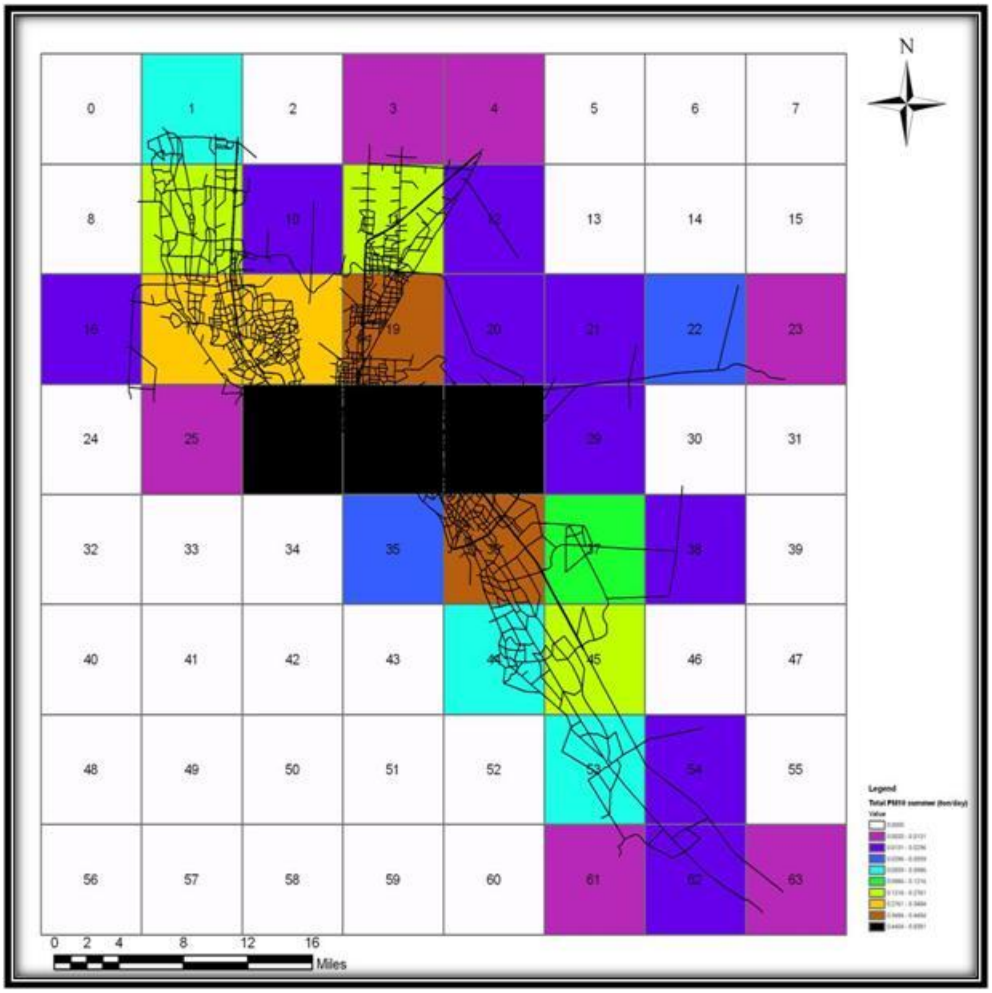


Figure C.21: Summer total PM10 8x8 emission grid.

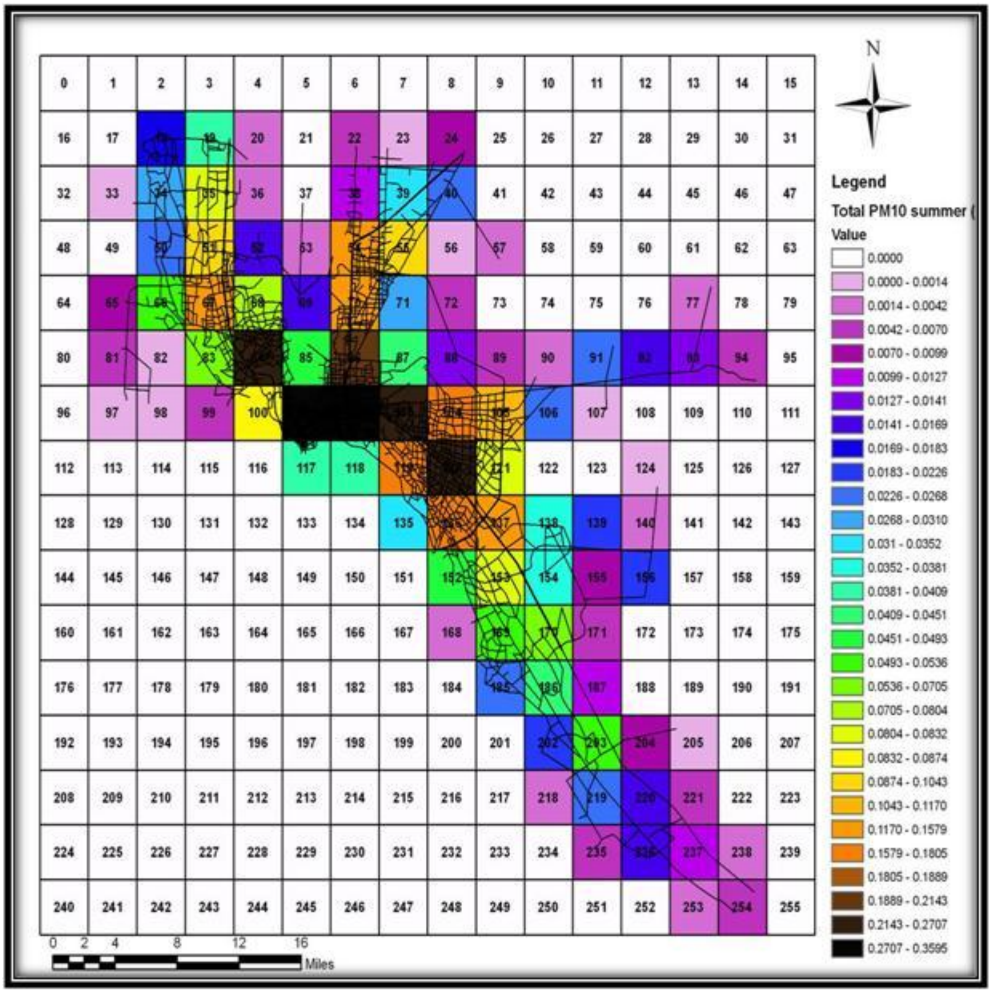


Figure C.22: Summer total PM10 16x16 emission grid.

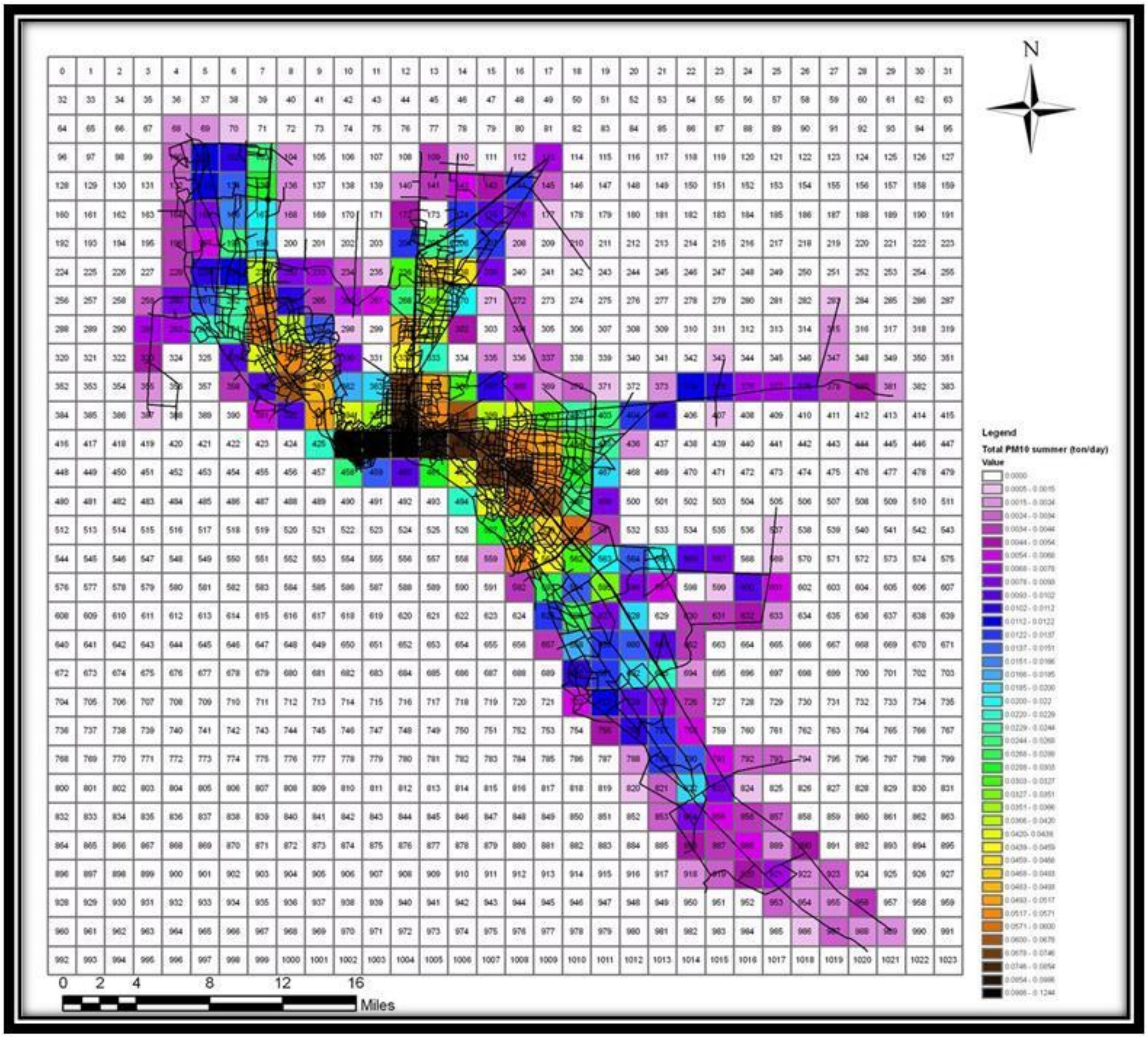


Figure C.23: Summer total PM10 32x32 emission grid.

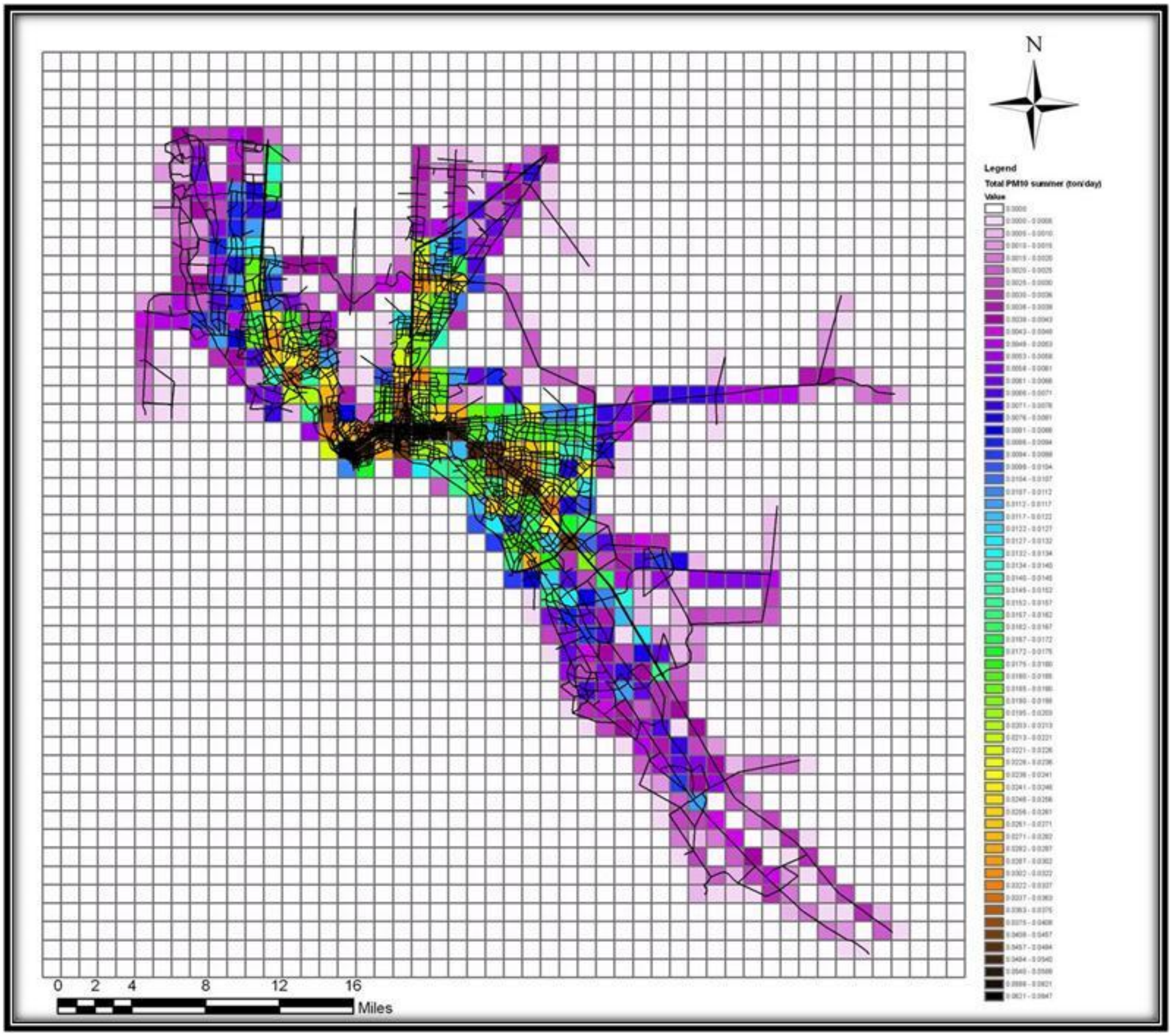


Figure C.24: Summer total PM10 50x50 emission grid.

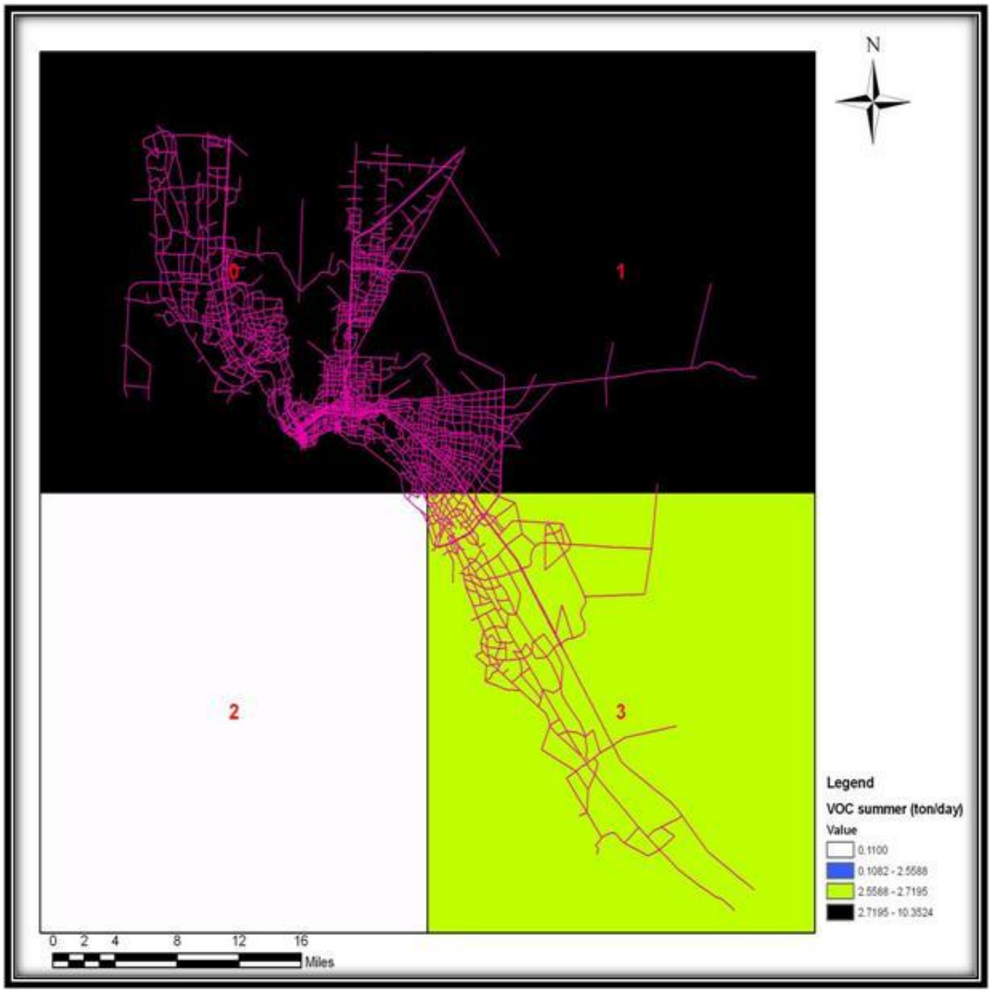


Figure C.25: Summer VOC 2x2 emission grid.

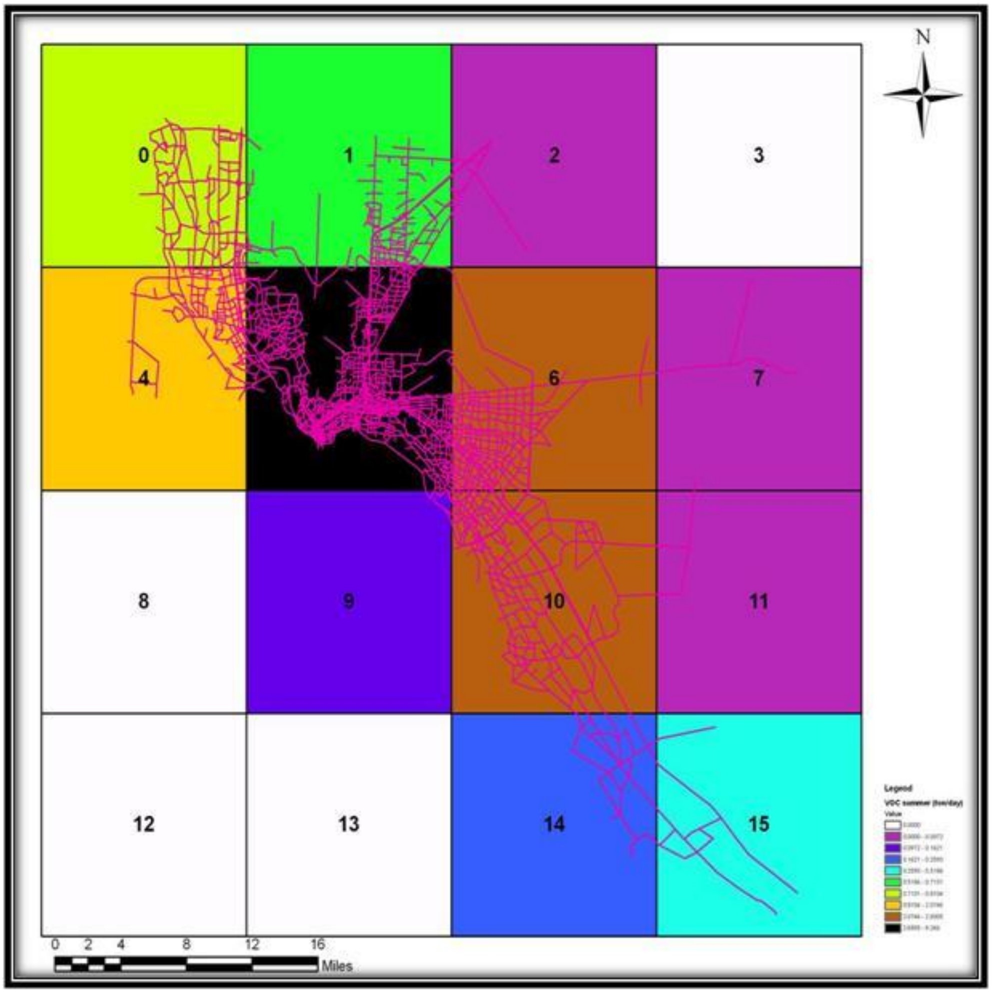


Figure C.26: Summer VOC 4x4 emission grid.

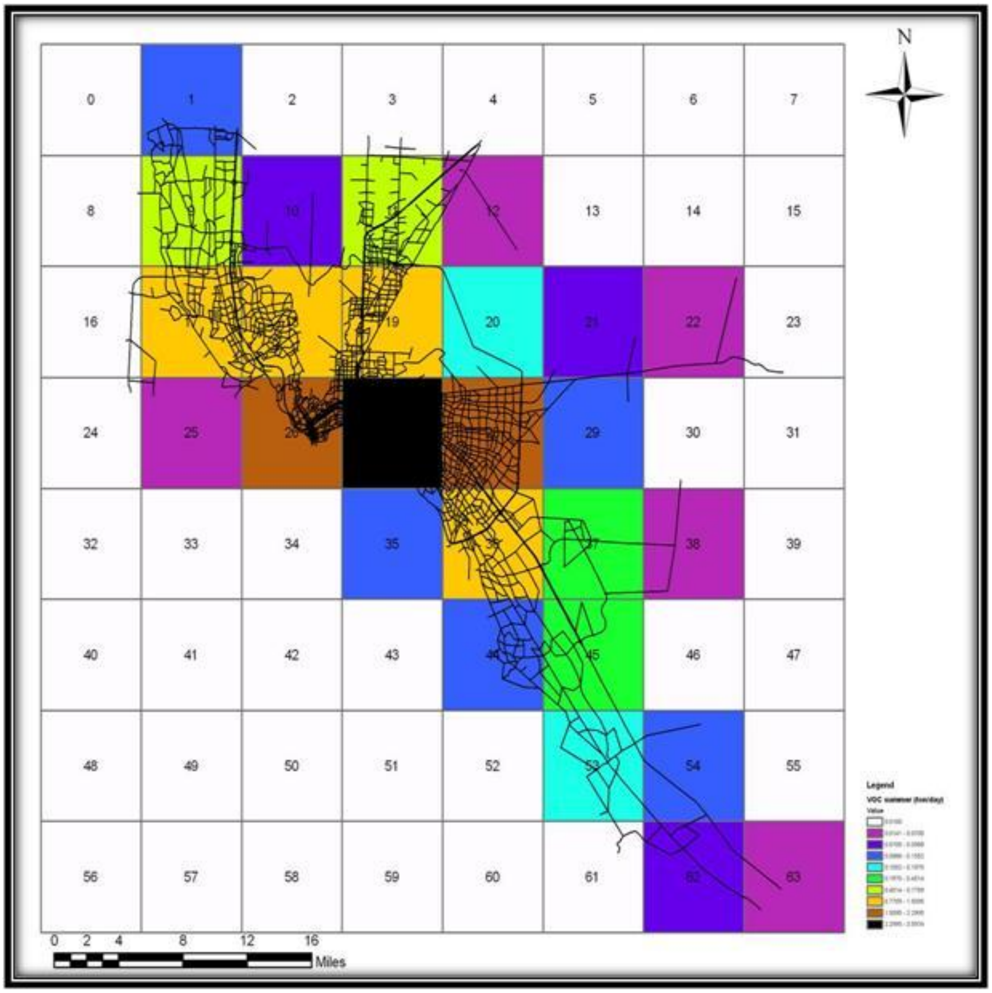


Figure C.27: Summer VOC 8x8 emission grid.

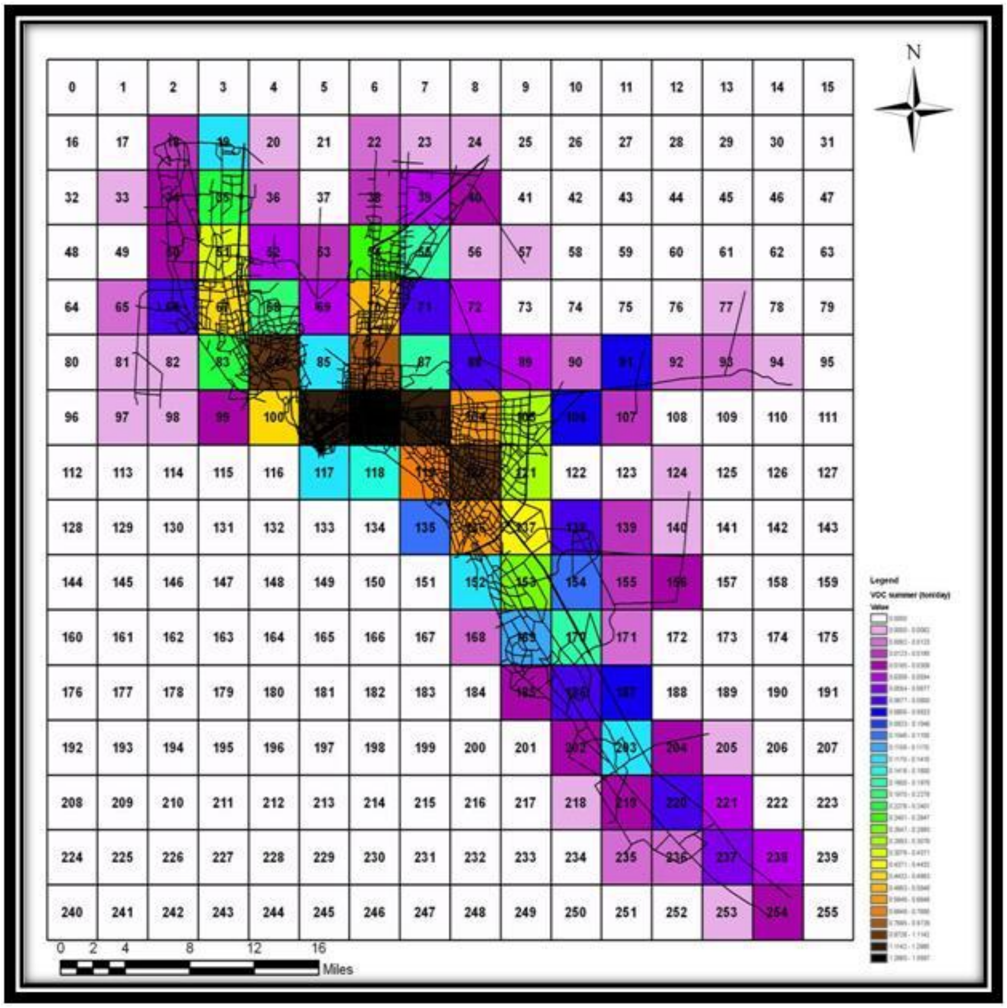


Figure C.28: Summer VOC 16x16 emission grid.

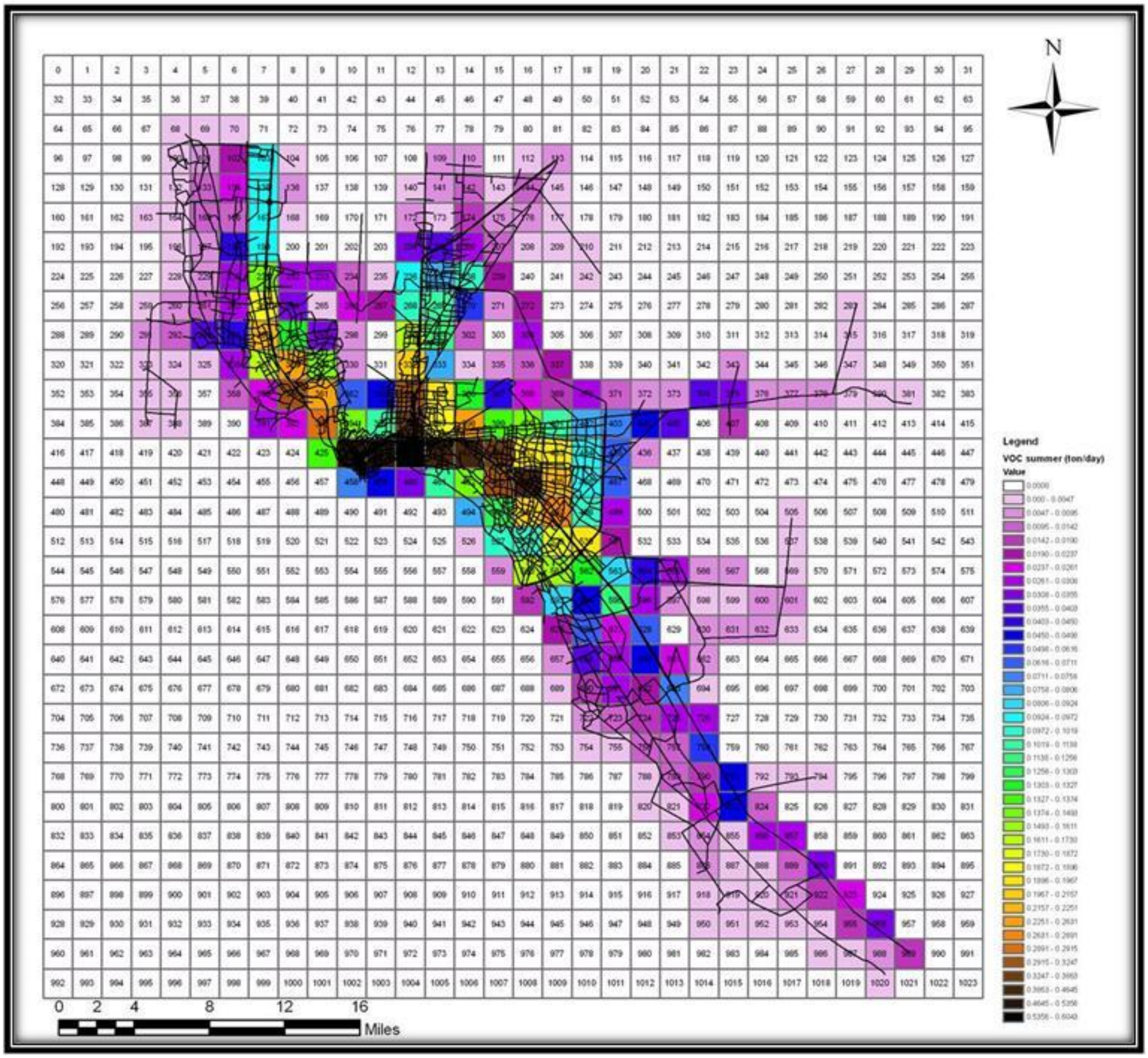


Figure C.29: Summer VOC 32x32 emission grid.

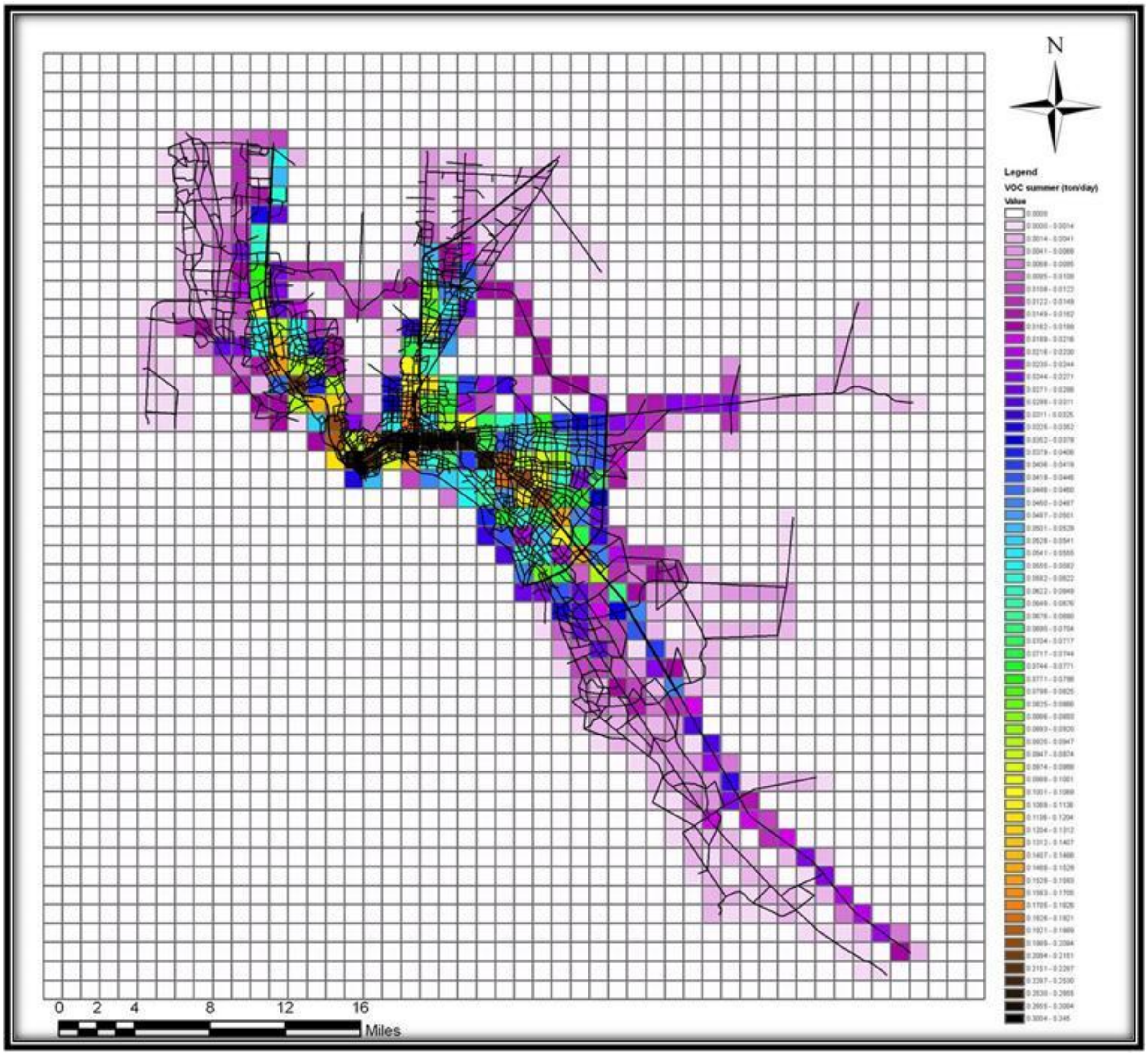


Figure C.30: Summer VOC 50x50 emission grid.

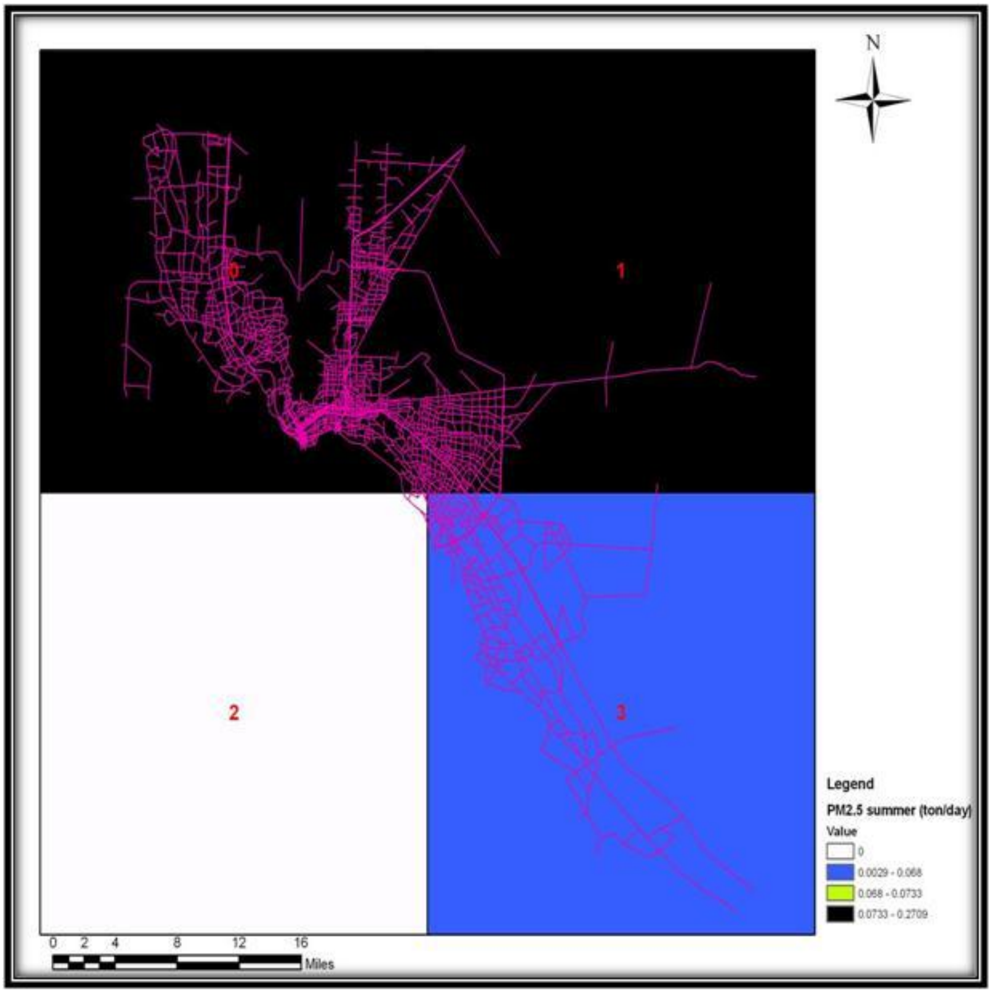


Figure C.31: Summer PM2.5 2x2 emission grid.

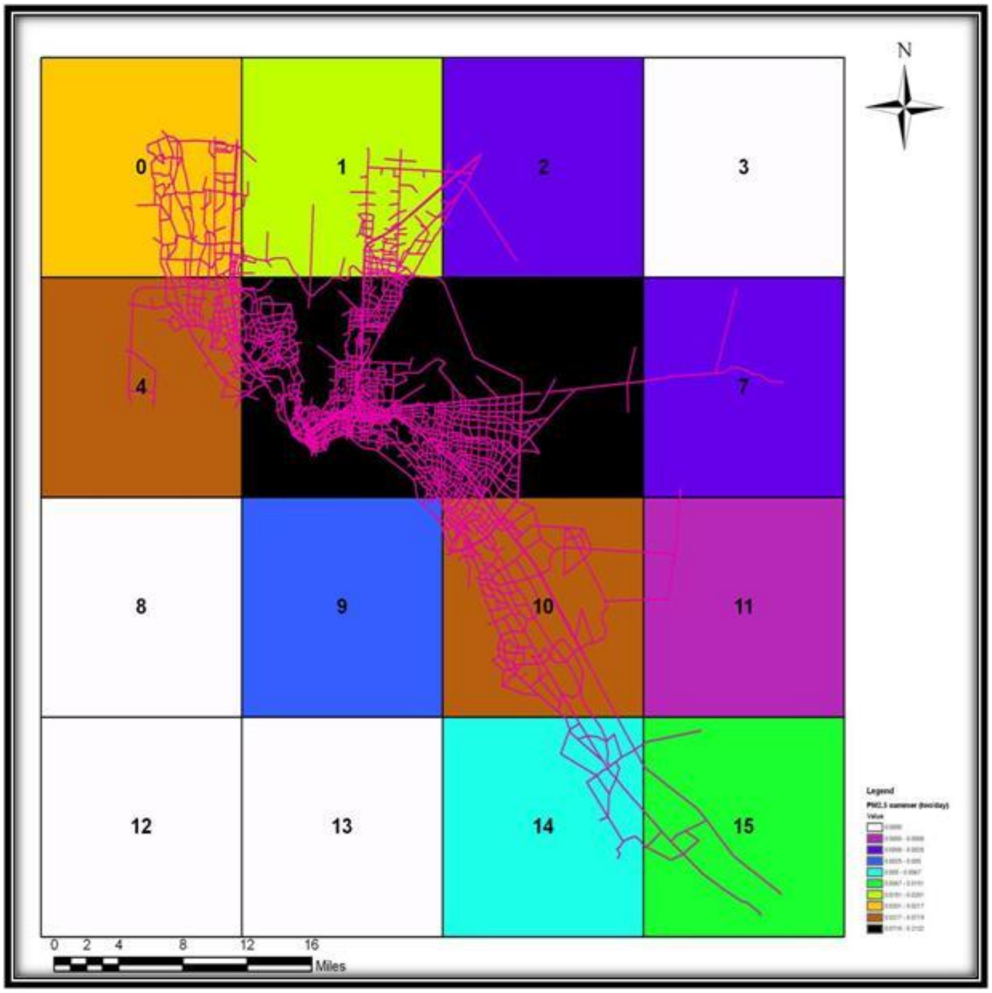


Figure C.32: Summer PM2.5 4x4 emission grid.

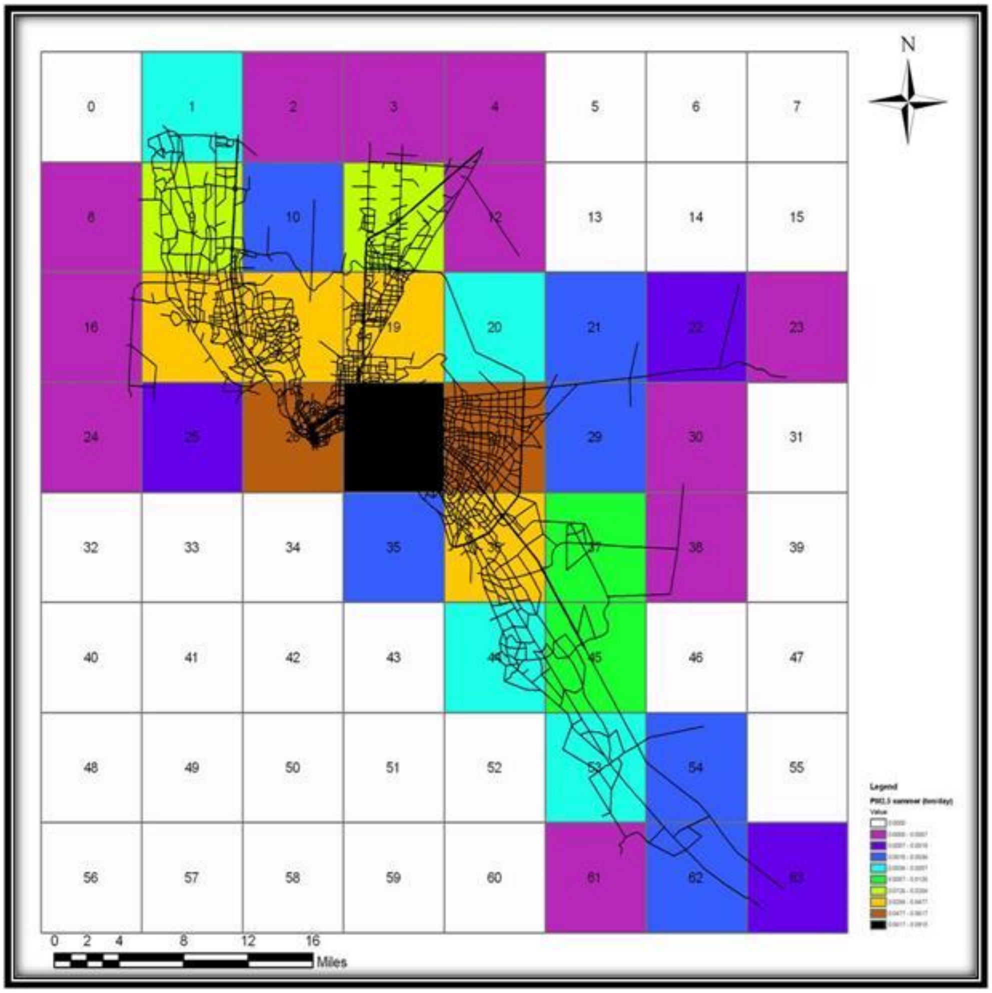


Figure C.33: Summer PM2.5 8x8 emission grid.

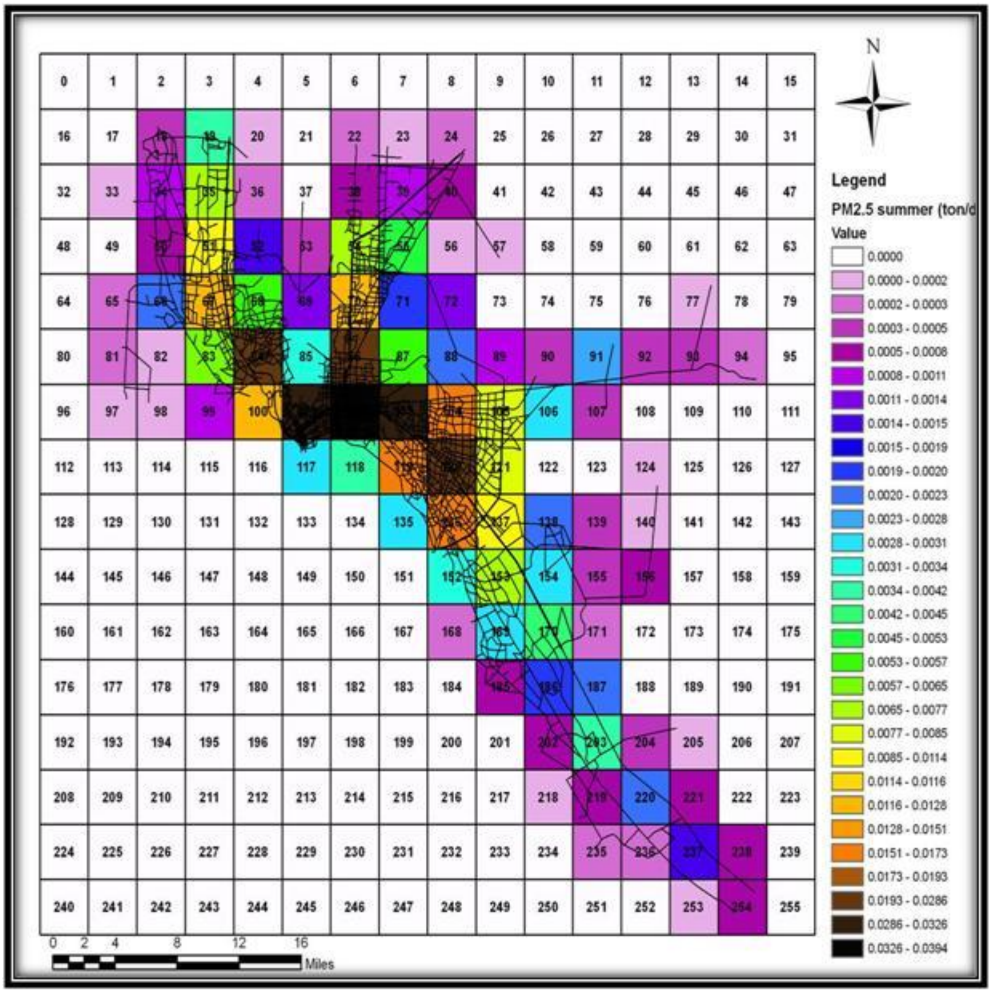


Figure C.34: Summer PM2.5 16x16 emission grid.

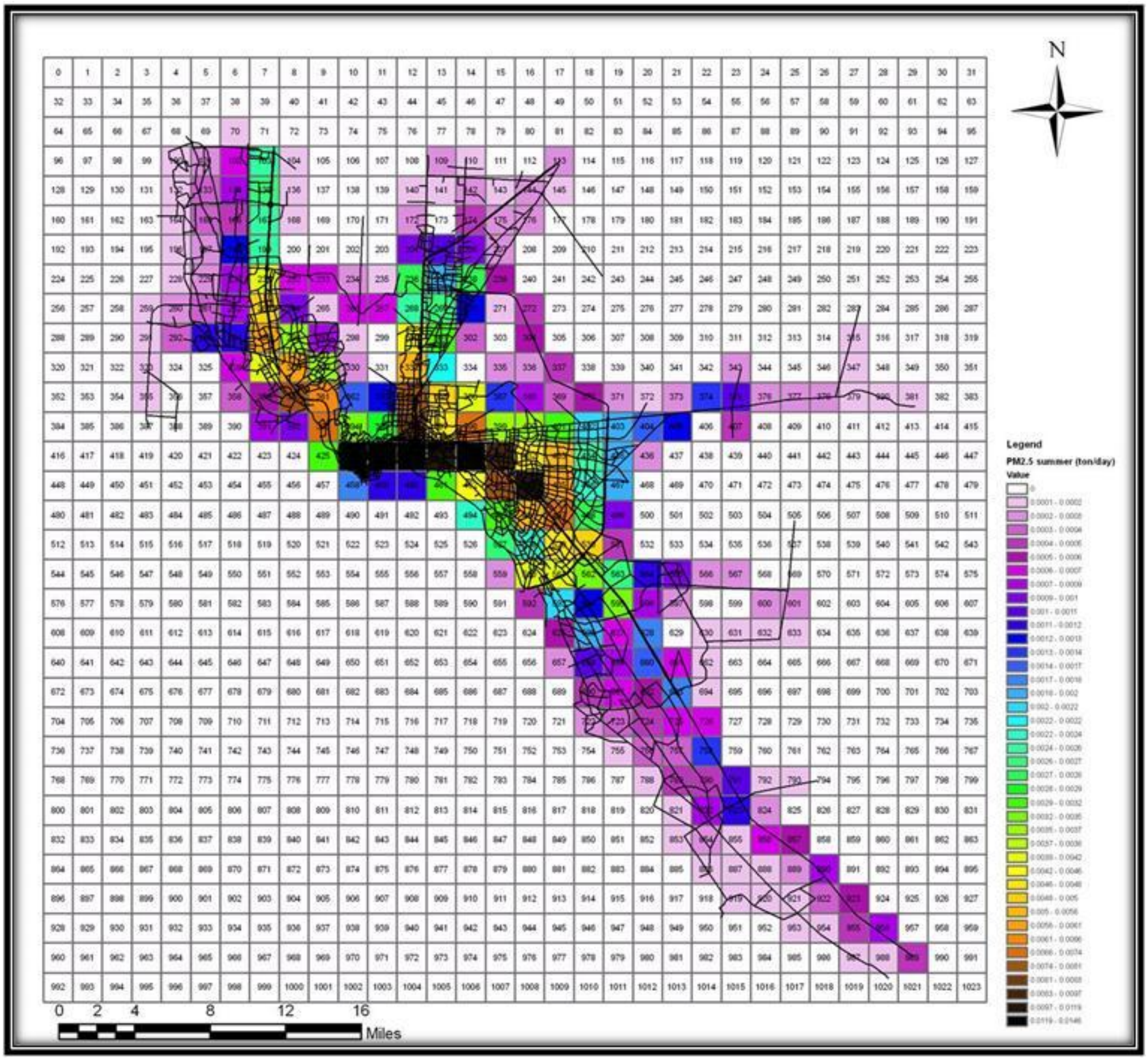


Figure C.35: Summer PM2.5 32x32 emission grid.

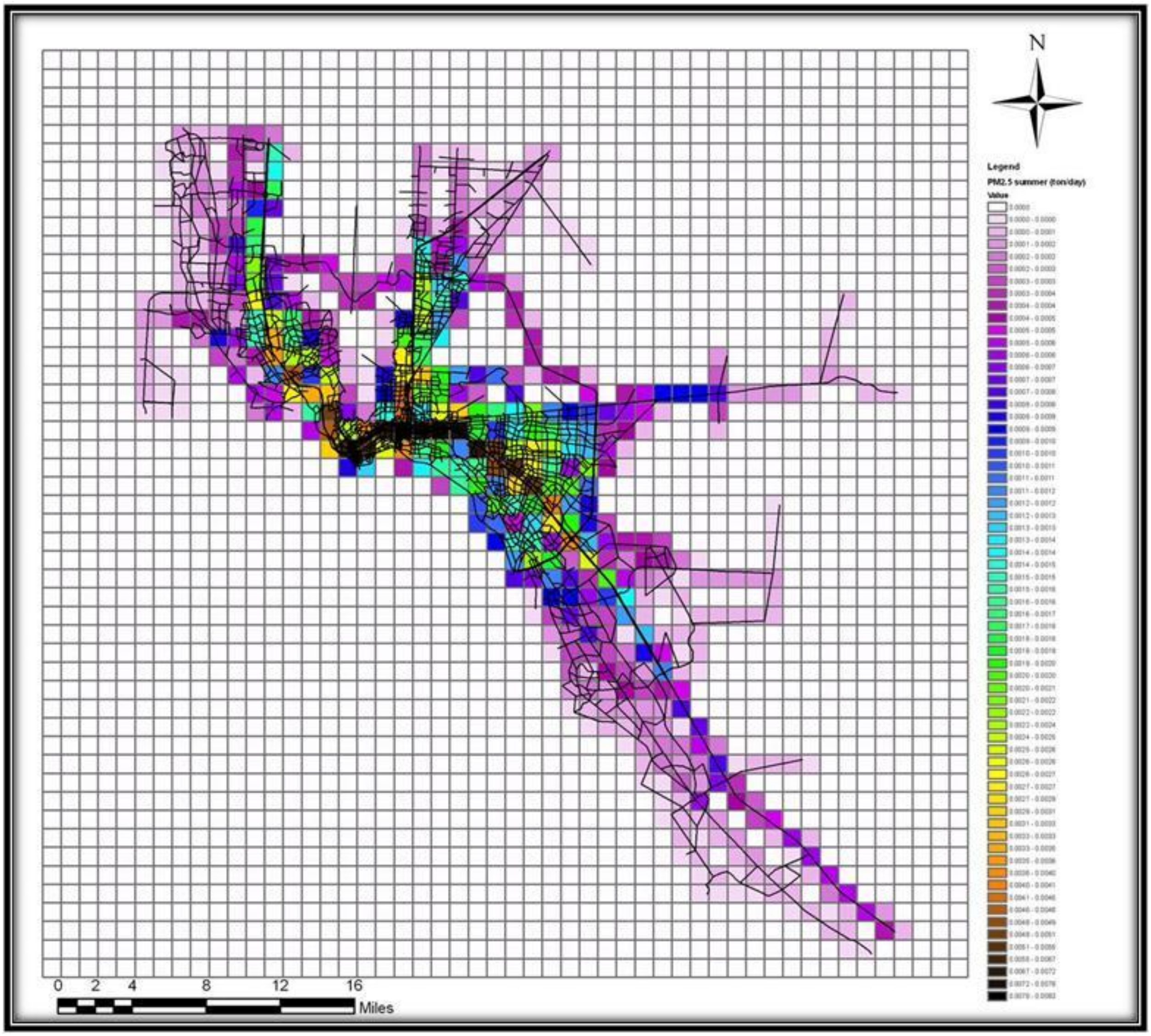


Figure C.36: Summer PM2.5 50x50 emission grid.

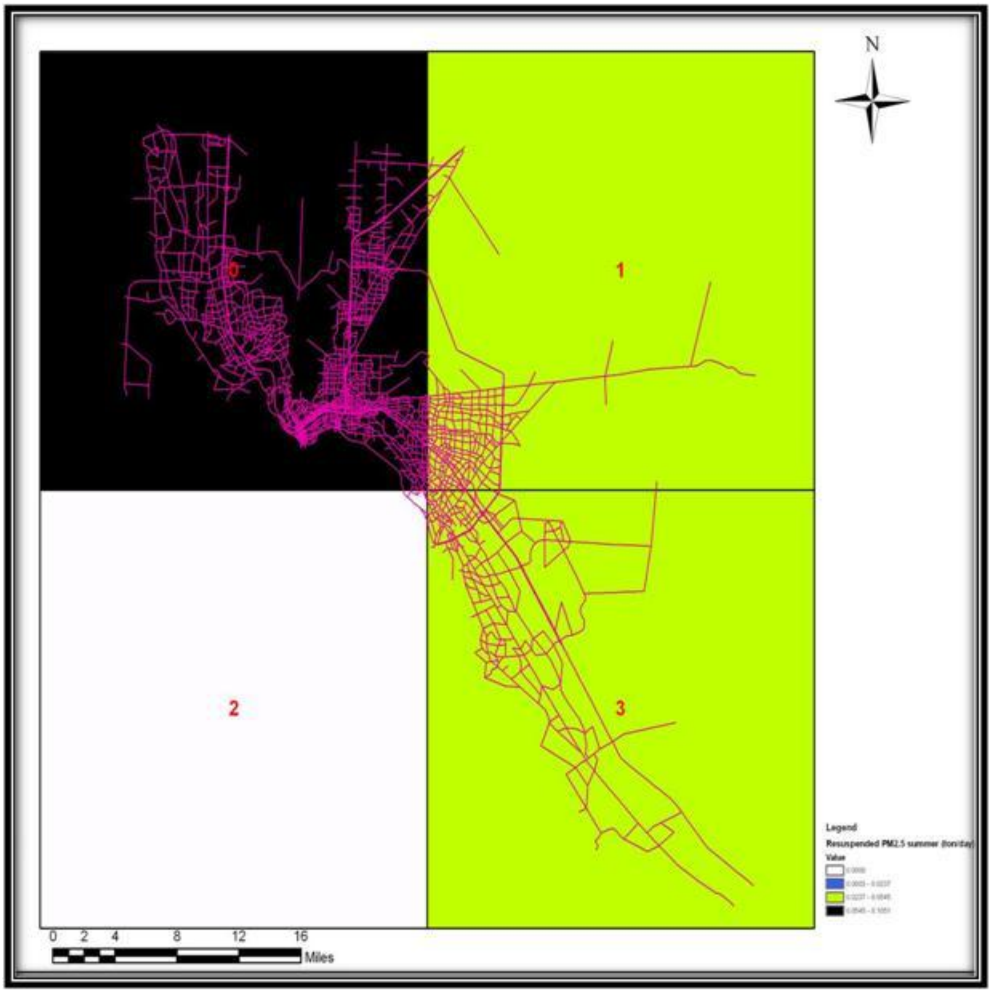


Figure C.37: Summer resuspended PM2.5 2x2 emission grid.

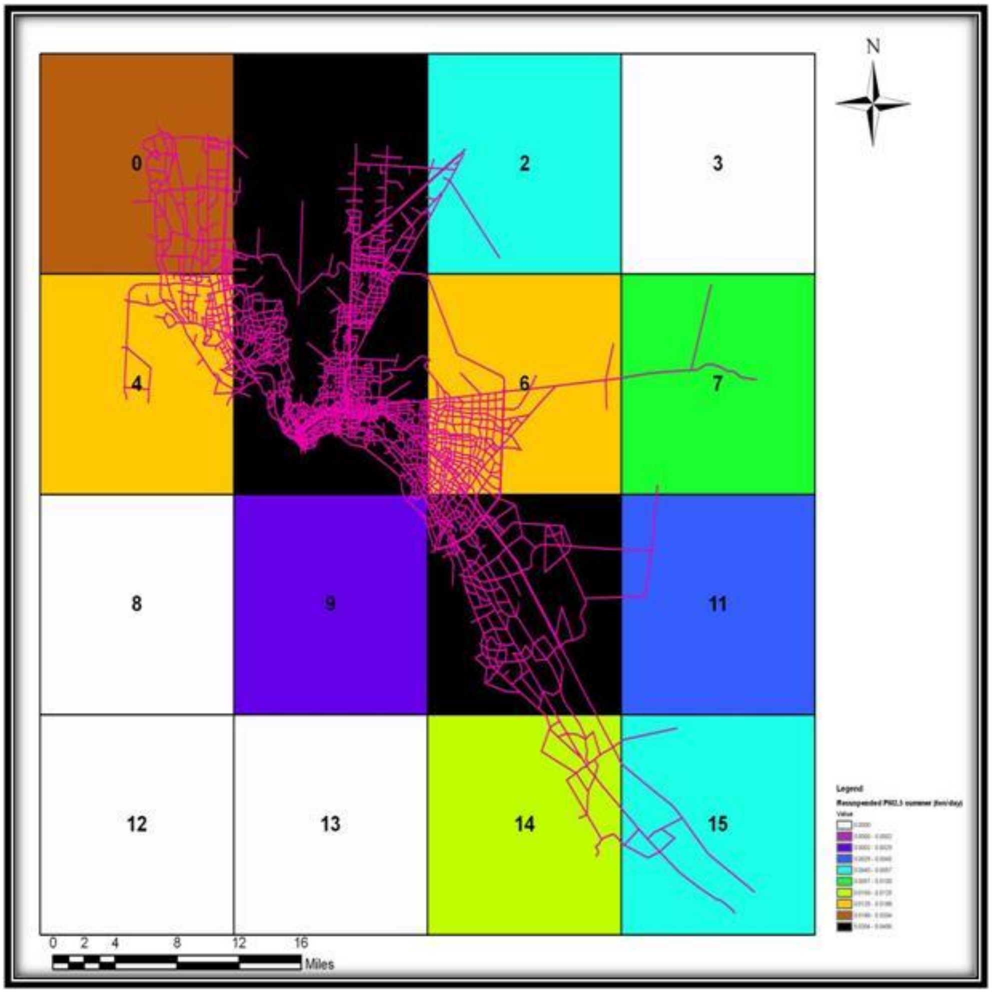


Figure C.38: Summer resuspended PM2.5 4x4 emission grid.

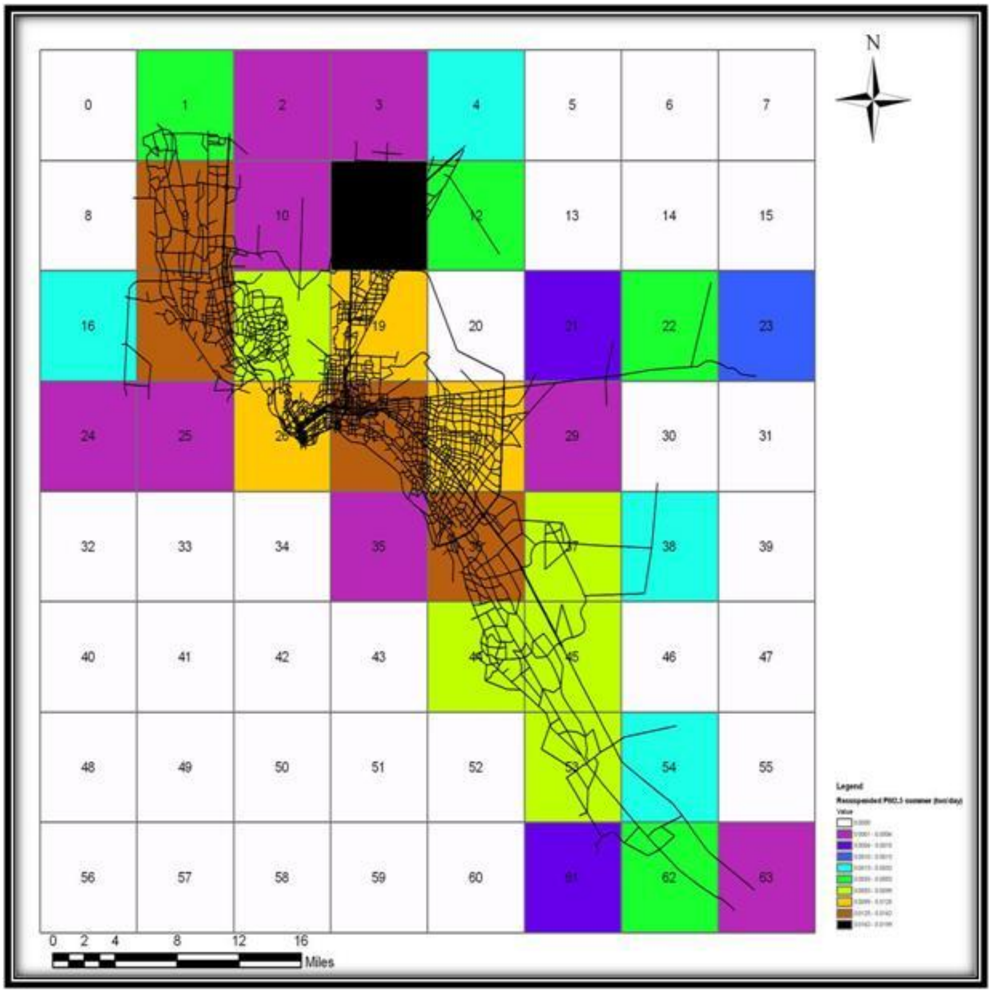


Figure C.39: Summer resuspended PM2.5 8x8 emission grid.

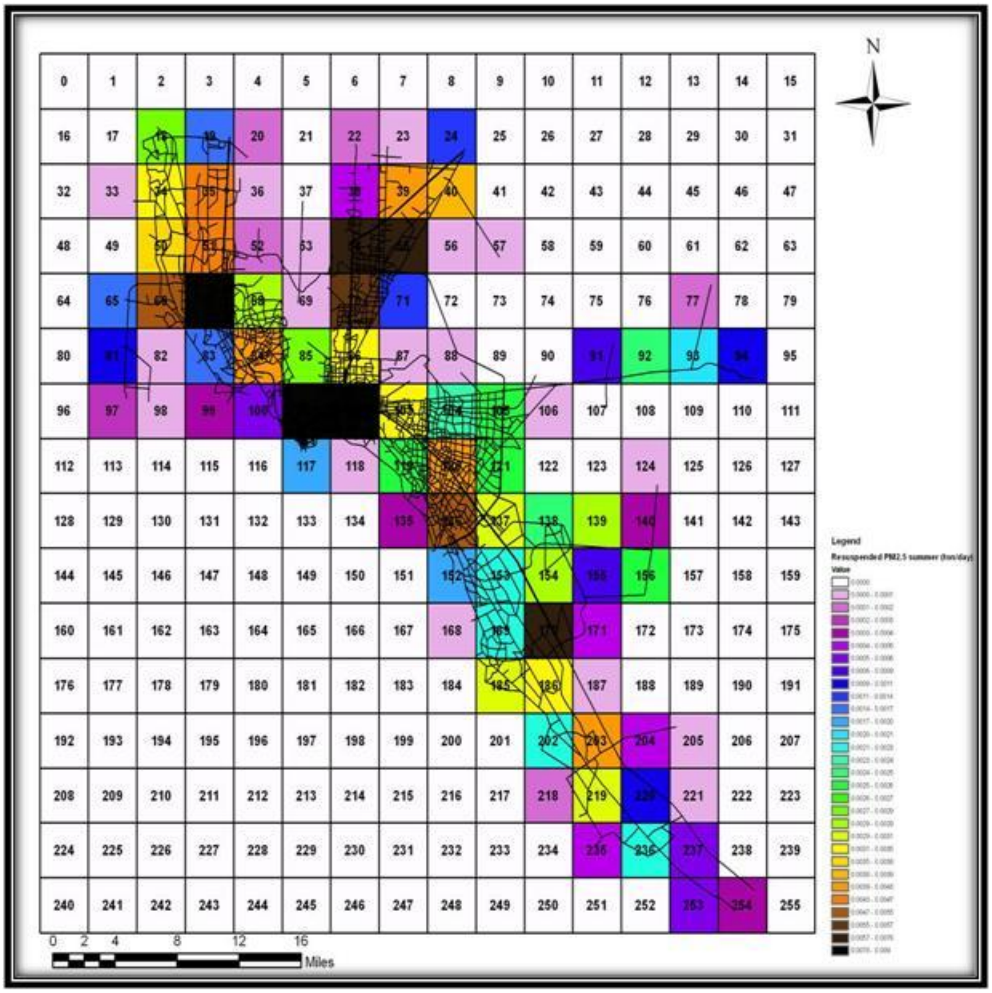


Figure C.40: Summer resuspended PM2.5 16x16 emission grid.

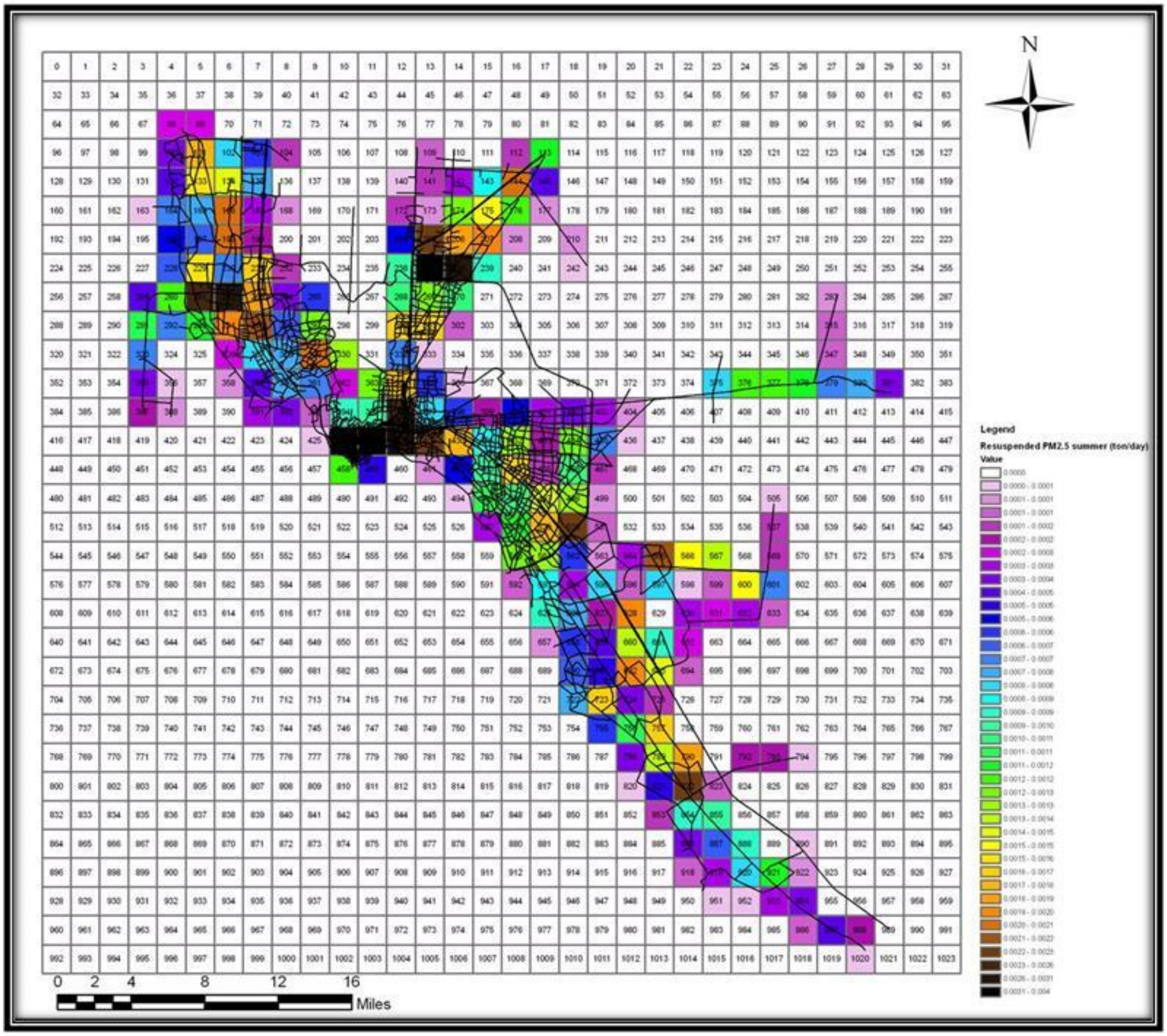


Figure C.41: Summer resuspended PM2.5 32x32 emission grid.

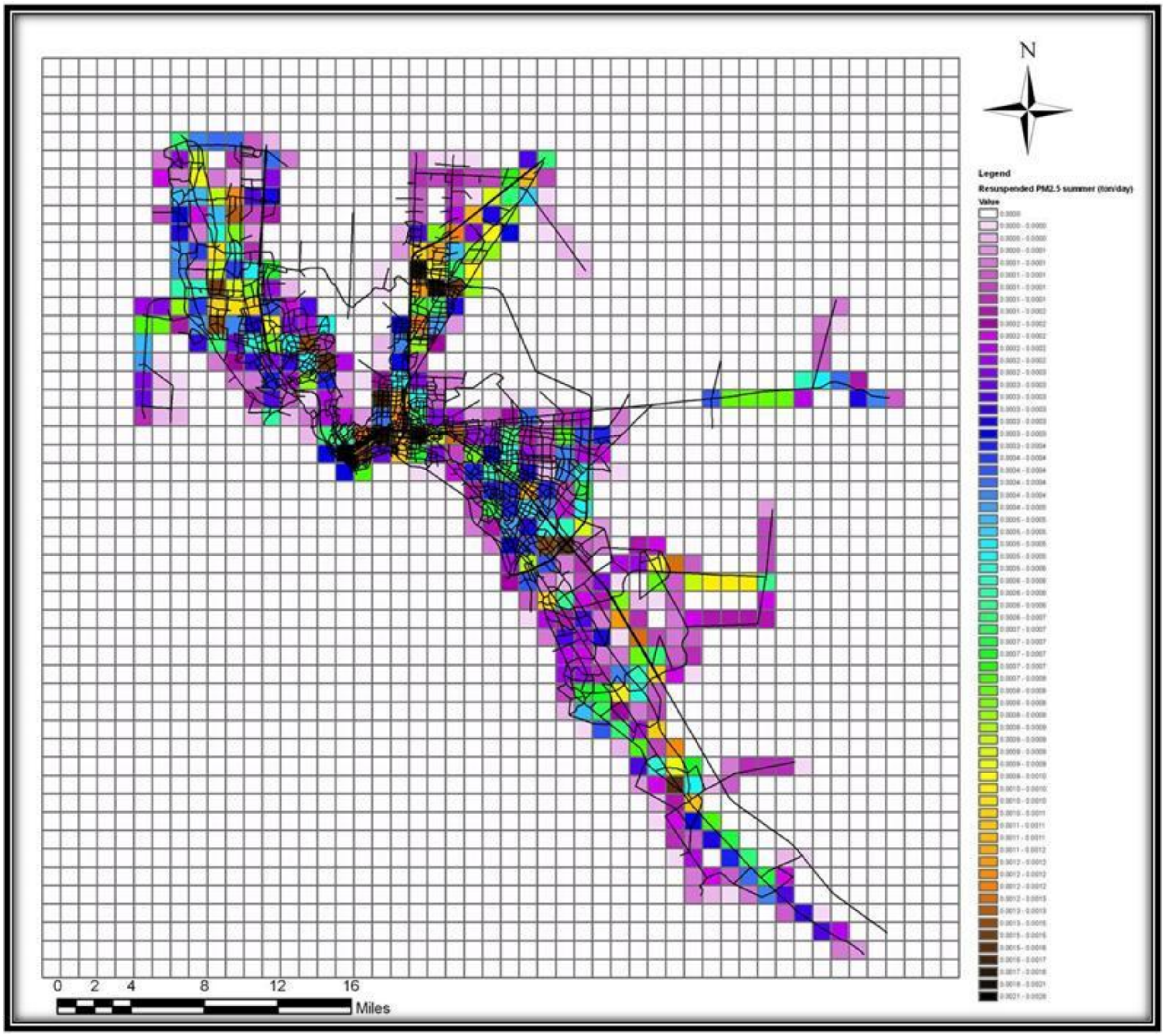


Figure C.42: Summer resuspended PM2.5 50x50 emission grid.

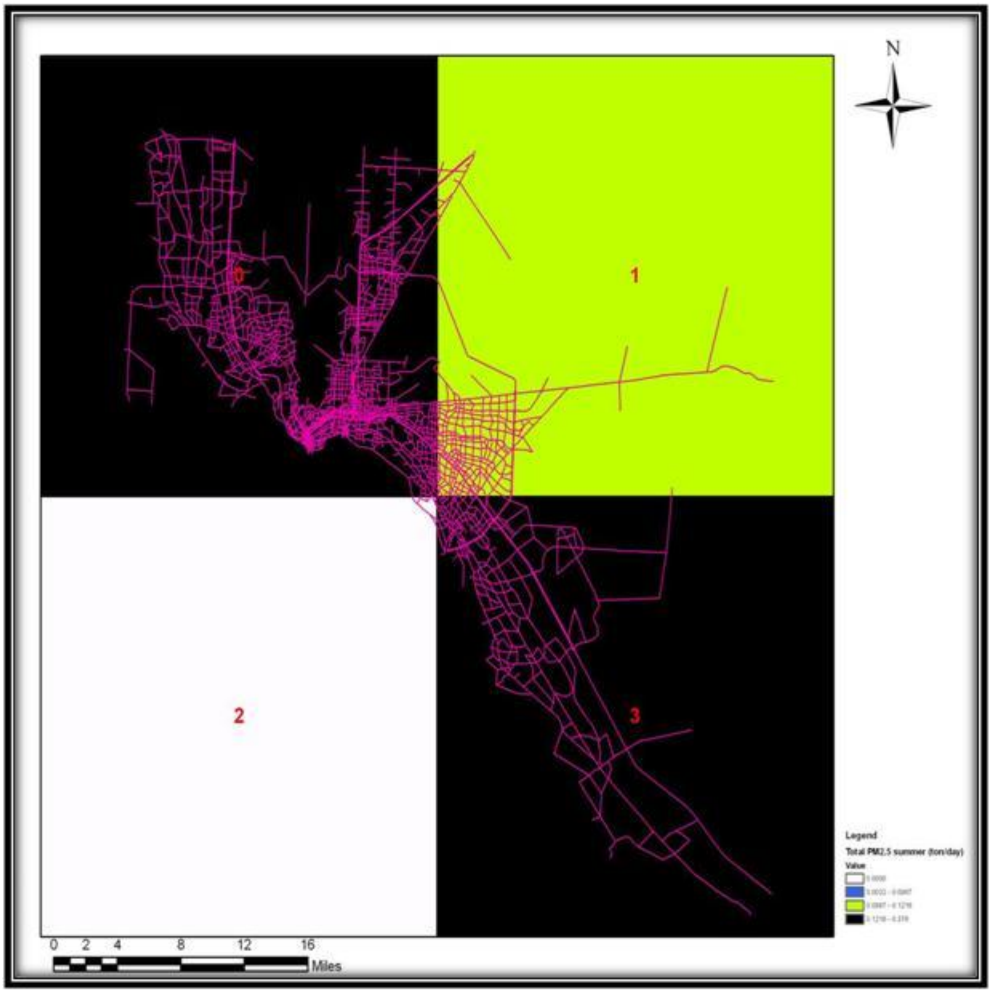


Figure C.43: Summer total PM2.5 2x2 emission grid.

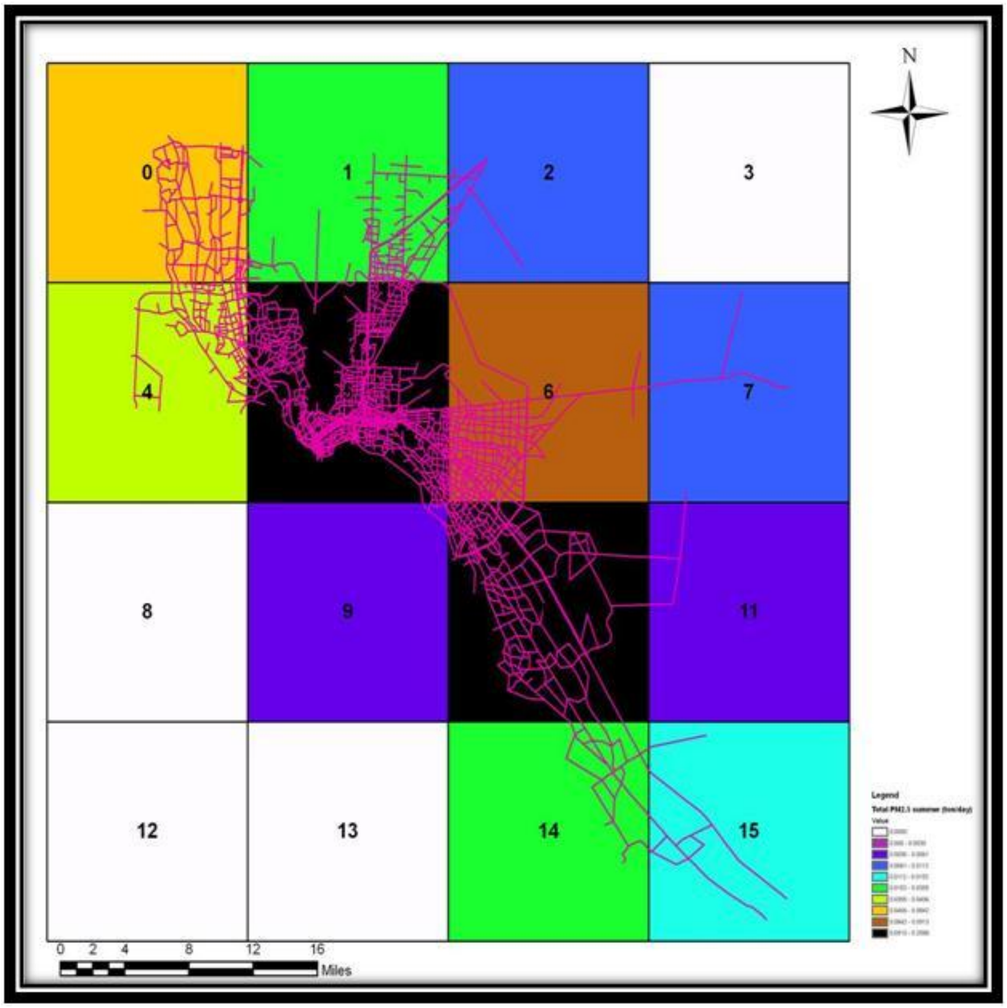


Figure C.44: Summer total PM2.5 4x4 emission grid.

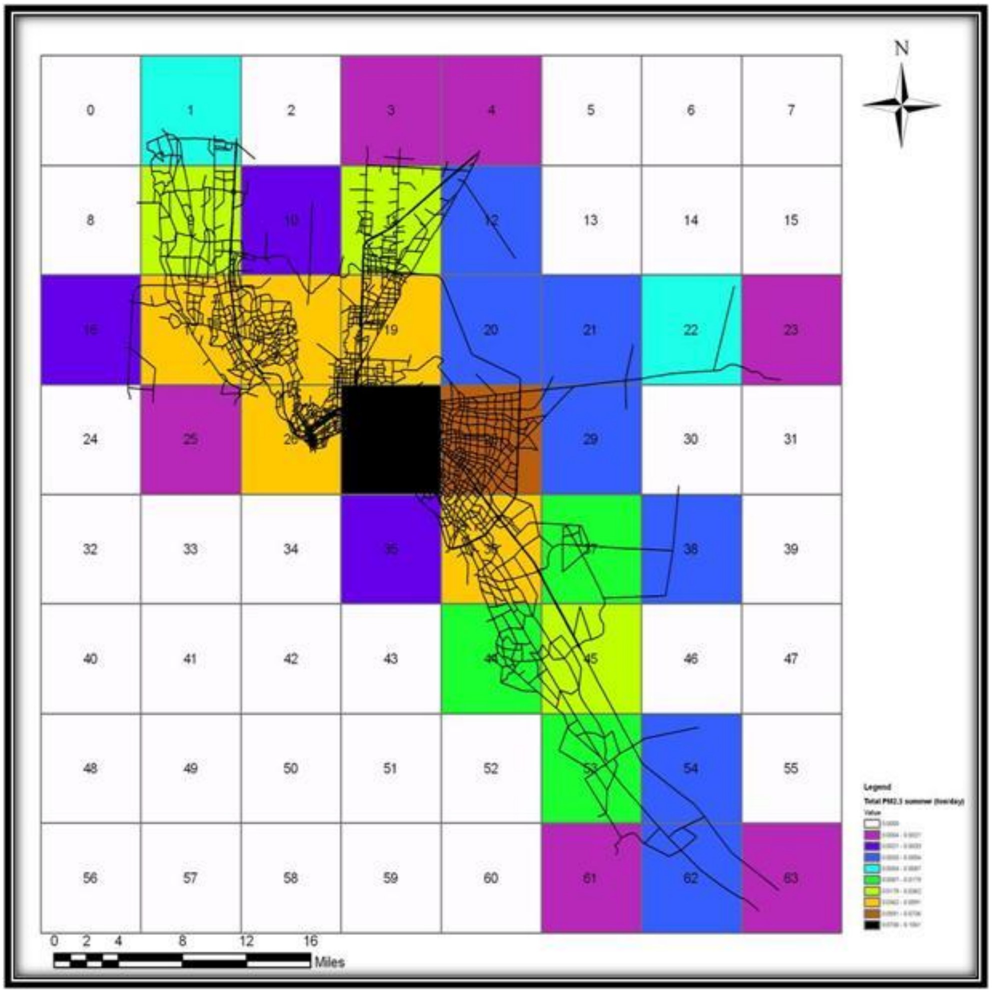


Figure C.45: Summer total PM2.5 8x8 emission grid.

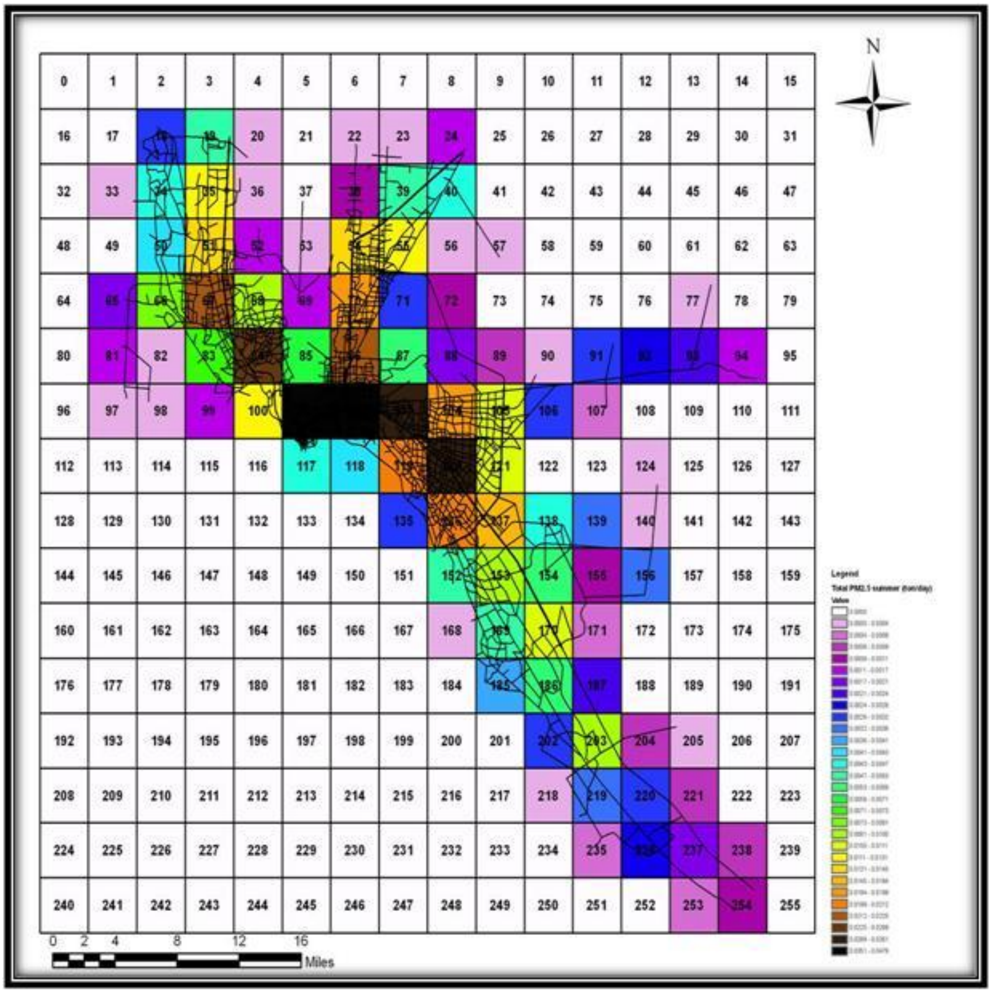


Figure C.46: Summer total PM2.5 16x16 emission grid.

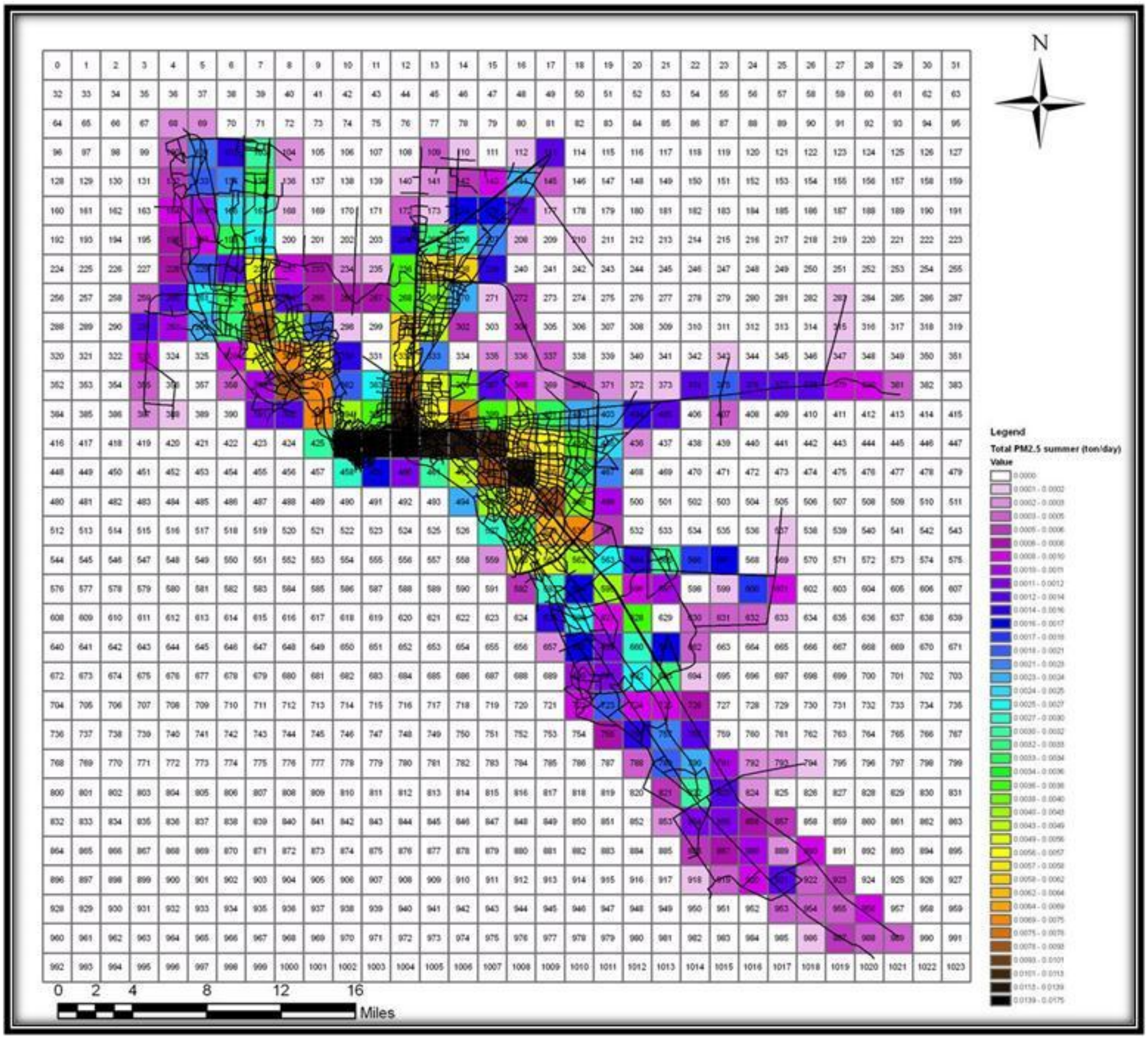


Figure C.47: Summer total PM2.5 32x32 emission grid.

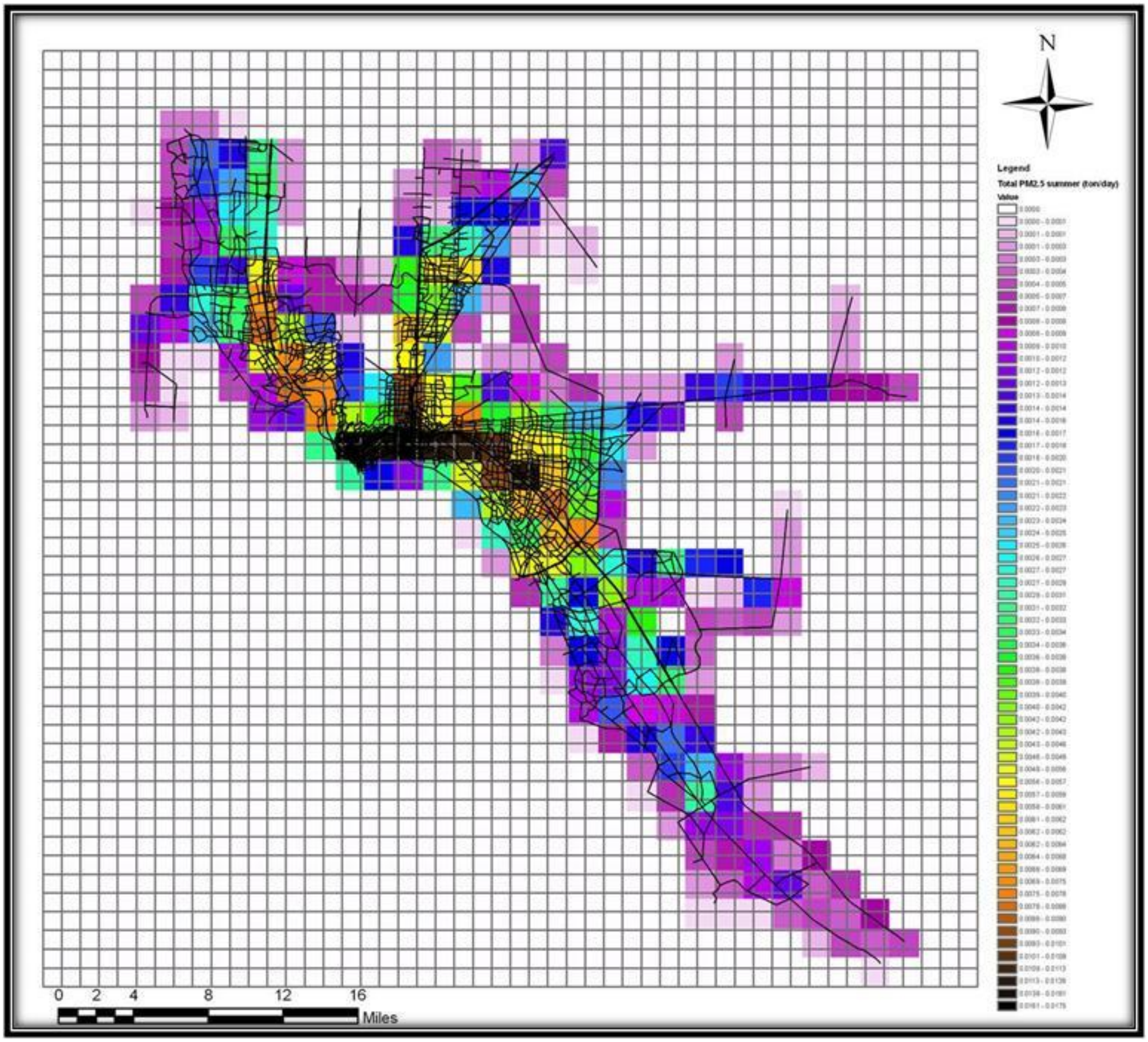


Figure C.48: Summer total PM2.5 50x50 emission grid.

C.2 Winter emission grids

This section of Appendix C presents all winter emission grids for the pollutants and resolutions stated in Chapter 9 in the following order CO, PM10, resuspended PM10, total PM10, VOC, PM2.5, resuspended PM2.5 and total PM2.5. Figure C.49 to Figure C.54 presents the CO emission grids. Figure C.55 to Figure C.60 presents the PM10 emission grids. Figure C.61 to Figure C.66 presents the resuspended PM10 emission grids. Figure C.67 to Figure C.72 presents the total PM10 emission grids. Figure C.73 to Figure C.78 presents the VOC emission grids. Figure C.79 to Figure C.84 presents the PM2.5 emission grids followed by the resuspended PM2.5 emission grids (Figure C.85 to Figure C.90) and Figures C.91 to Figure C.96 present the total PM2.5 emission grids.

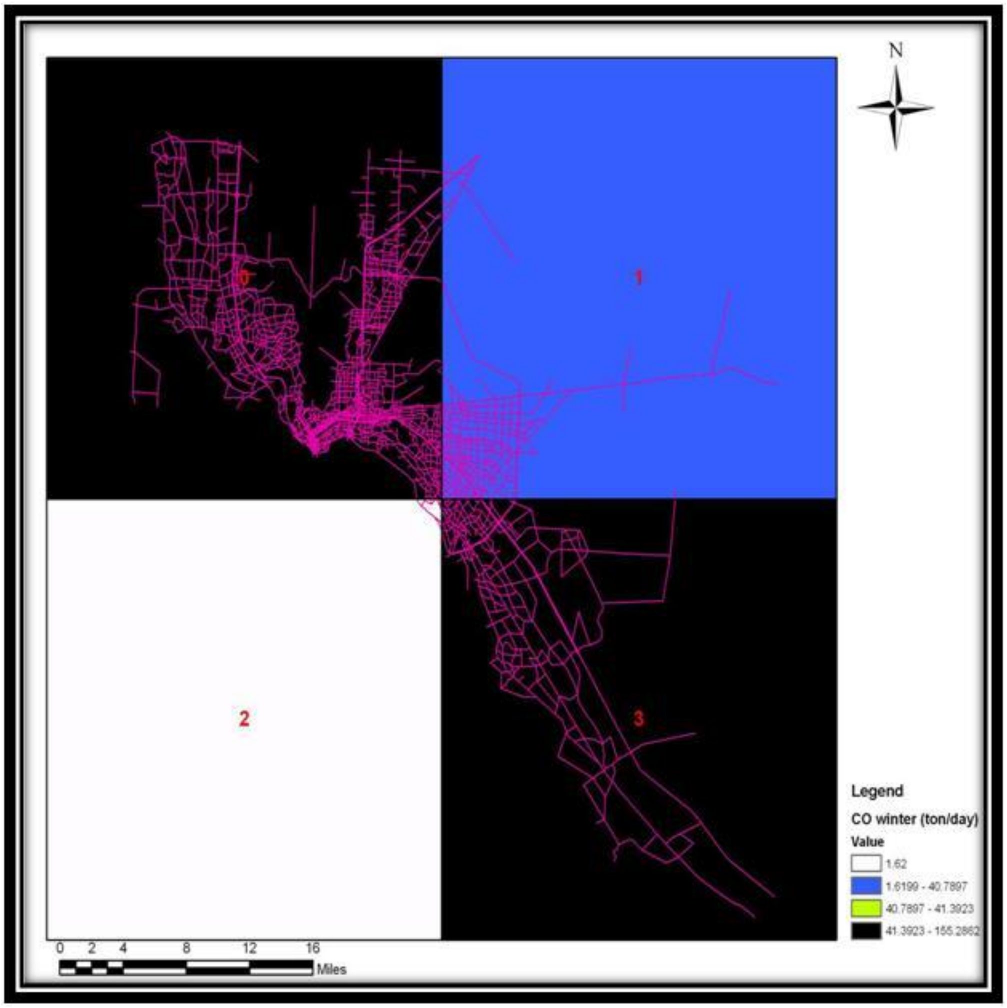


Figure C.49: Winter CO 2x2 emission grid.

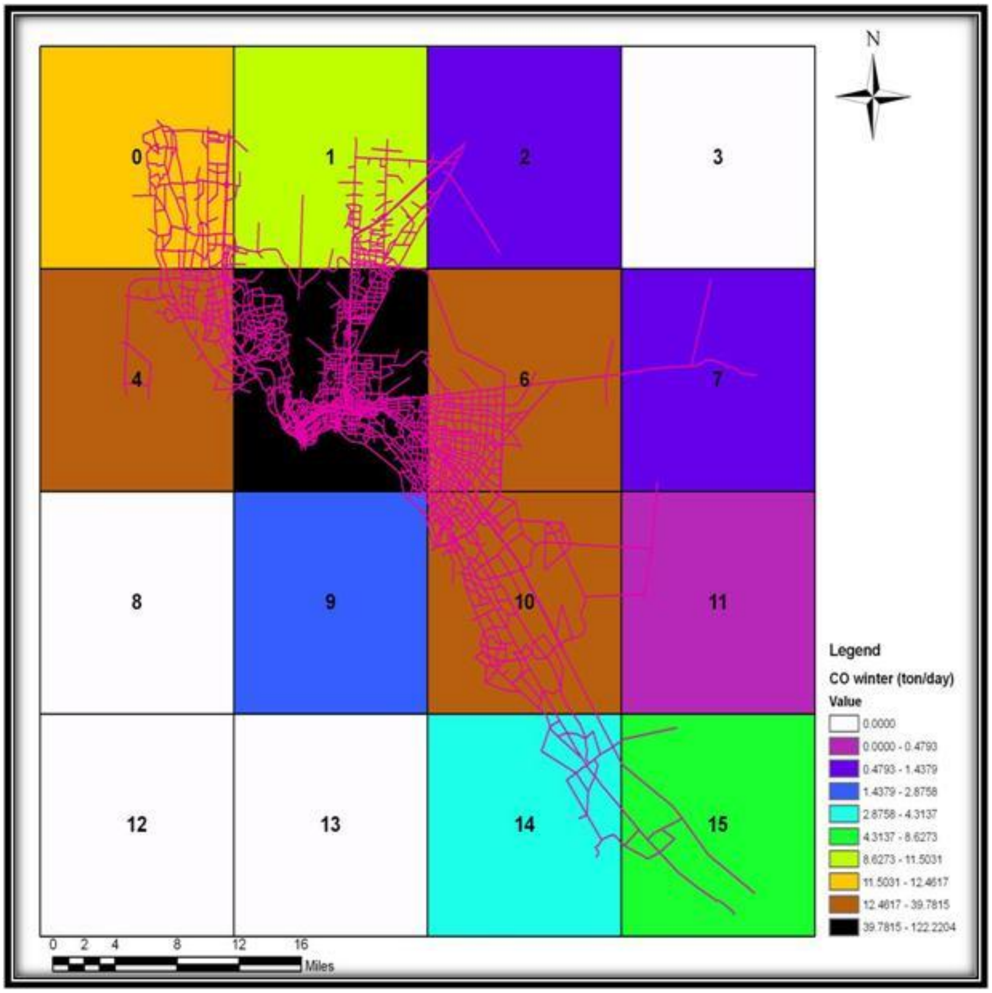


Figure C.50: Winter CO 4x4 emission grid.

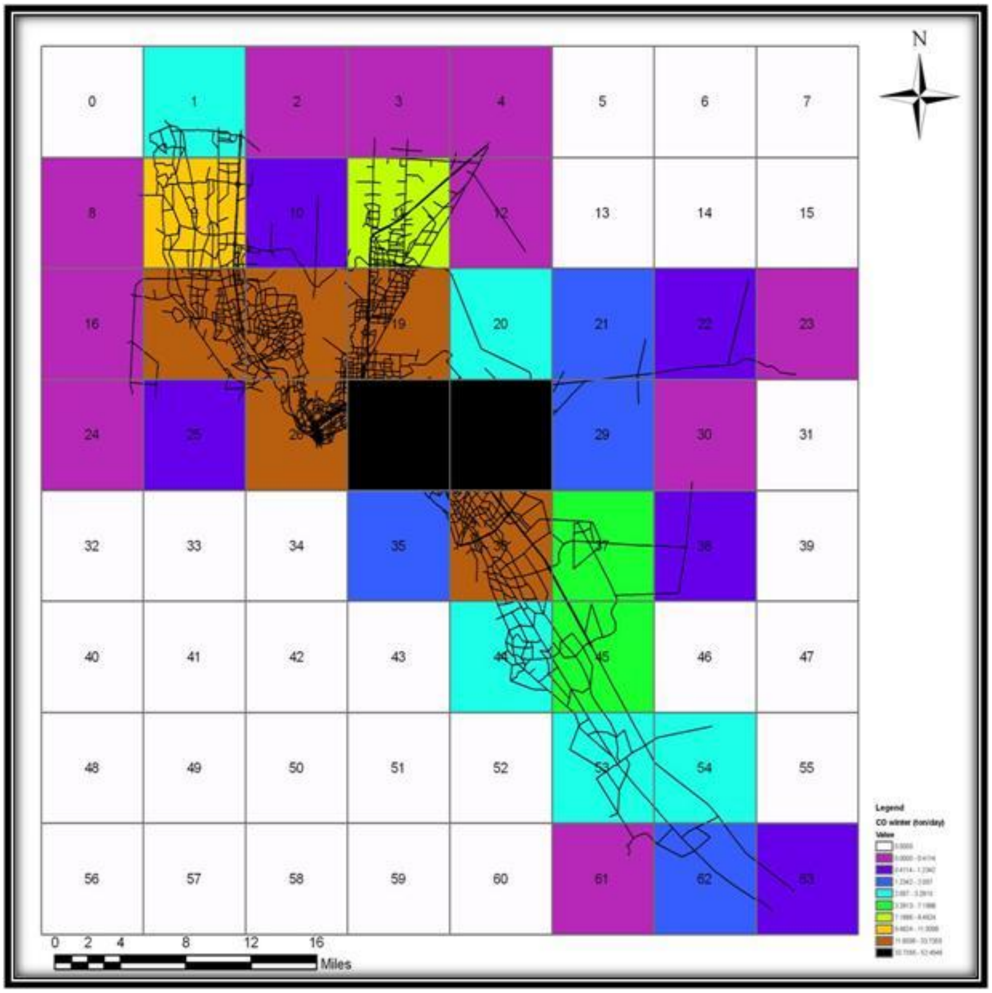


Figure C.51: Winter CO 8x8 emission grid.

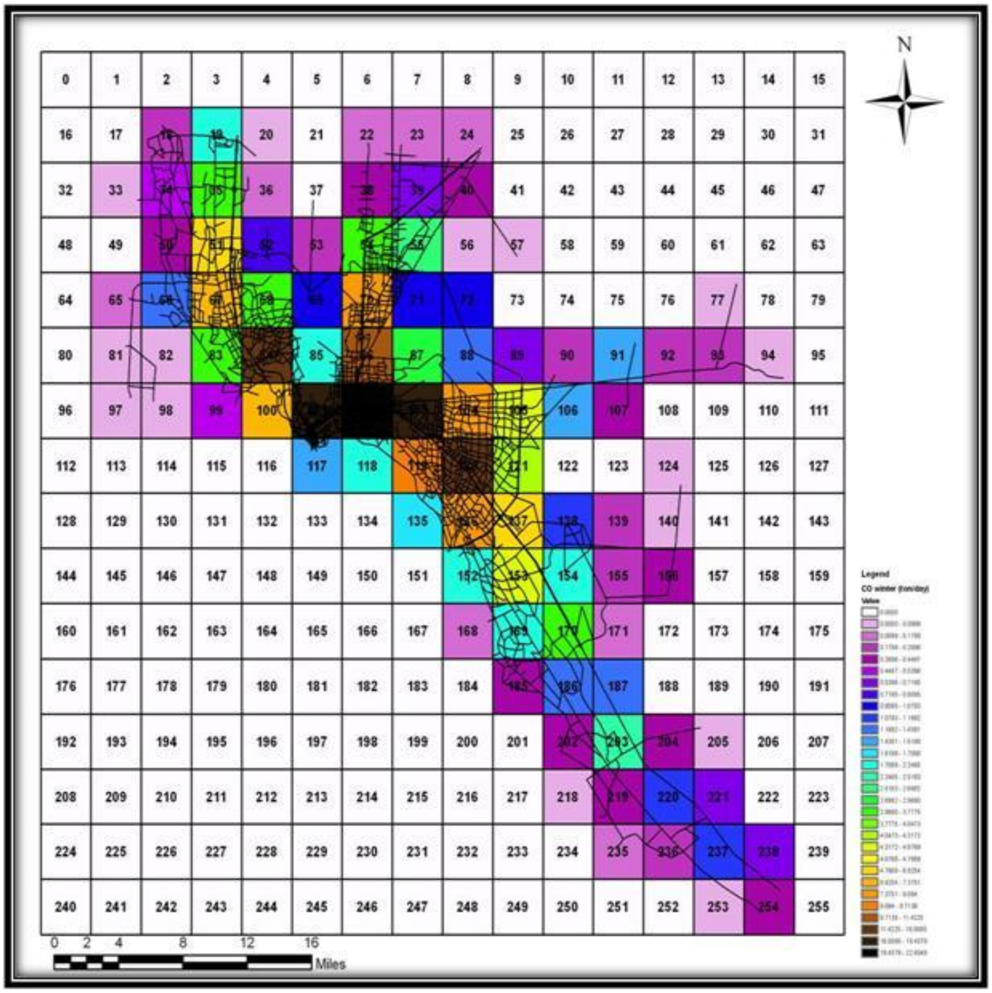


Figure C.52: Winter CO 16x16 emission grid.

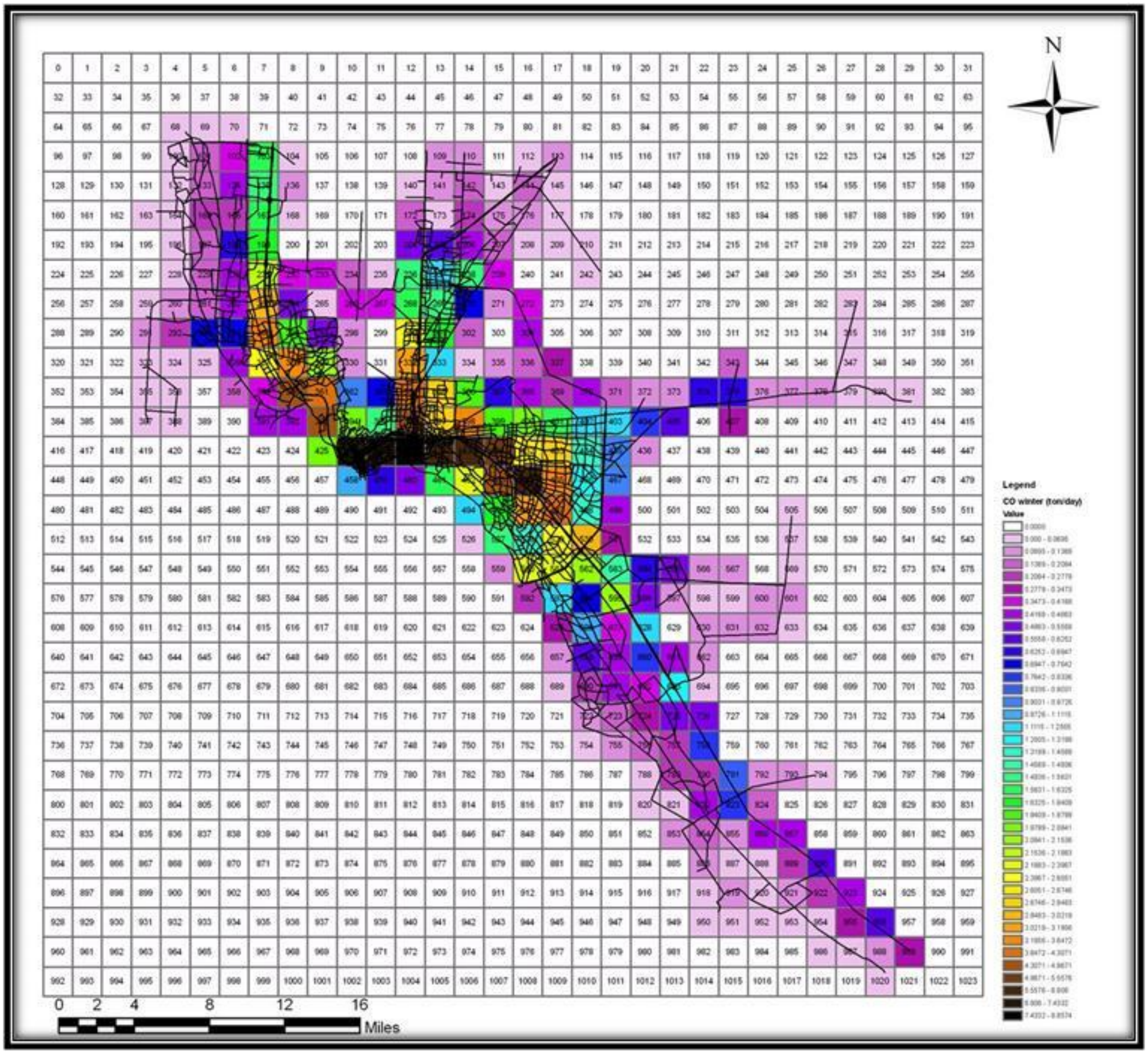


Figure C.53: Winter CO 32x32 emission grid.

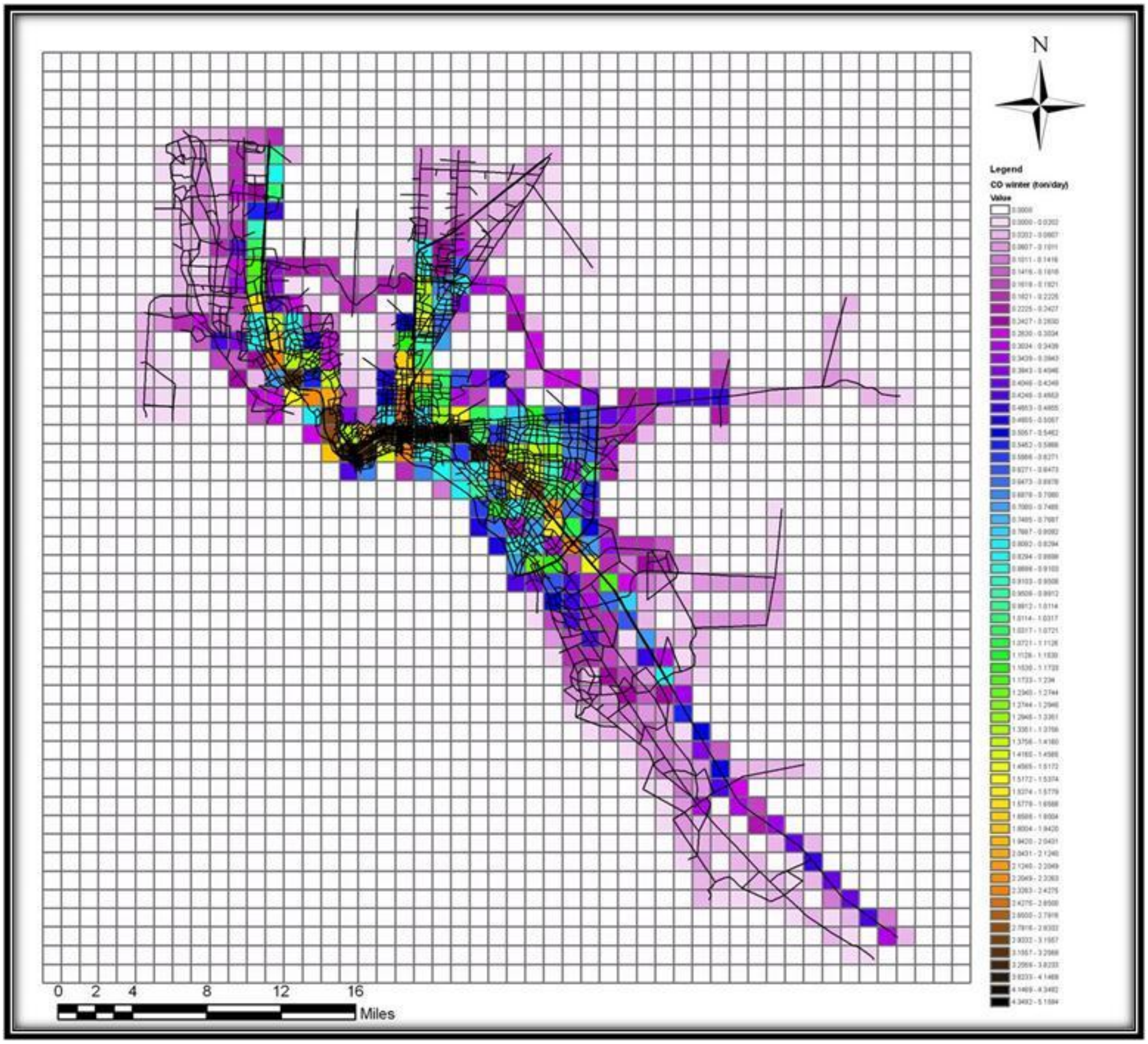


Figure C.54: Winter CO 50x50 emission grid.

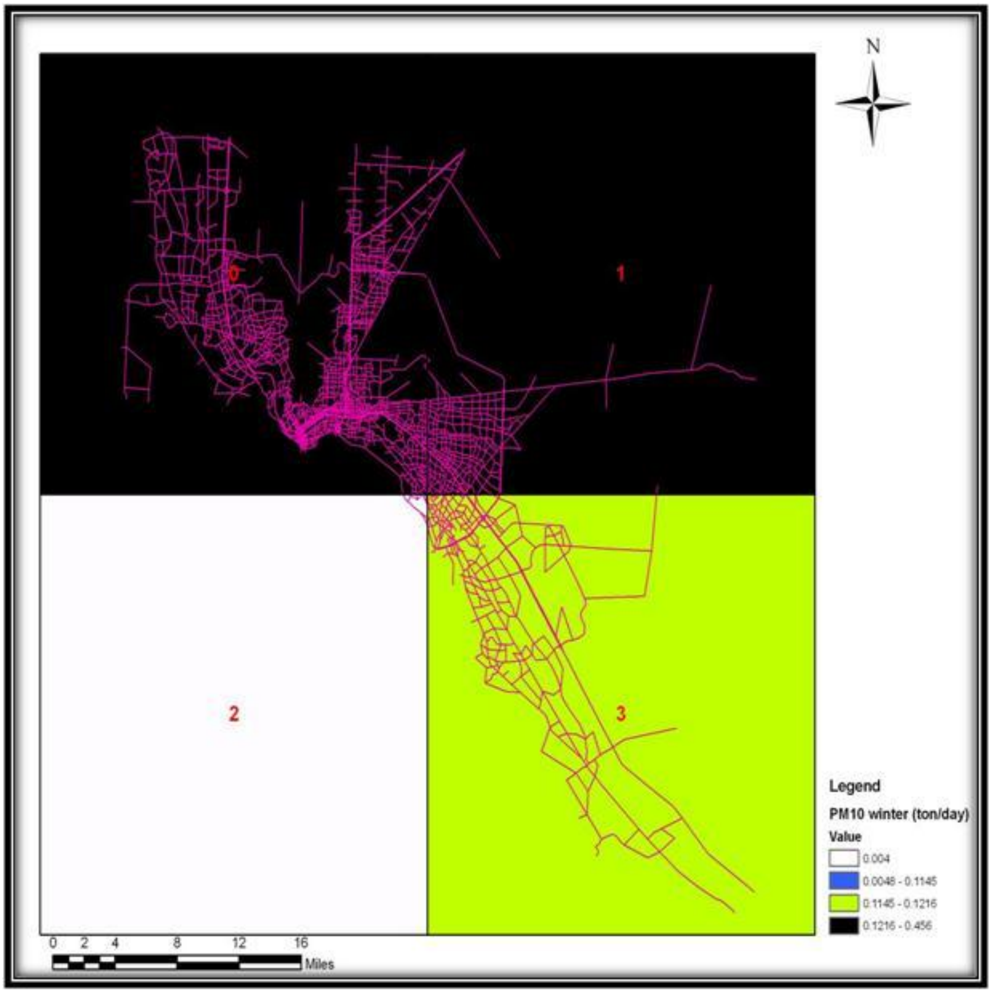


Figure C.55: Winter PM10 2x2 emission grid.

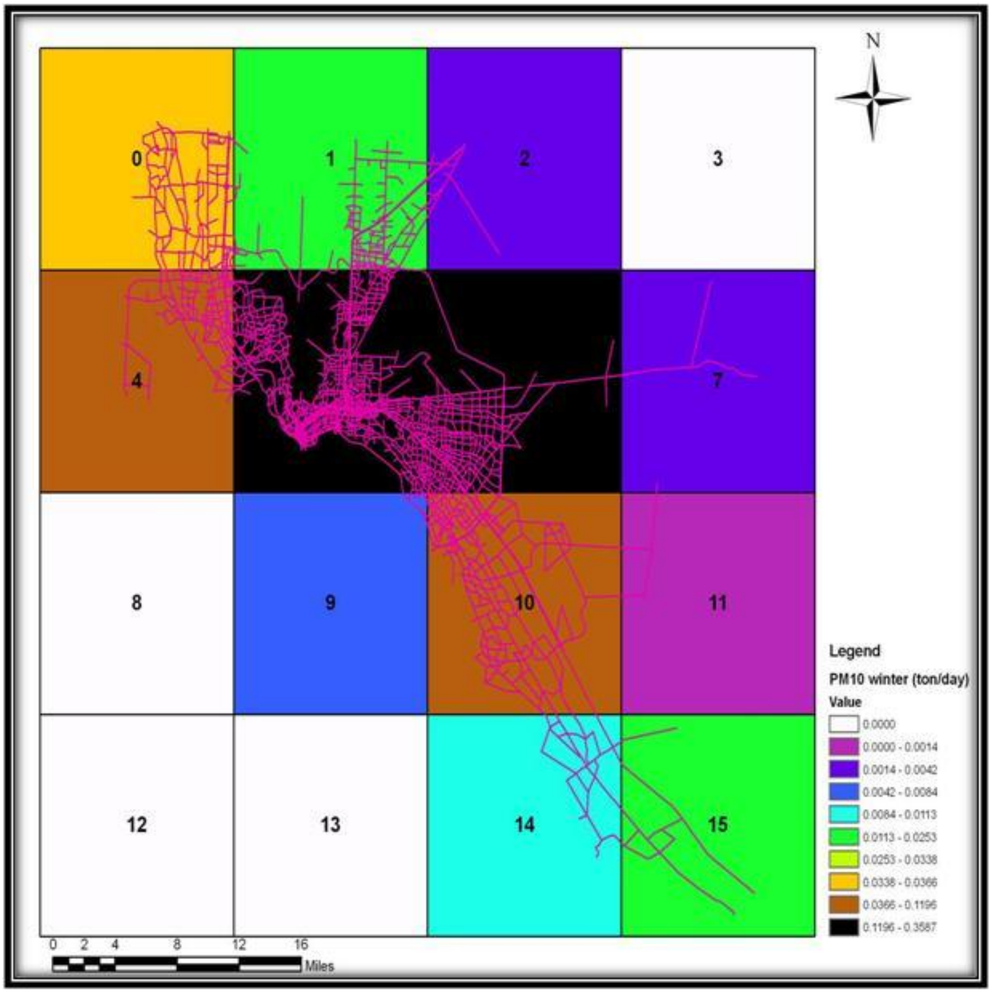


Figure C.56: Winter PM10 4x4 emission grid.

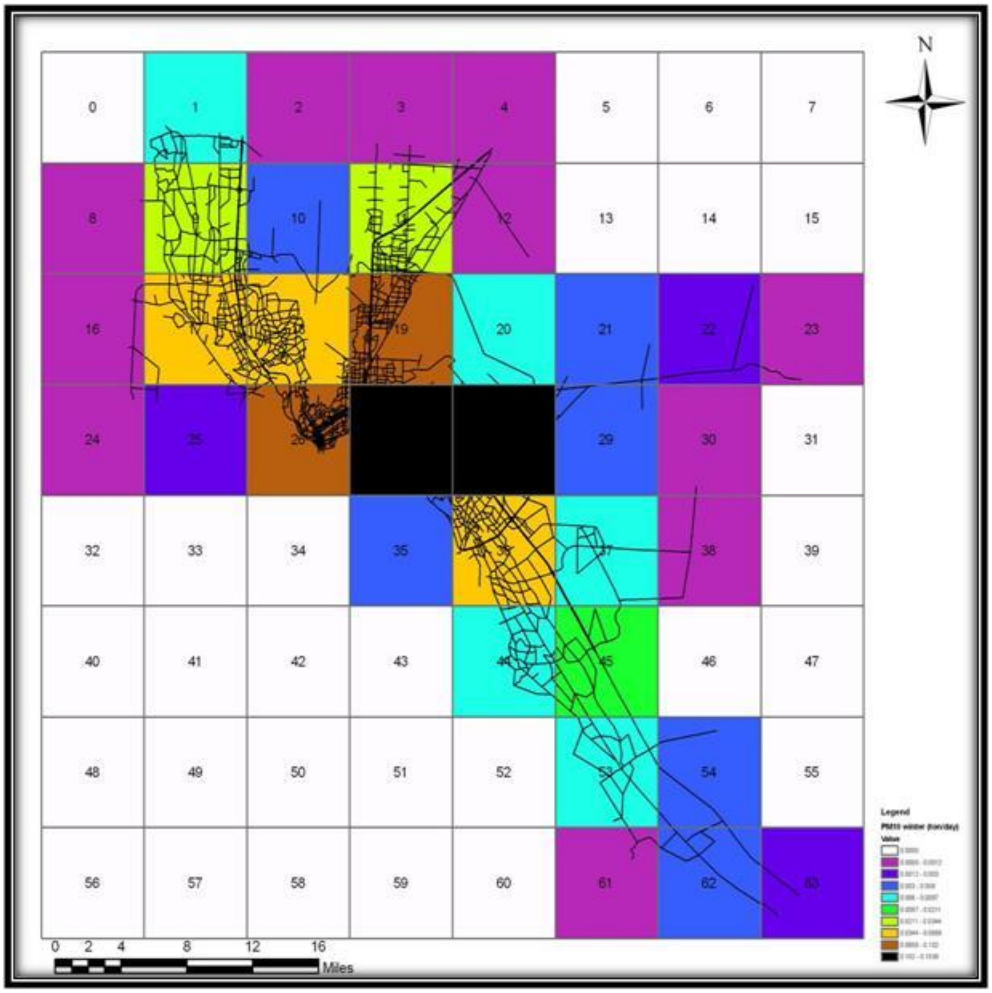


Figure C.57: Winter PM108x8 emission grid.

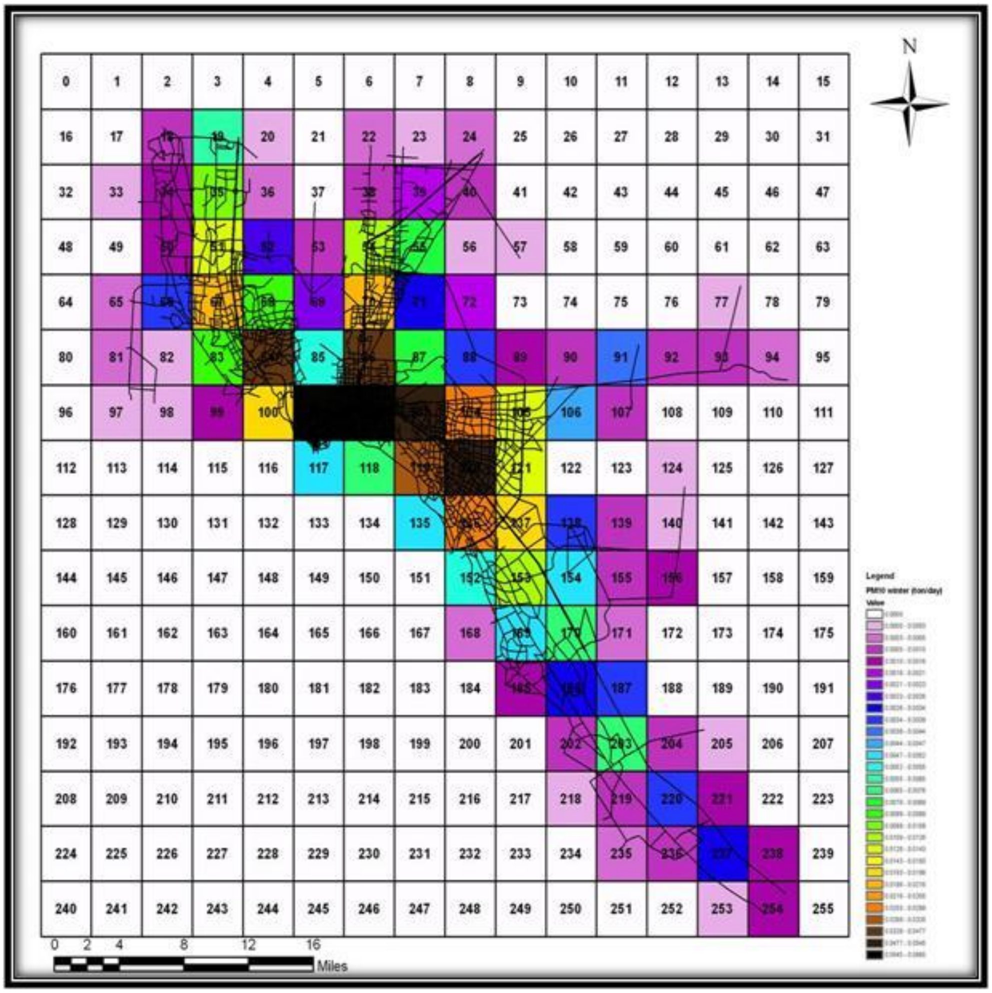


Figure C.58: Winter PM1016x16 emission grid.

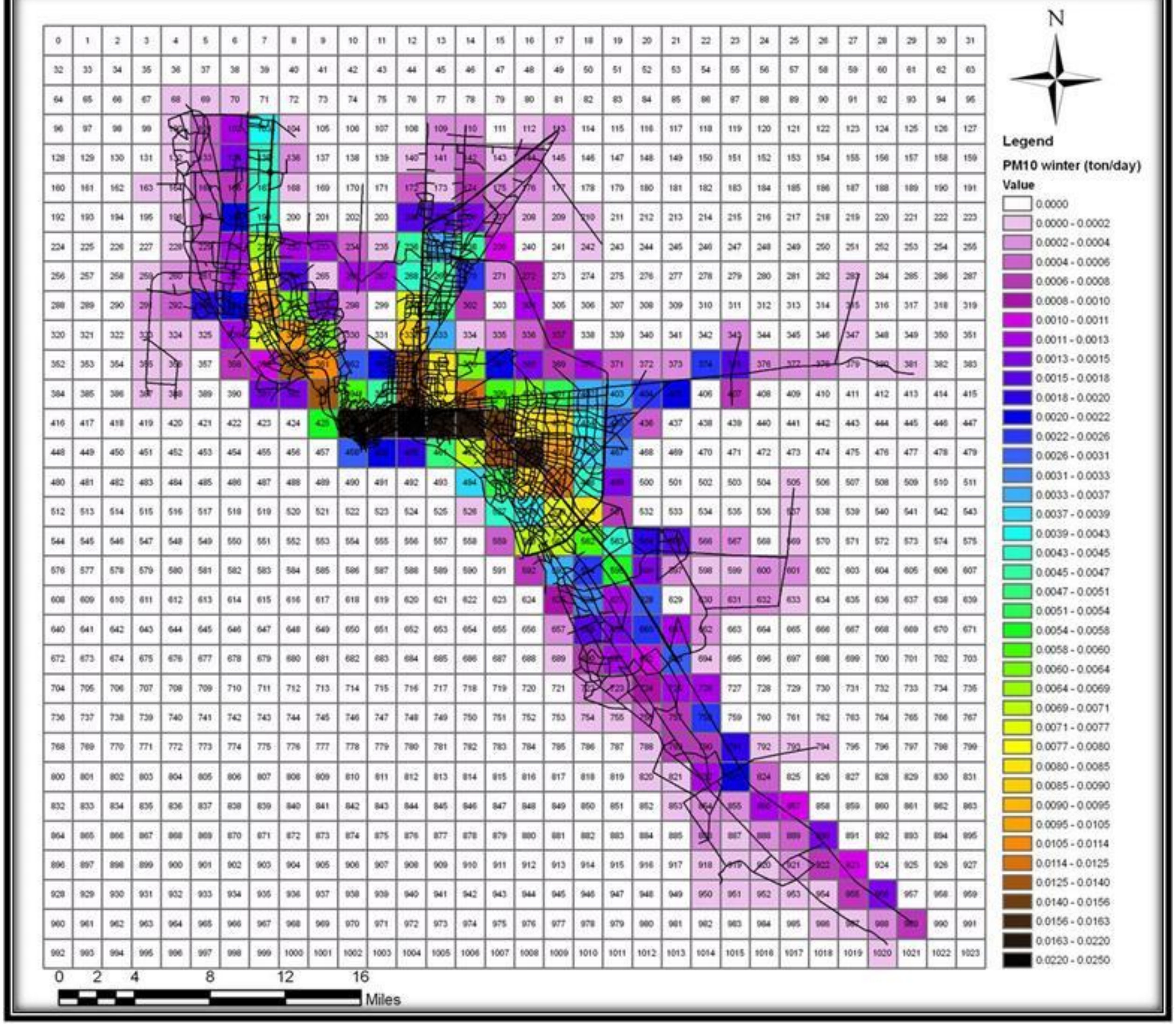


Figure C.59: Winter PM10 32x32 emission grid.

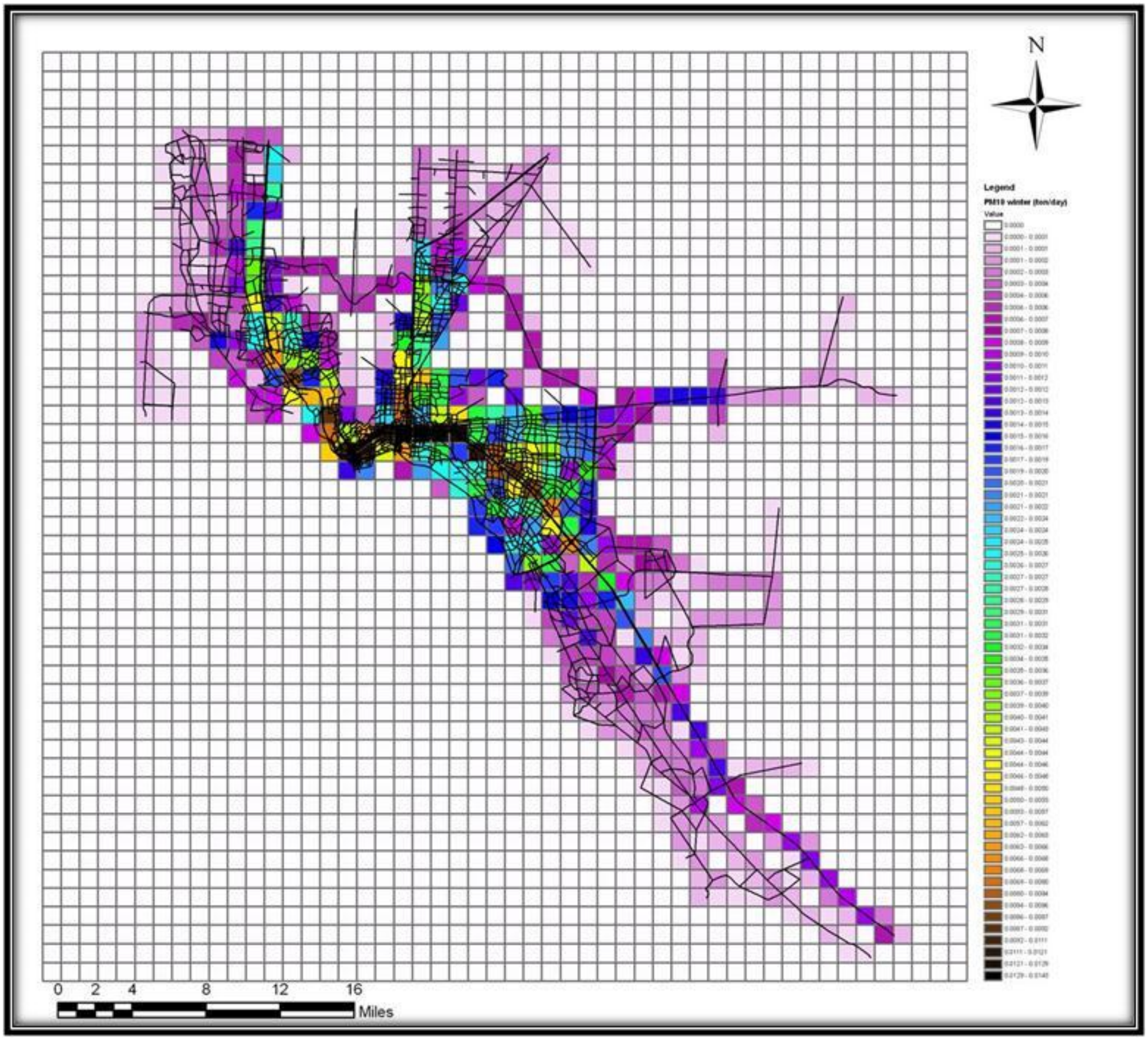


Figure C.60: Winter PM10 50x50 emission grid.

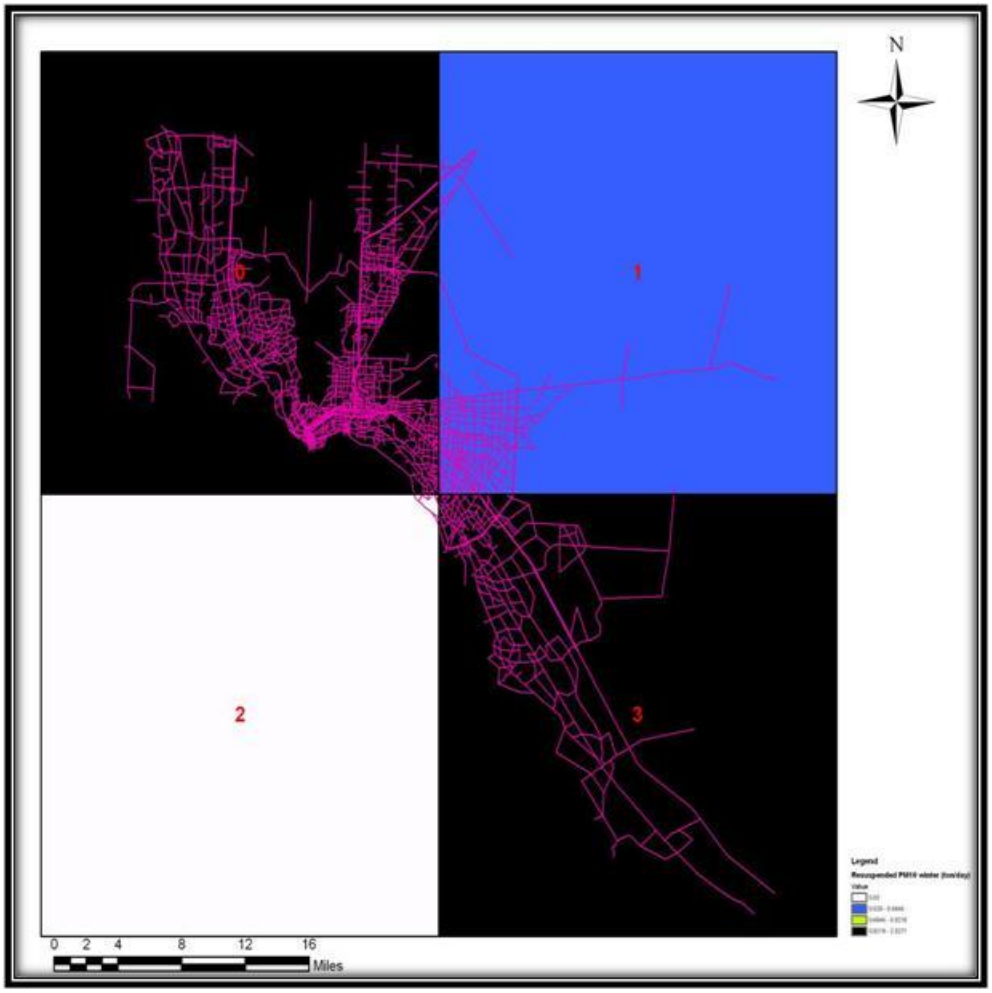


Figure C.61: Winter resuspended PM10 2x2 emission grid.

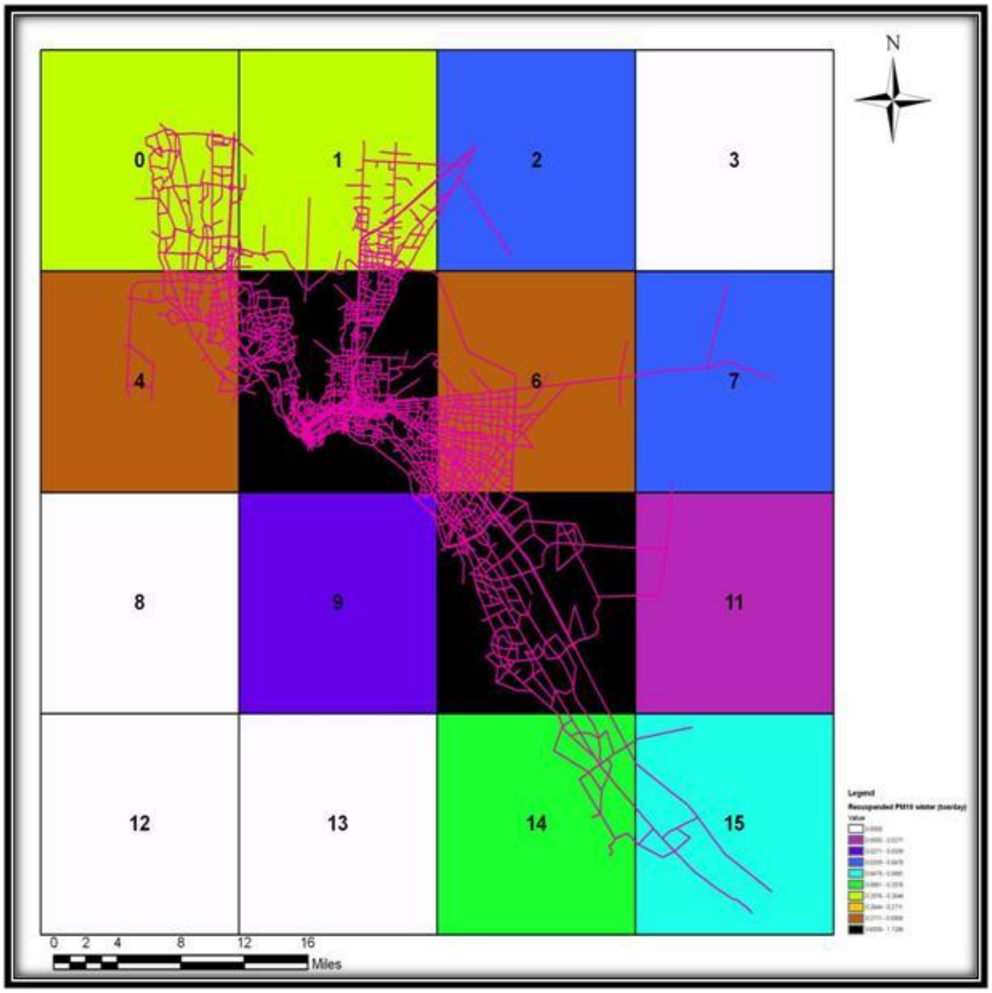


Figure C.62: Winter resuspended PM10 4x4 emission grid.

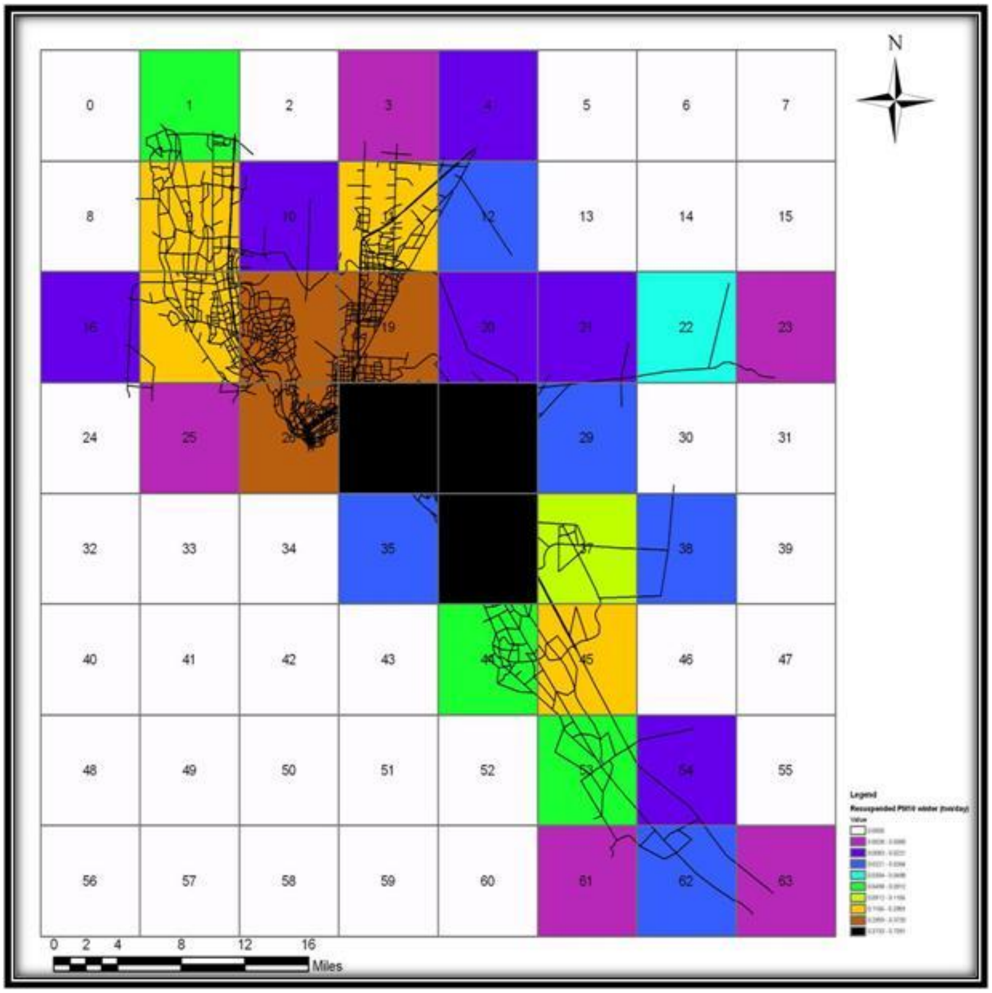


Figure C.63: Winter resuspended PM10 8x8 emission grid.

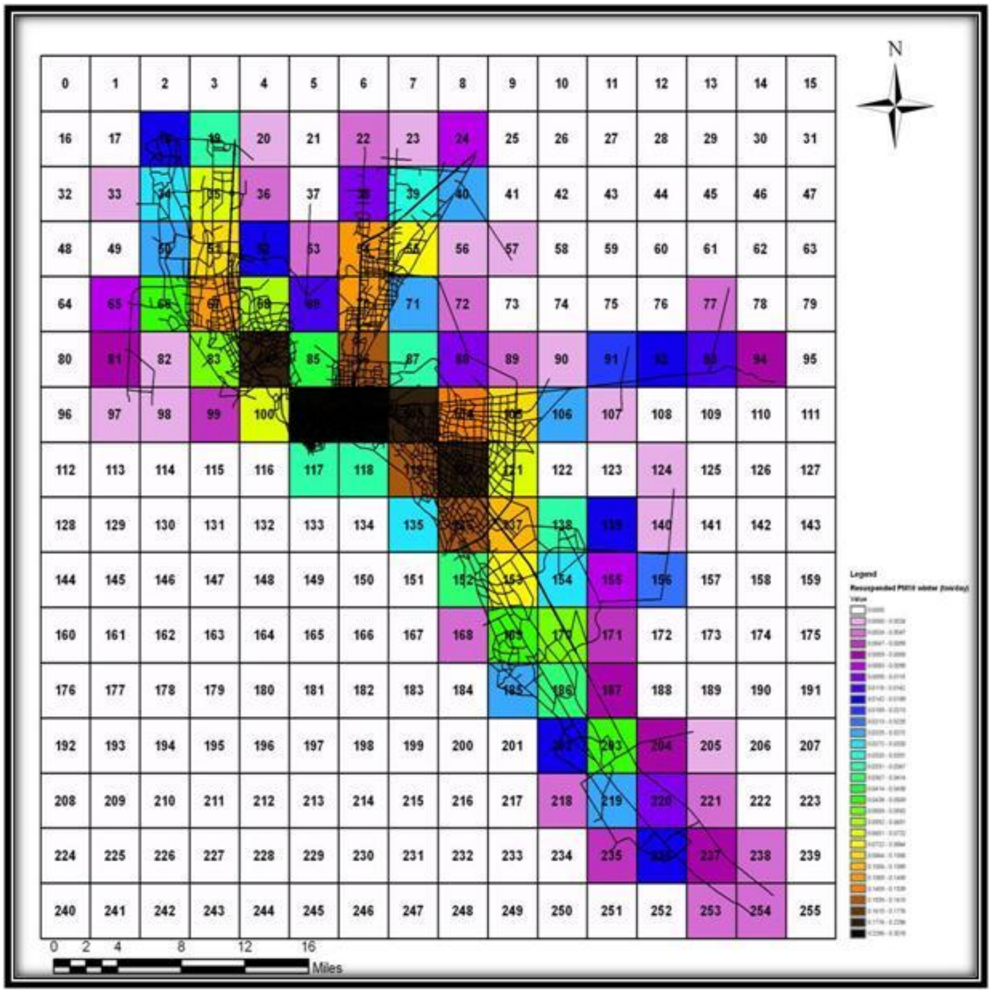


Figure C.64: Winter resuspended PM10 16x16 emission grid.

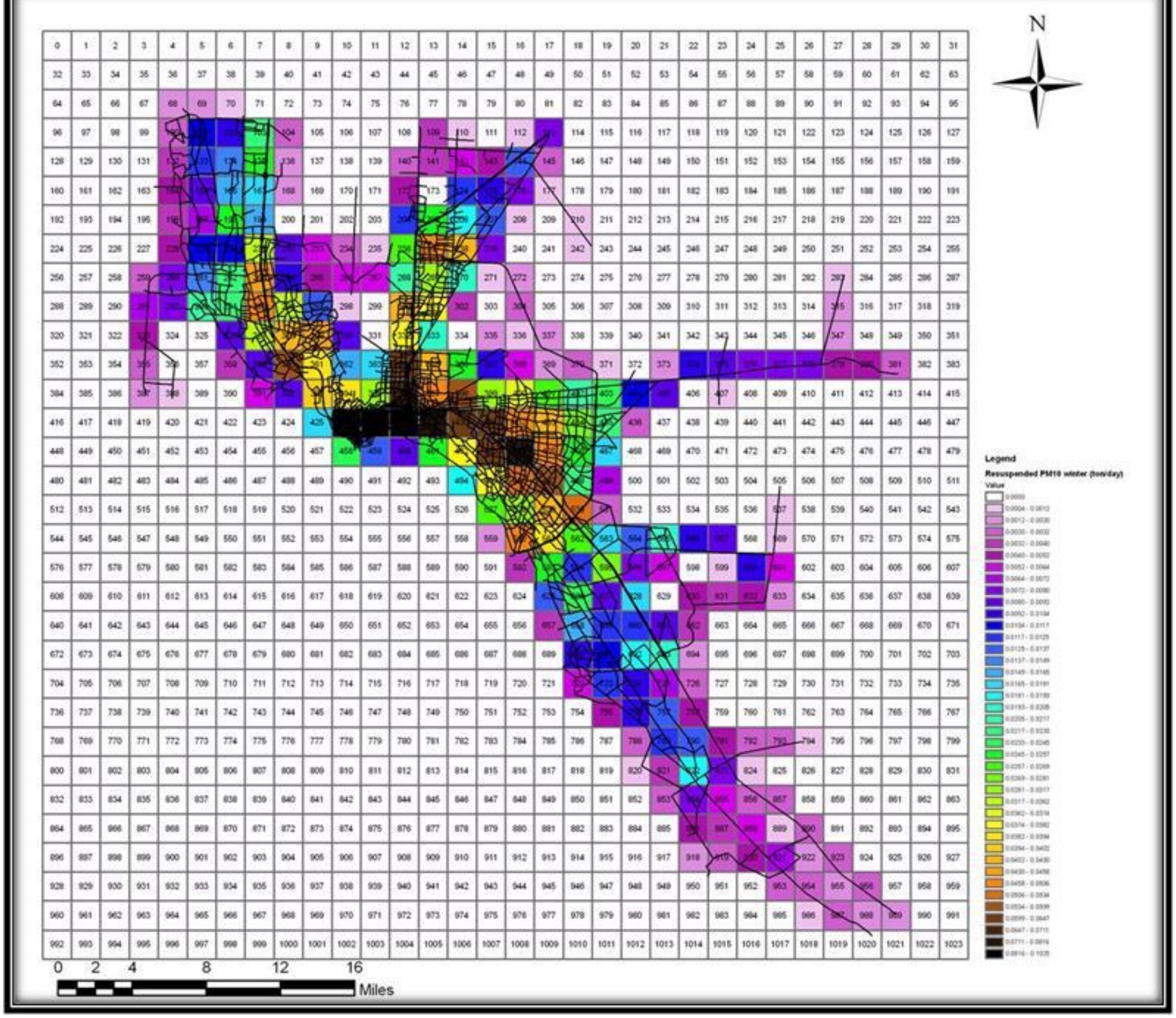


Figure C.65: Winter resuspended PM10 32x32 emission grid.

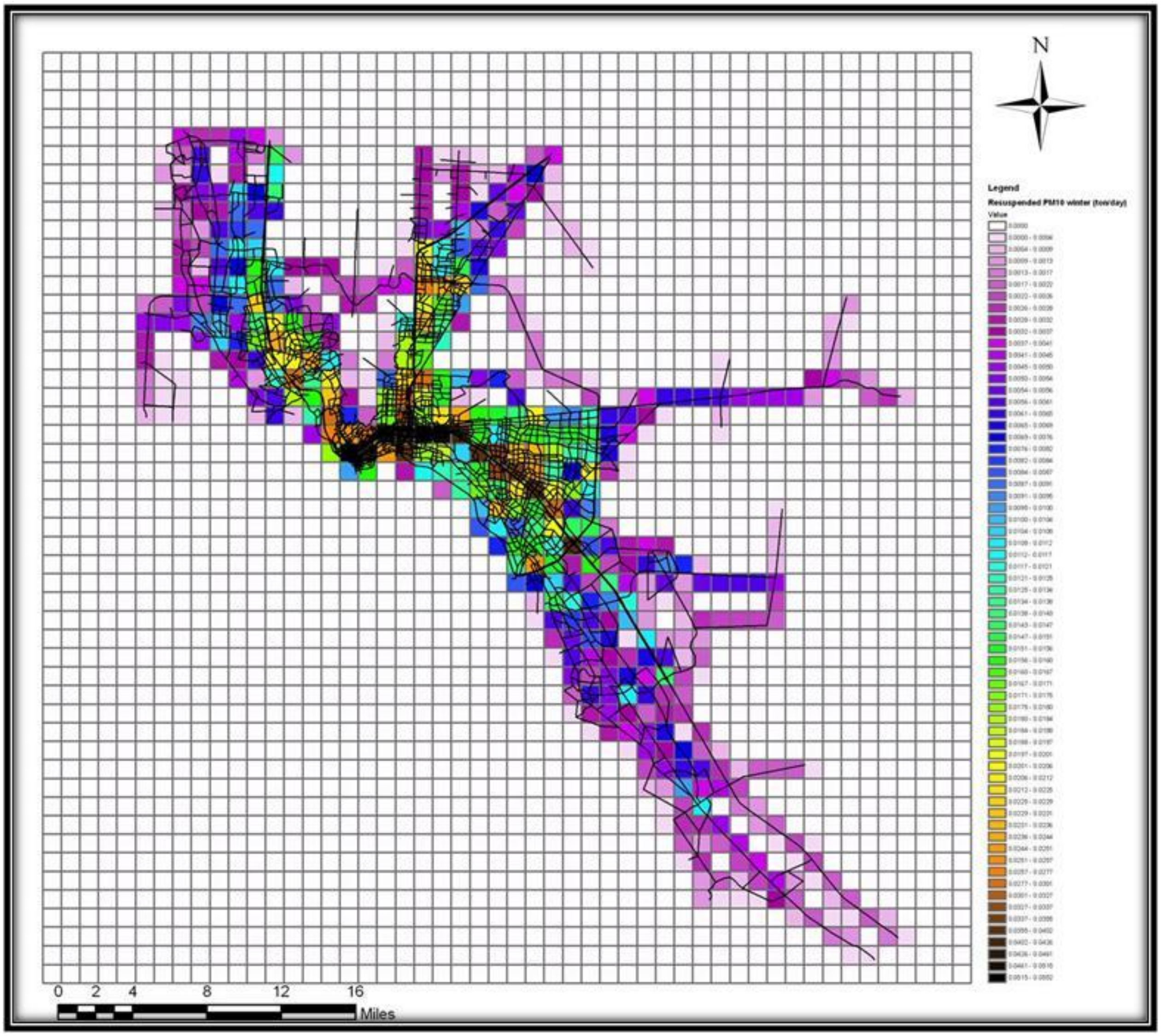


Figure C.66: Winter resuspended PM10 50x50 emission grid.

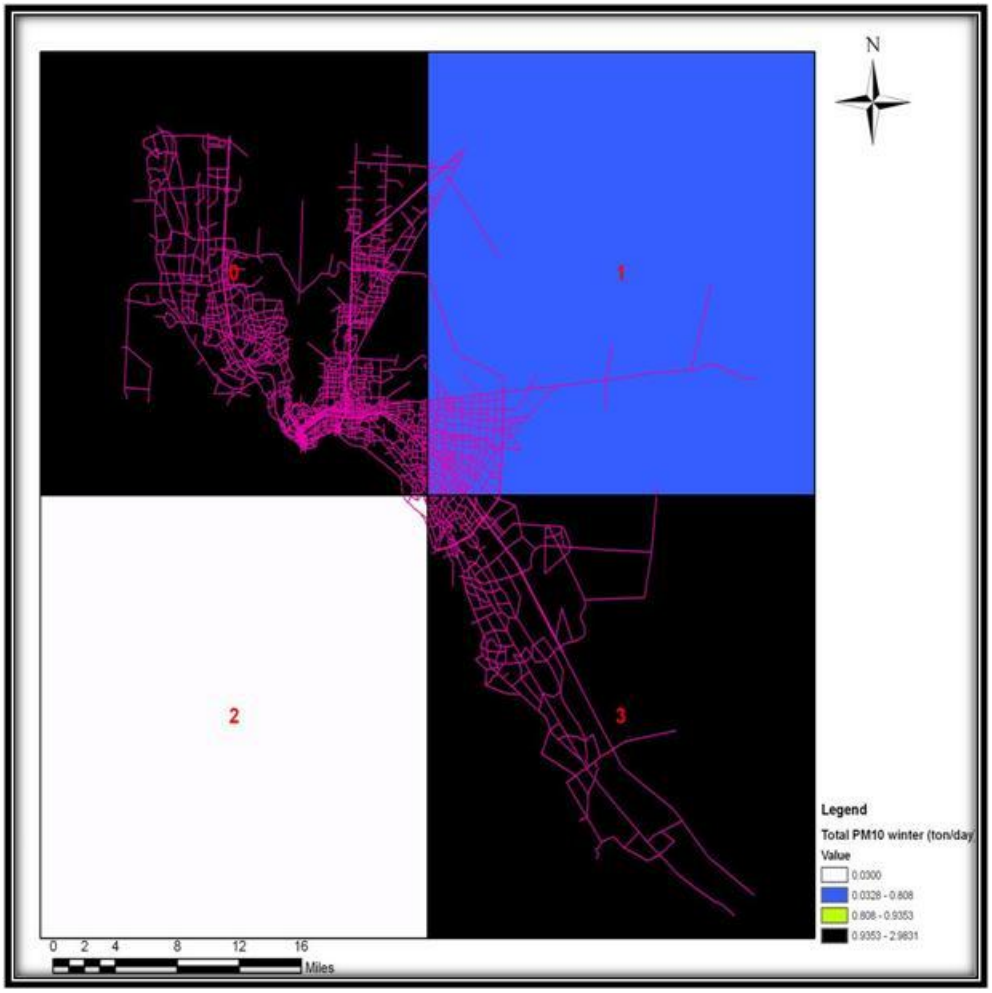


Figure C.67 Winter total PM10 2x2 emission grid.

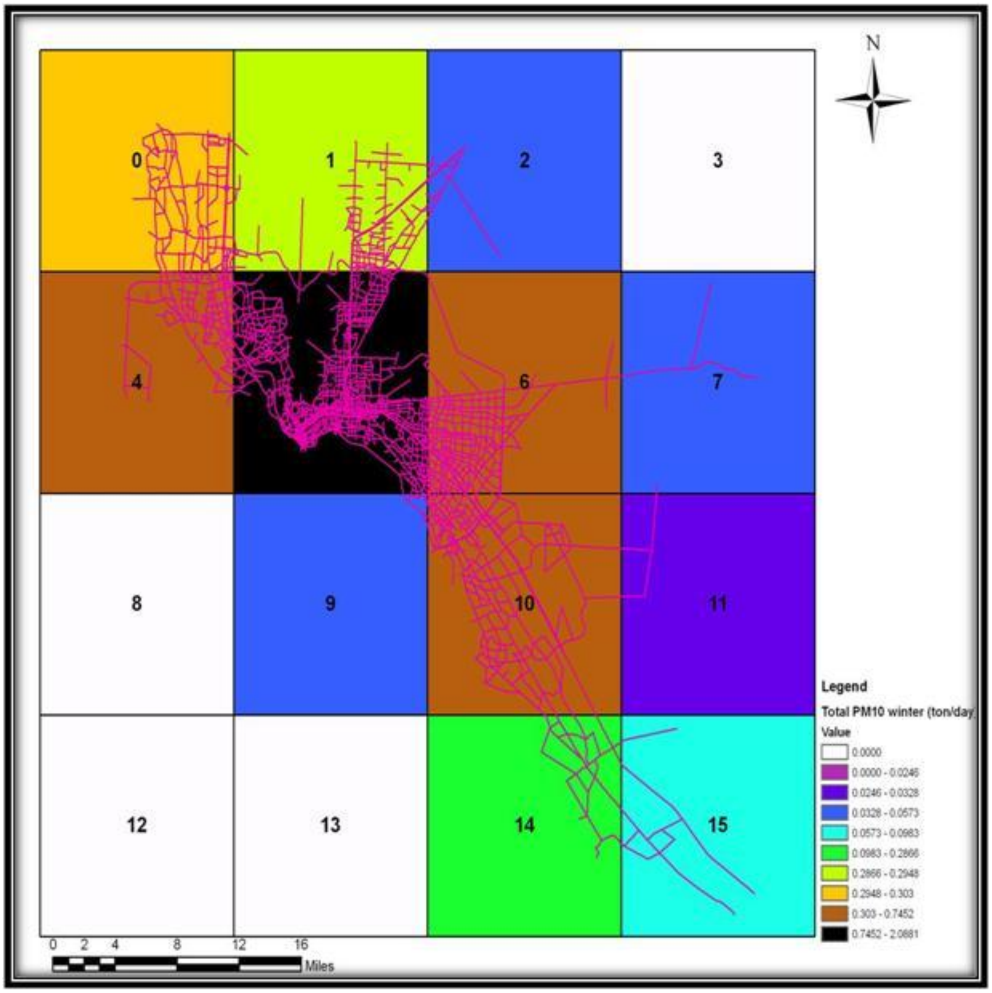


Figure C.68: Winter total PM10 4x4 emission grid.

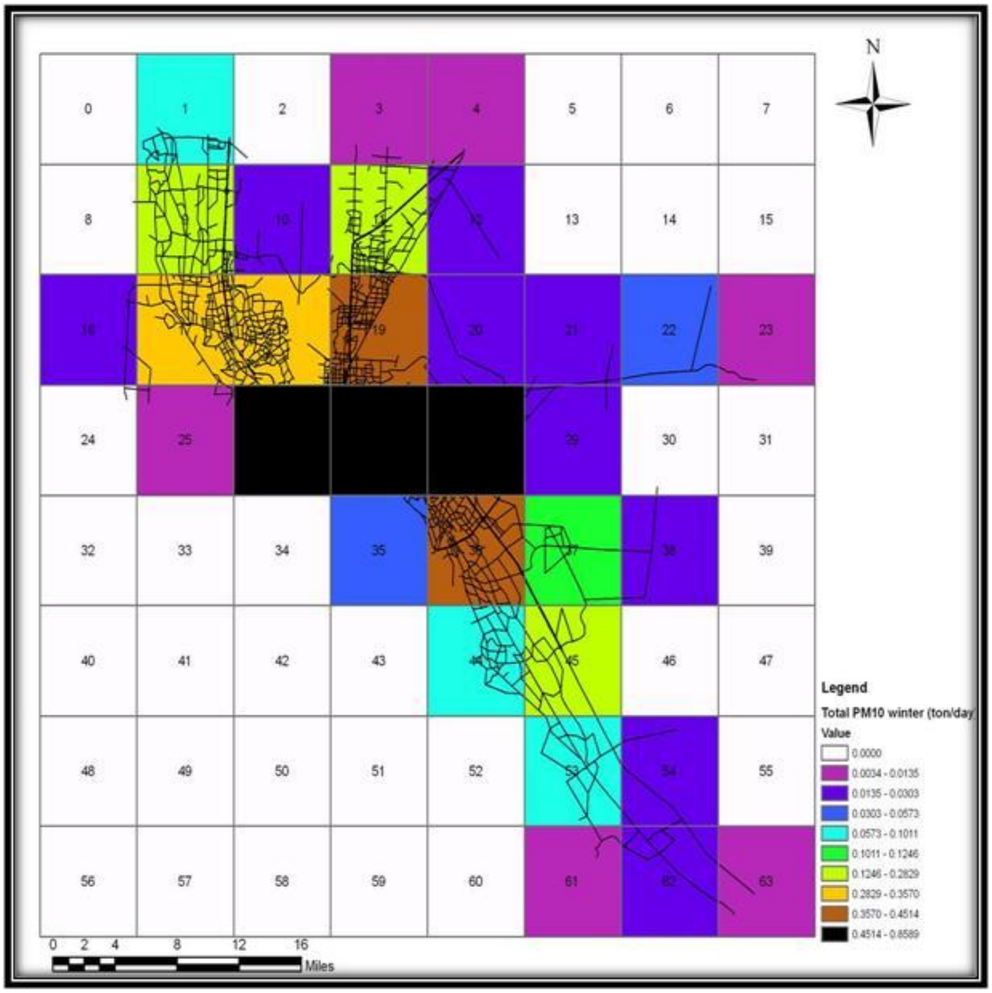


Figure C.69: Winter total PM10 8x8 emission grid.

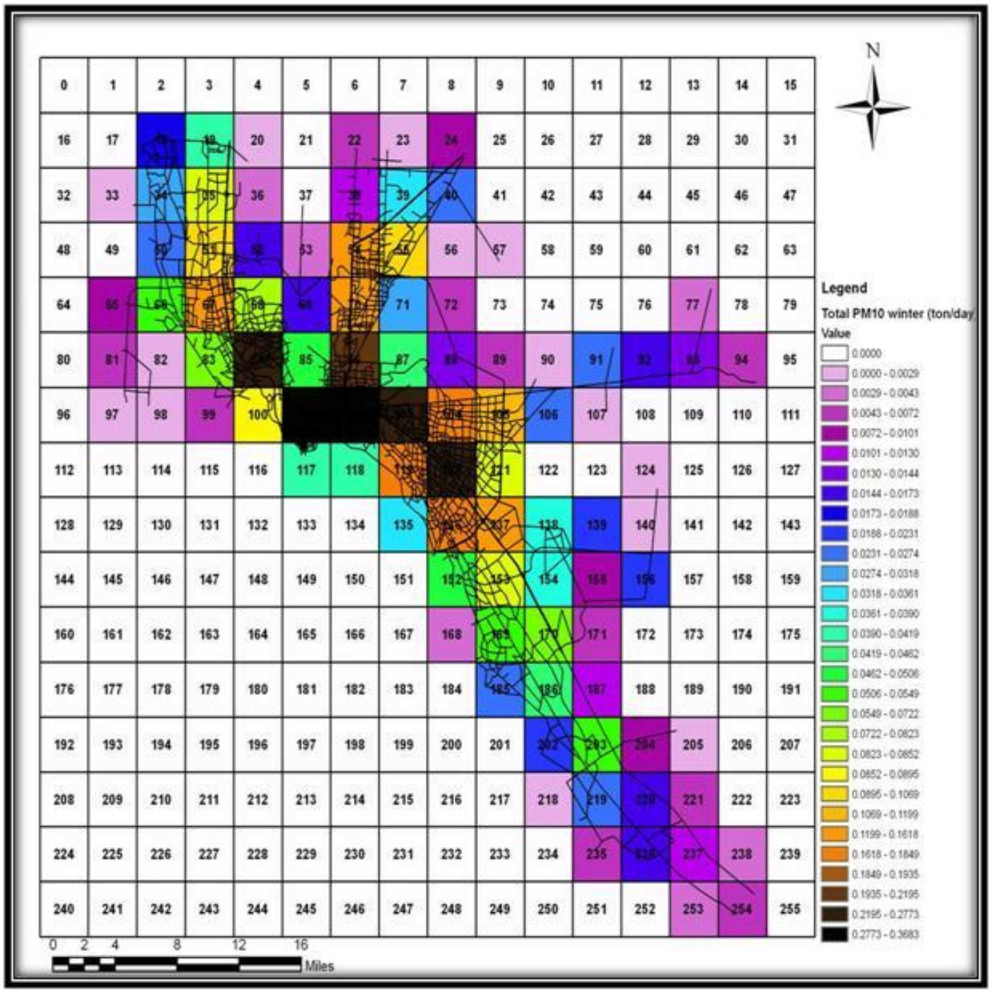


Figure C.70: Winter total PM10 16x16 emission grid.

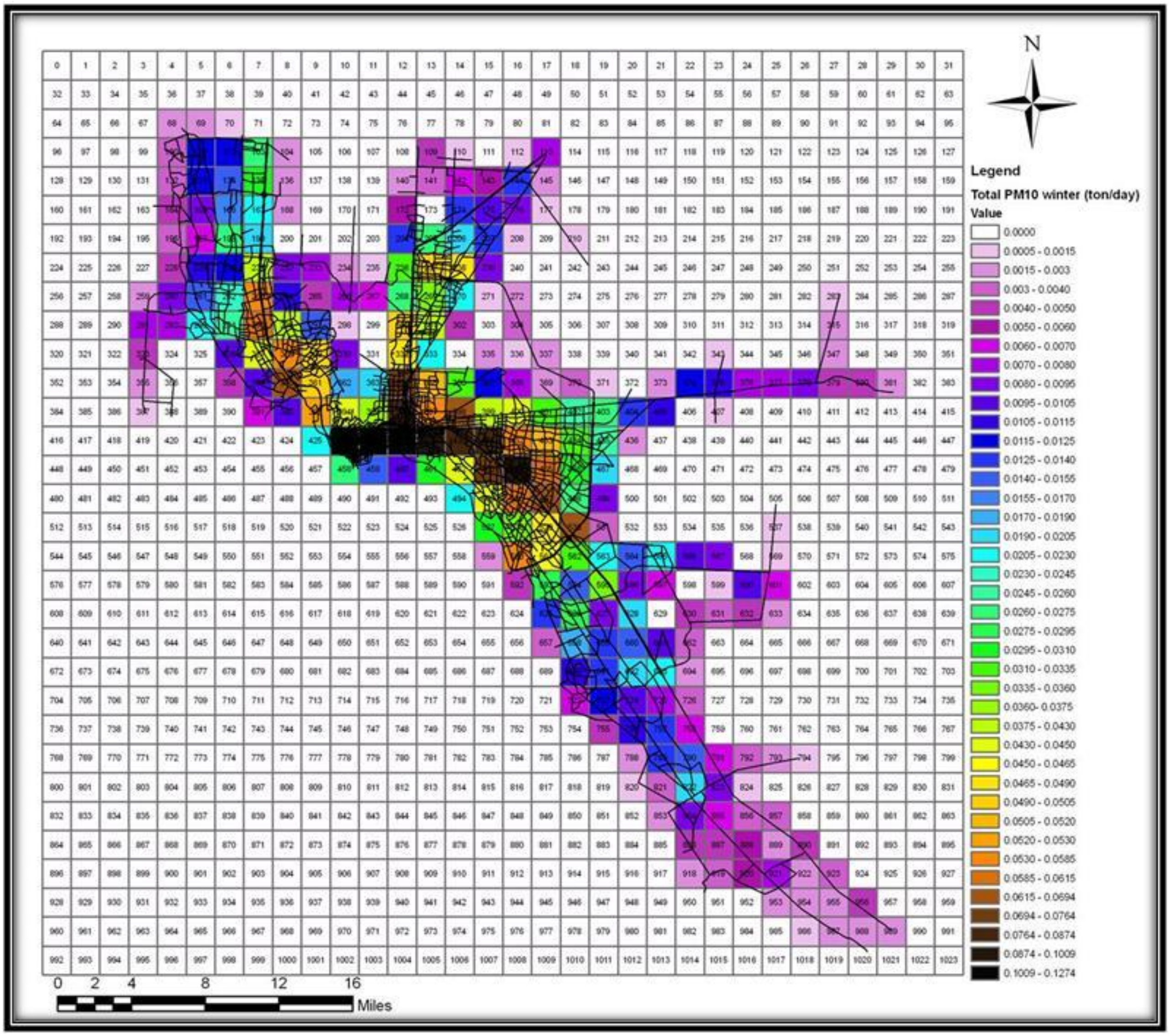


Figure C.71: Winter total PM10 32x32 emission grid.

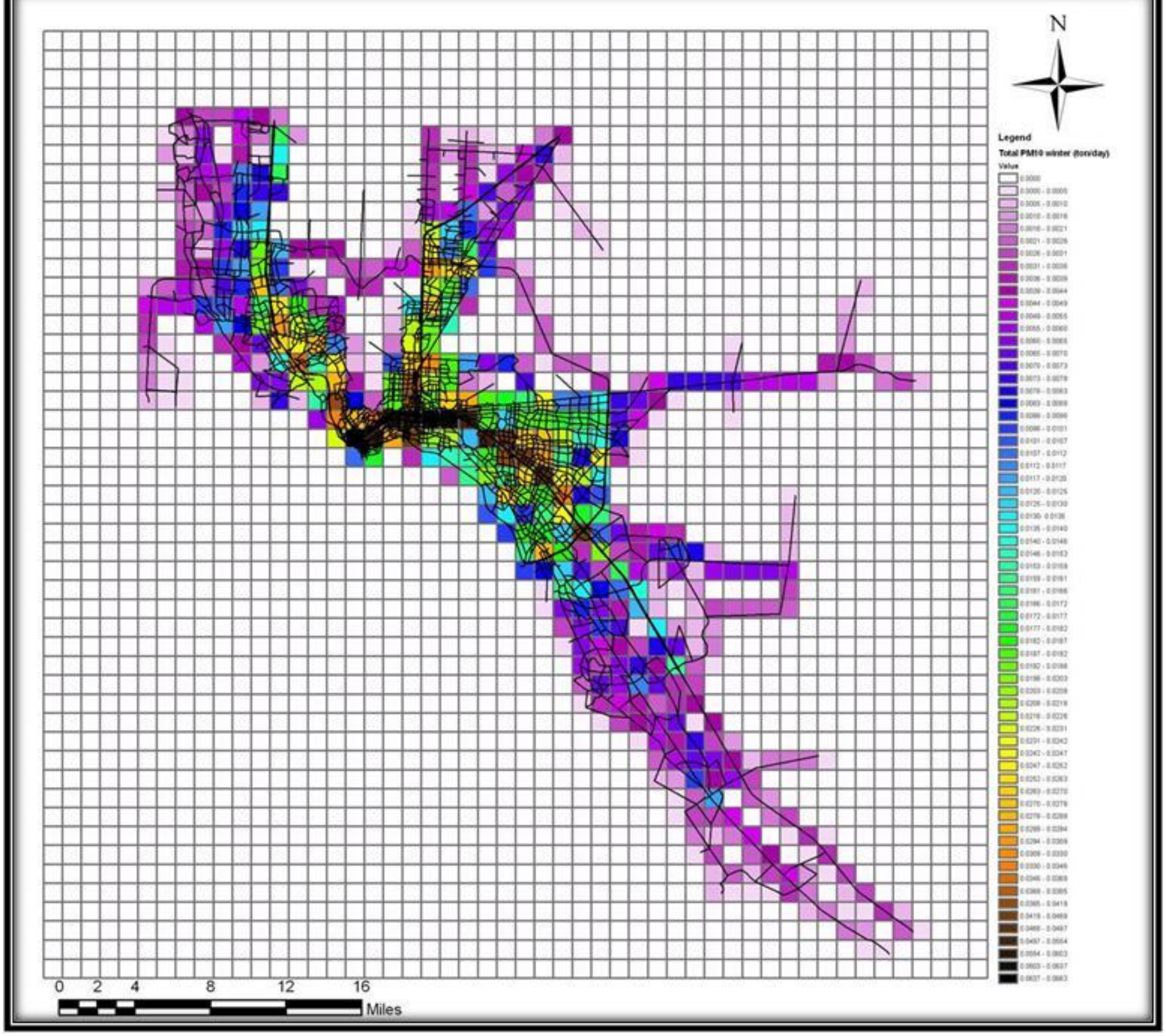


Figure C.72: Winter total PM10 50x50 emission grid.

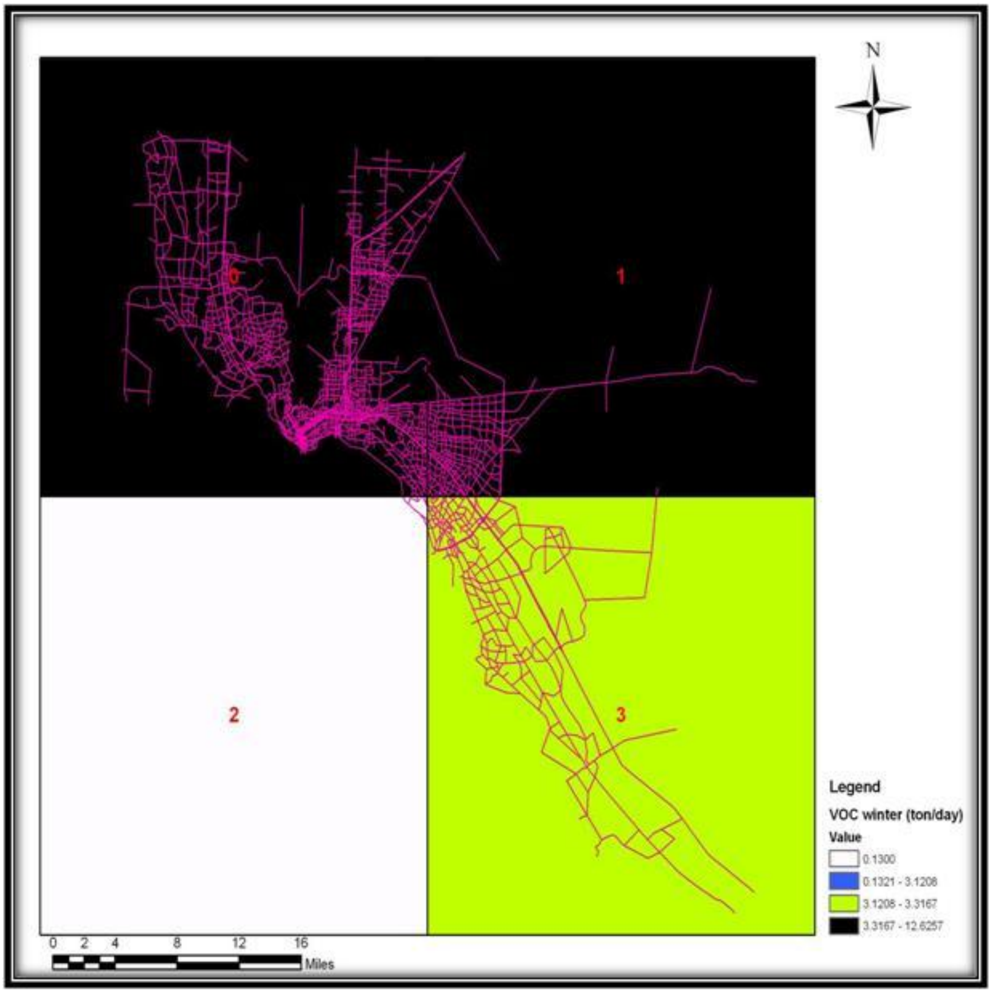


Figure C.73: Winter VOC 2x2 emission grid.

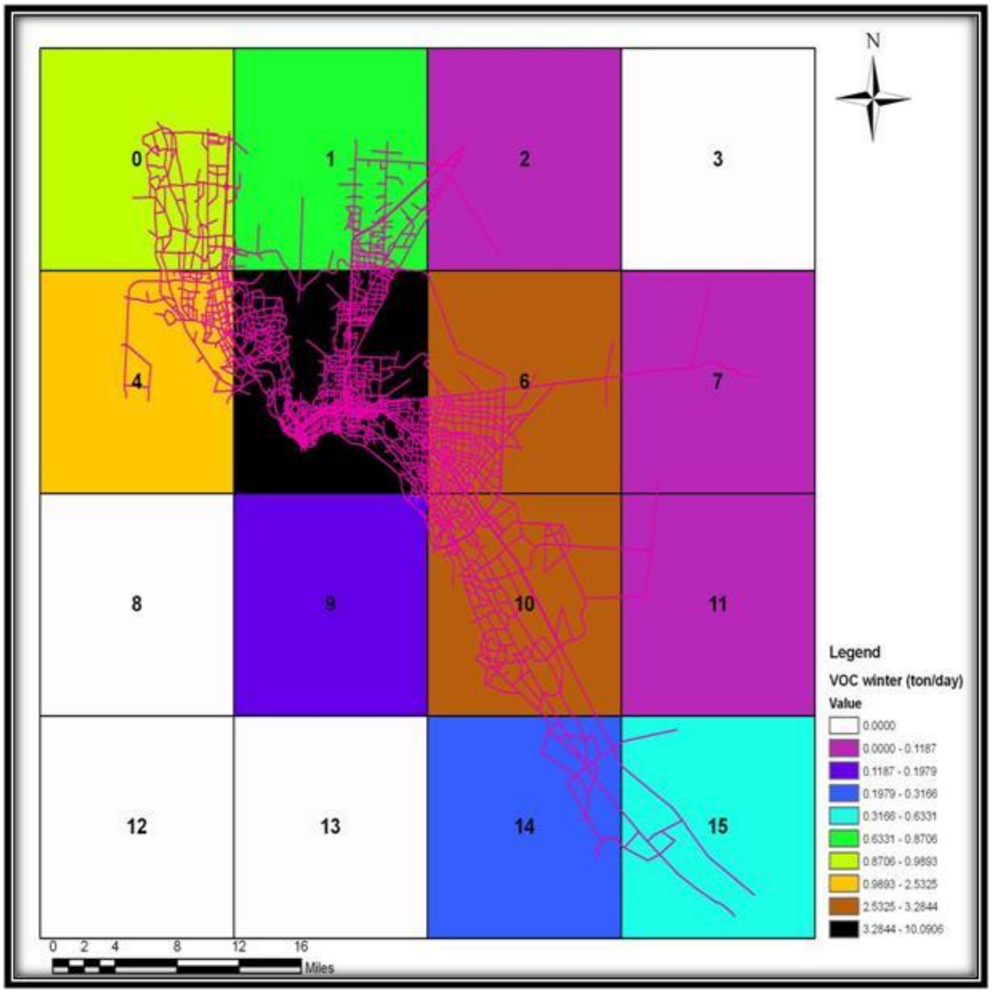


Figure C.74: Winter VOC 4x4 emission grid.

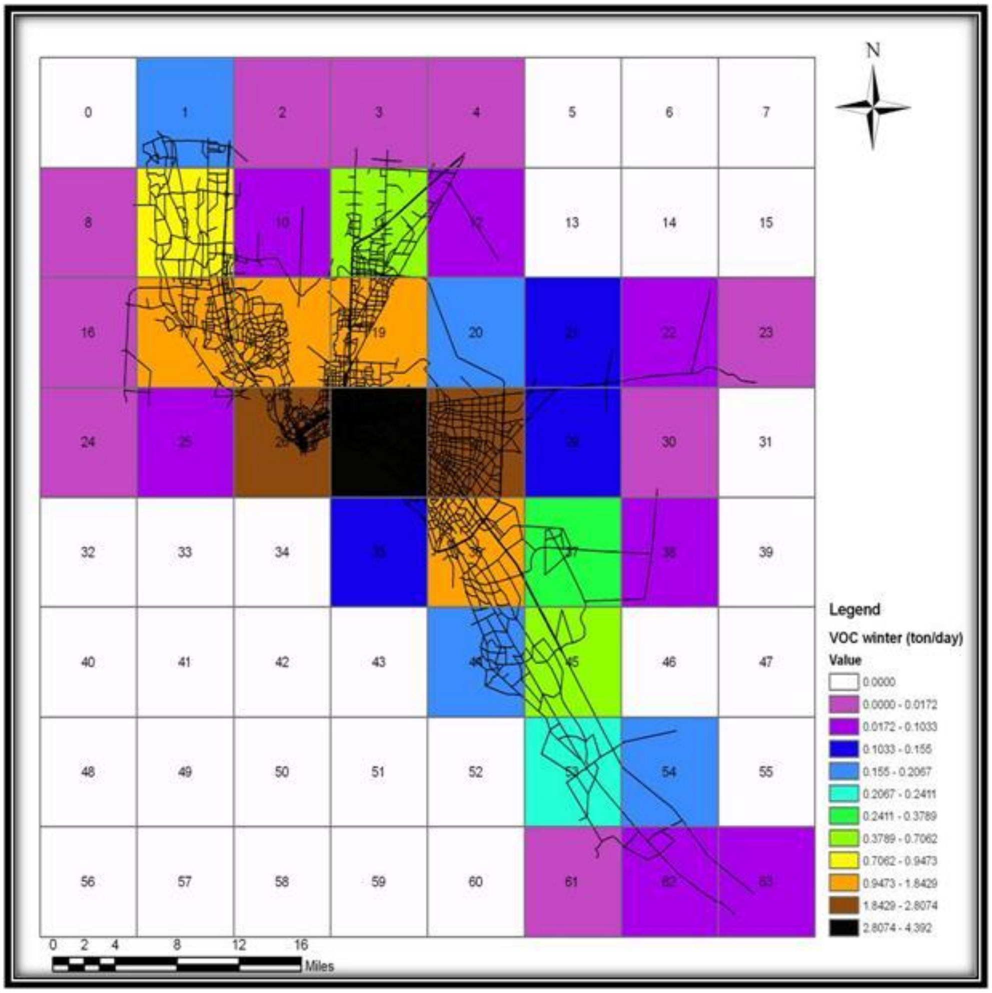


Figure C.75: Winter VOC 8x8 emission grid.

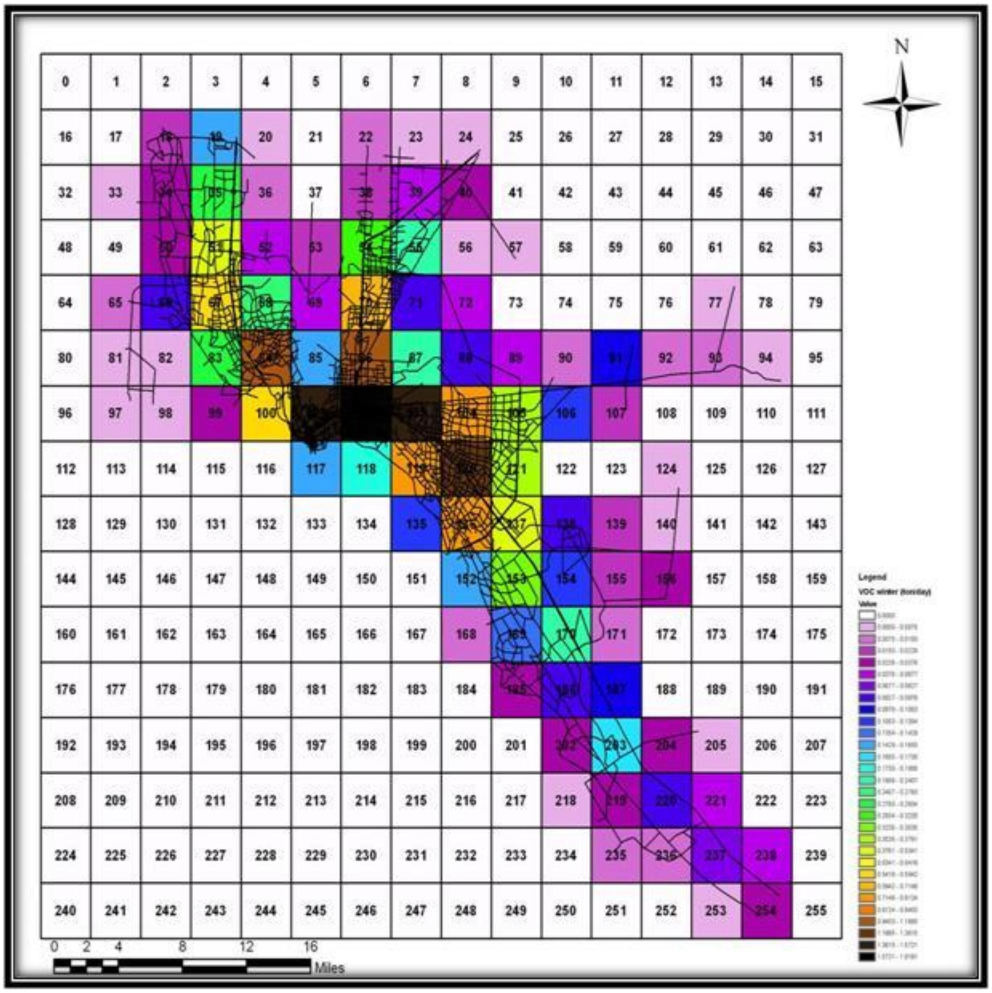


Figure C.76: Winter VOC 16x16 emission grid.

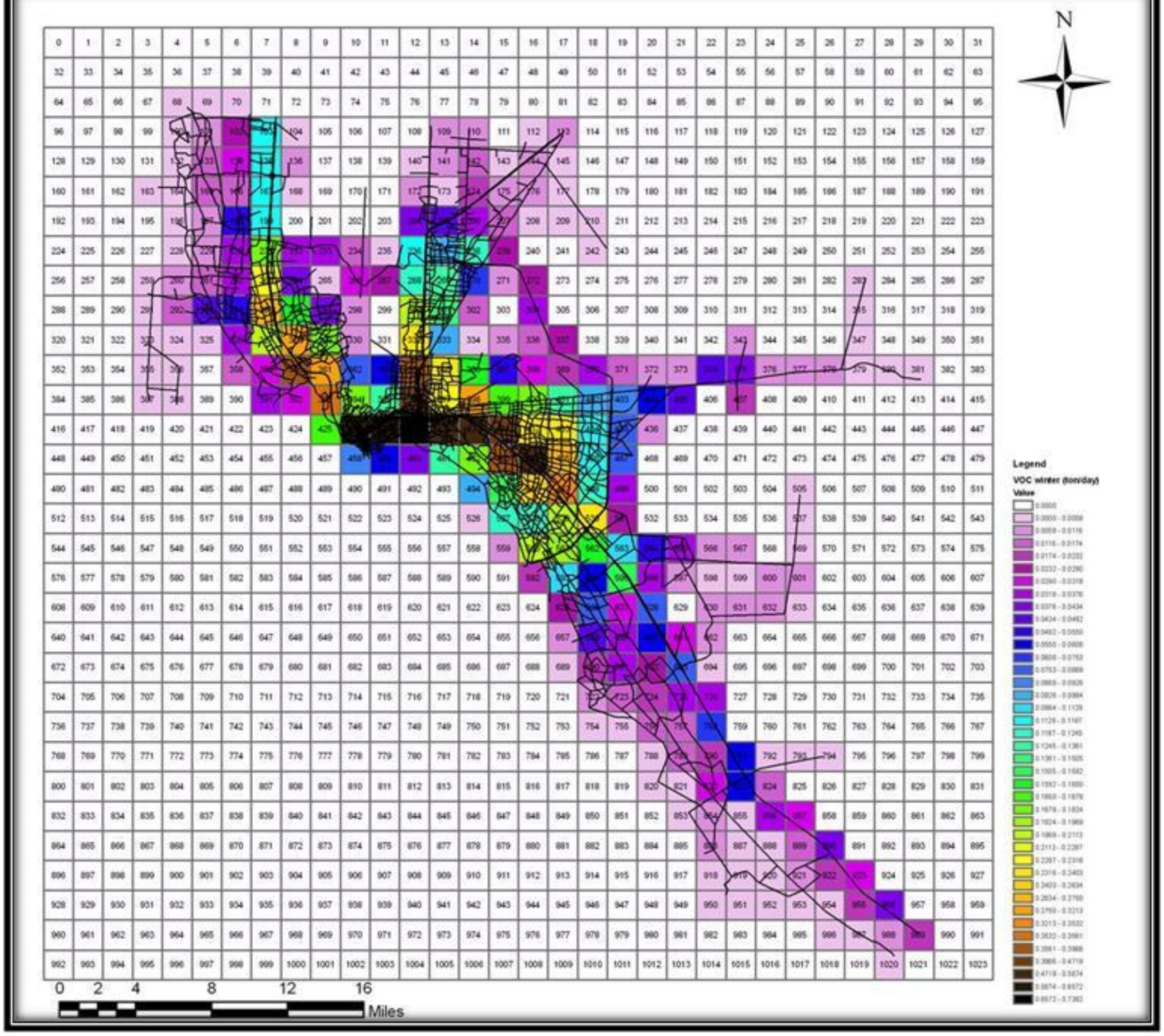


Figure C.77: Winter VOC 32x32 emission grid.

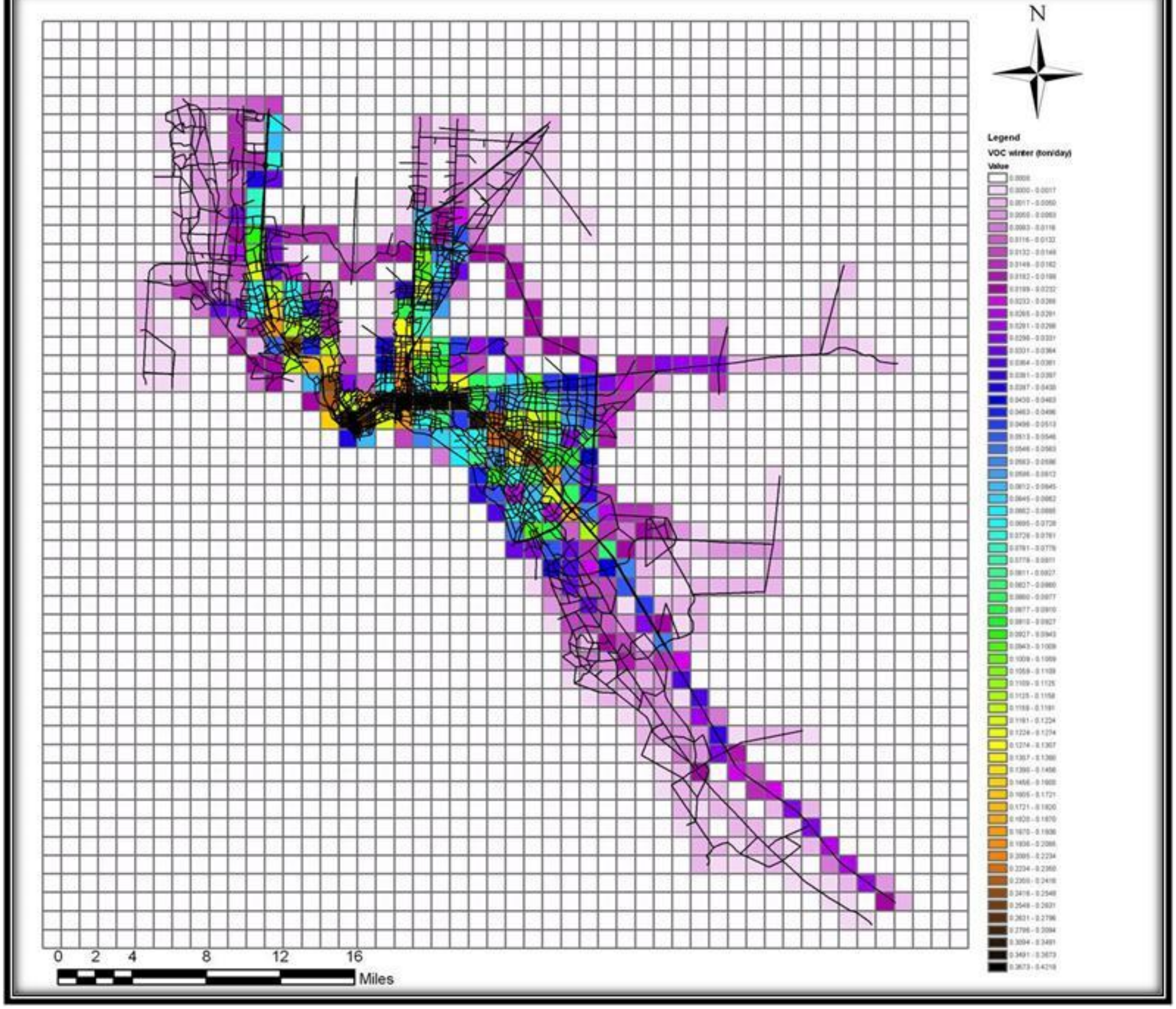


Figure C.78: Winter VOC 50x50 emission grid.

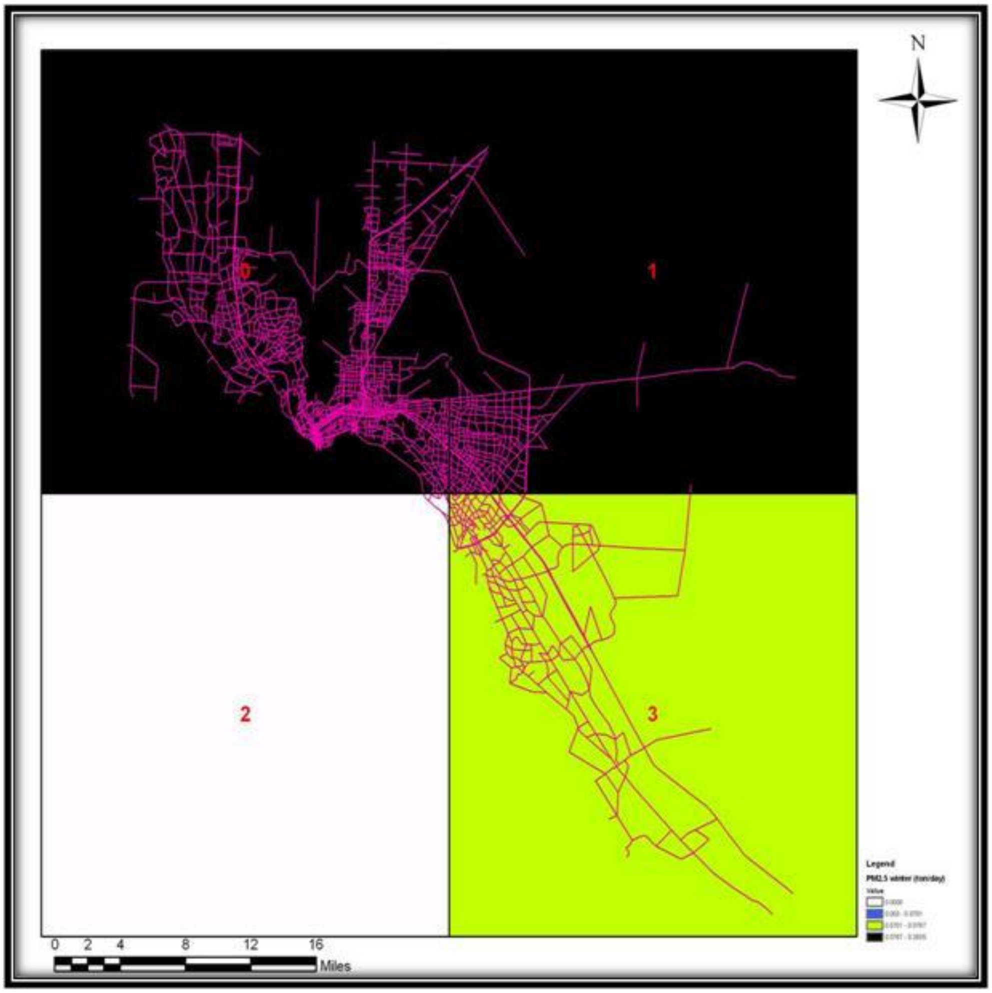


Figure C.79: Winter PM2.5 2x2 emission grid.

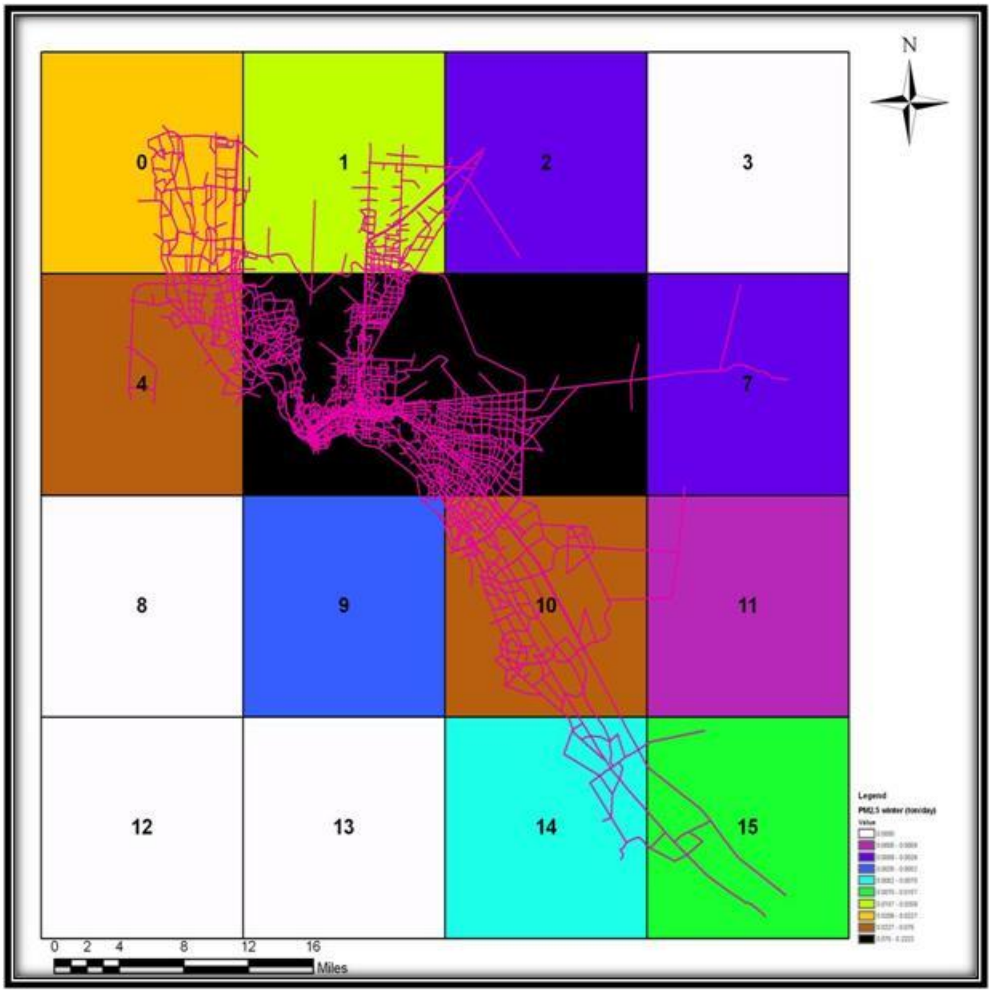


Figure C.80: Winter PM2.5 4x4 emission grid.

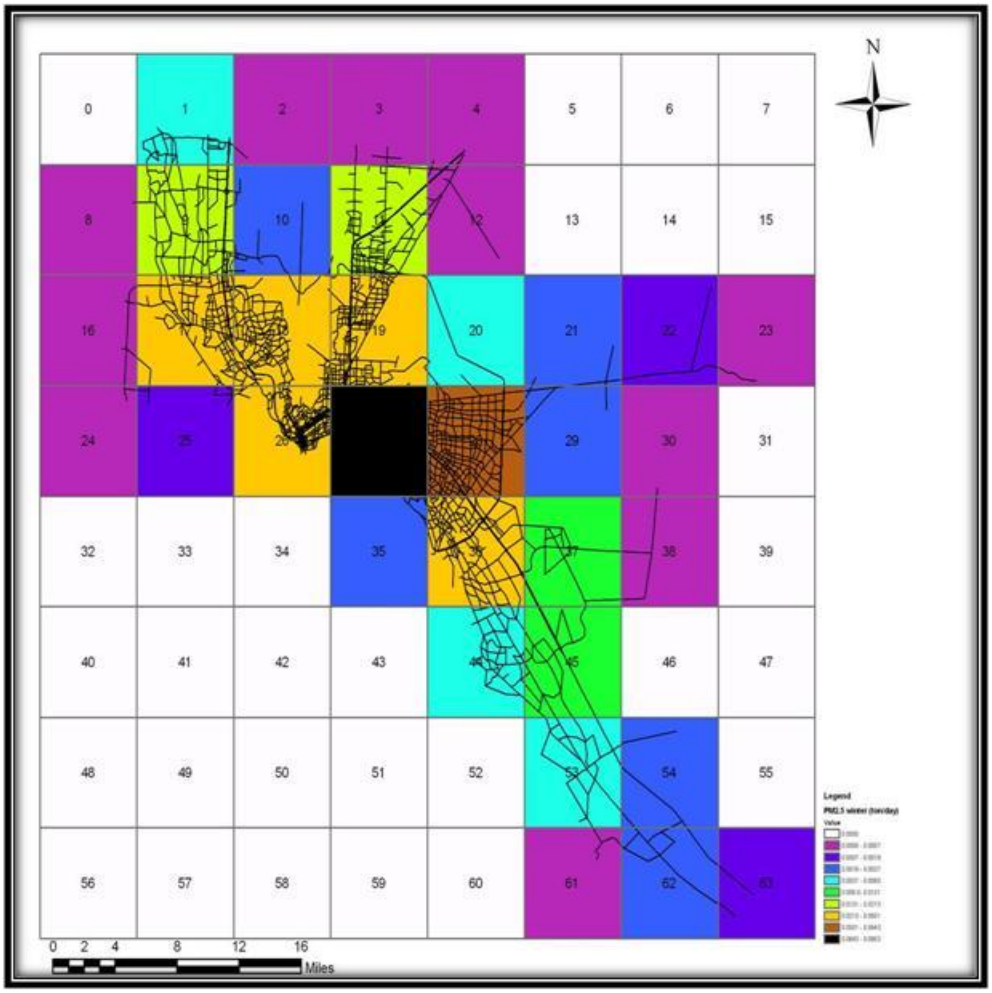


Figure C.81: Winter PM2.5 8x8 emission grid.

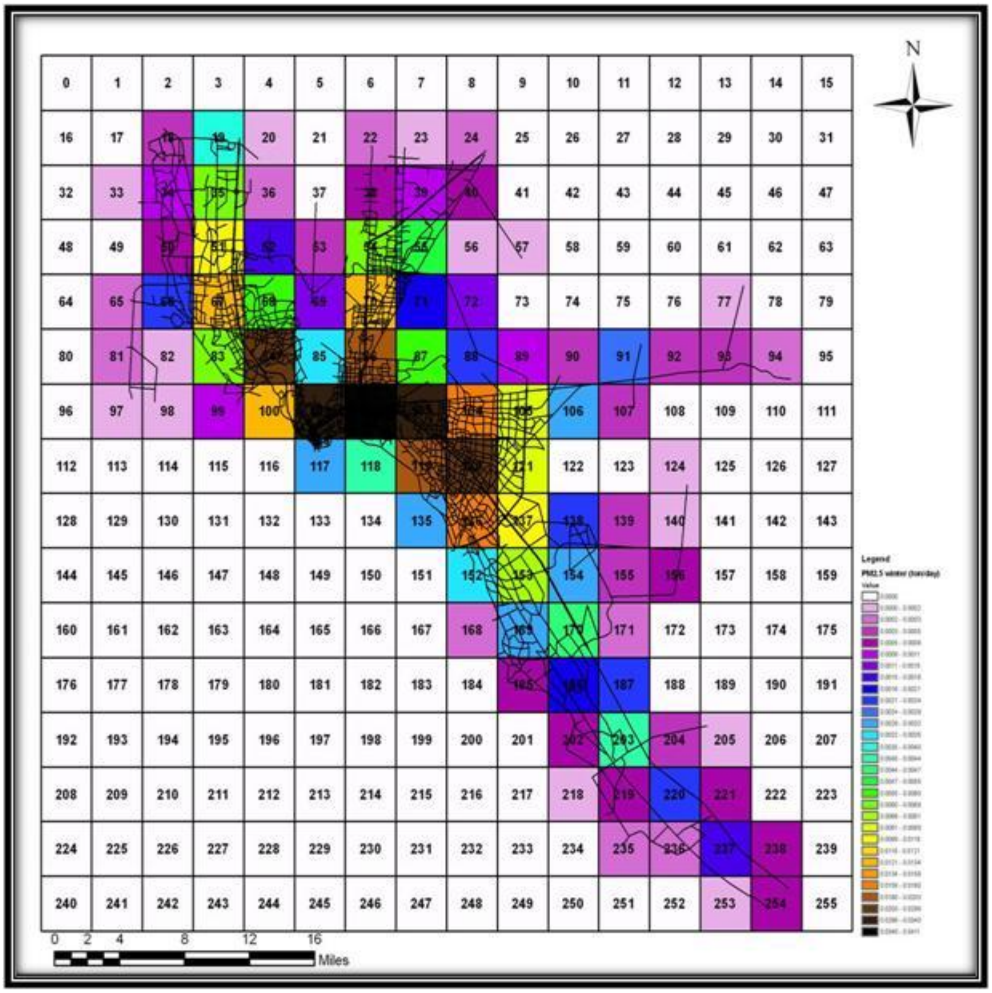


Figure C.82: Winter PM2.5 16x16 emission grid.

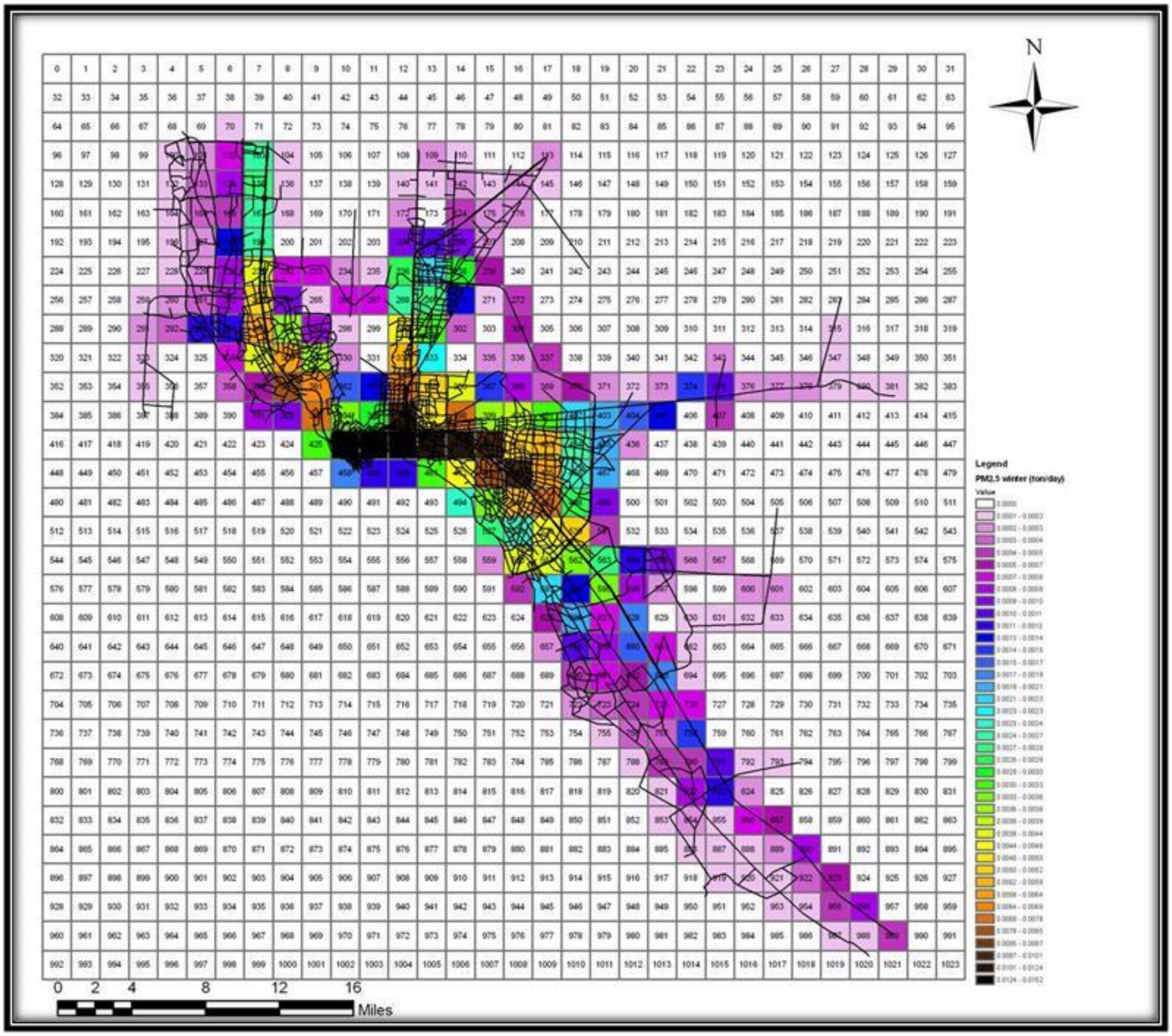


Figure C.83: Winter PM2.5 32x32 emission grid.

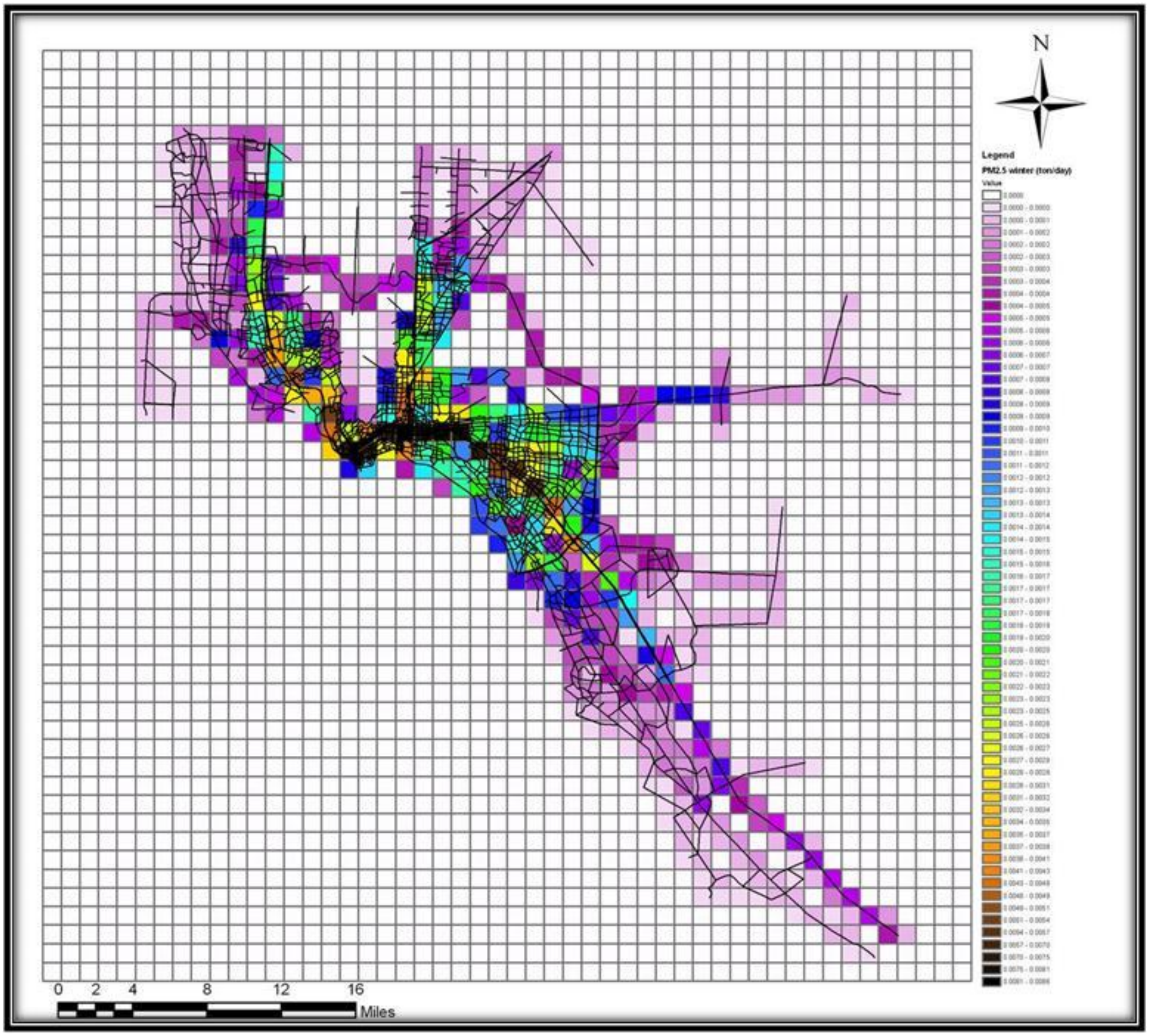


Figure C.84: Winter PM2.5 50x50 emission grid.

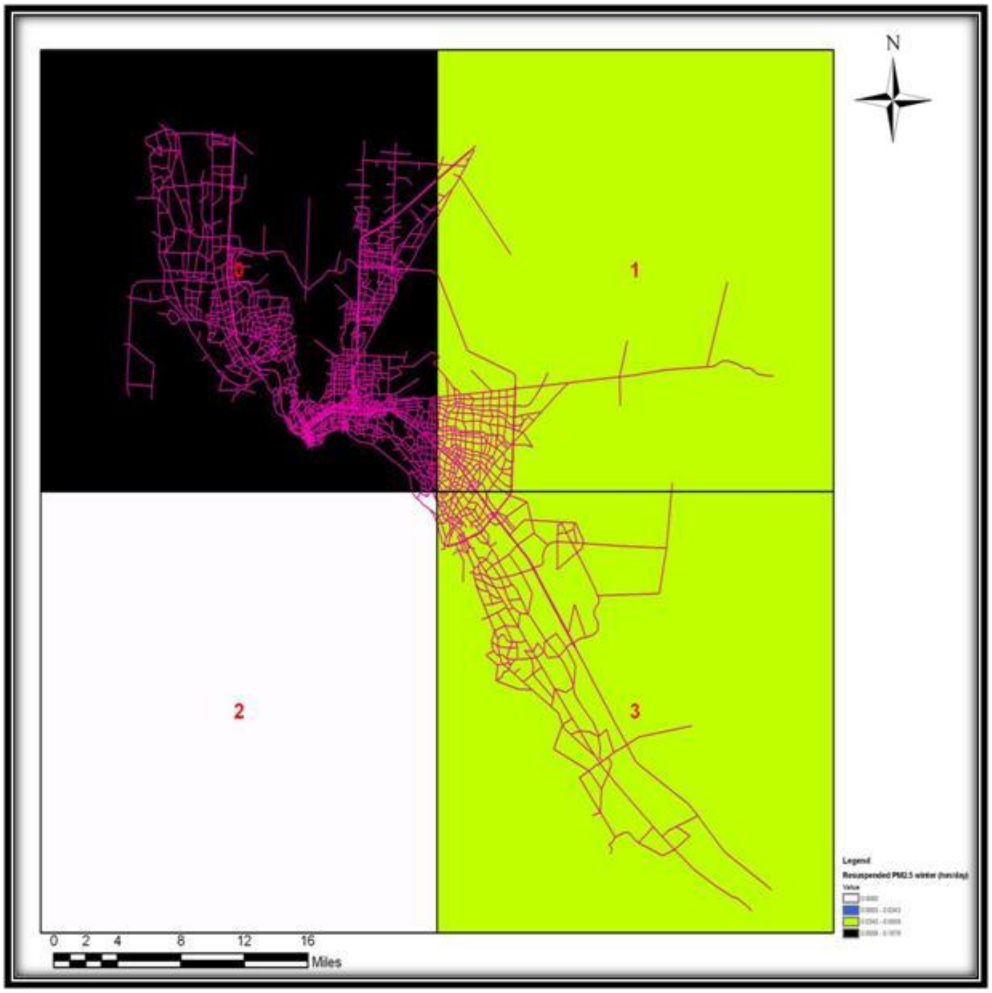


Figure C.85: Winter resuspended PM2.5 2x2 emission grid.

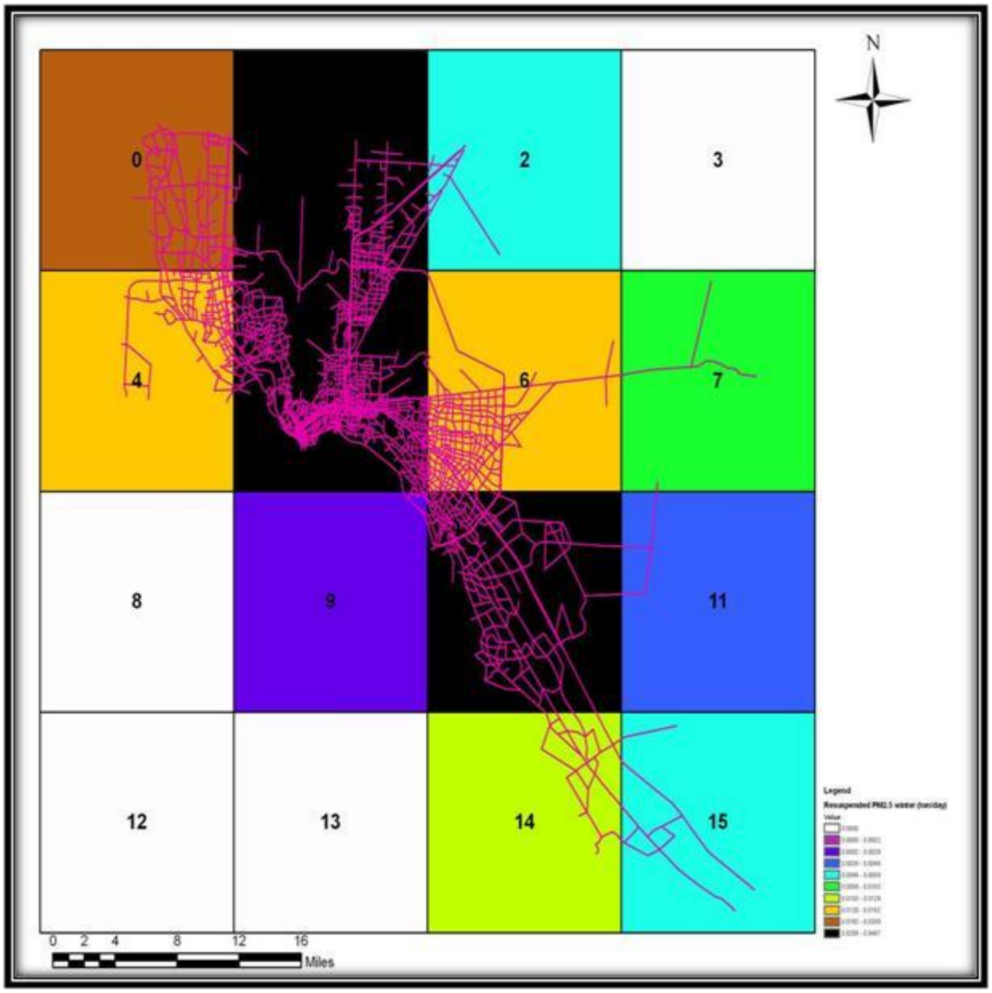


Figure C.86: Winter resuspended PM2.5 4x4 emission grid.

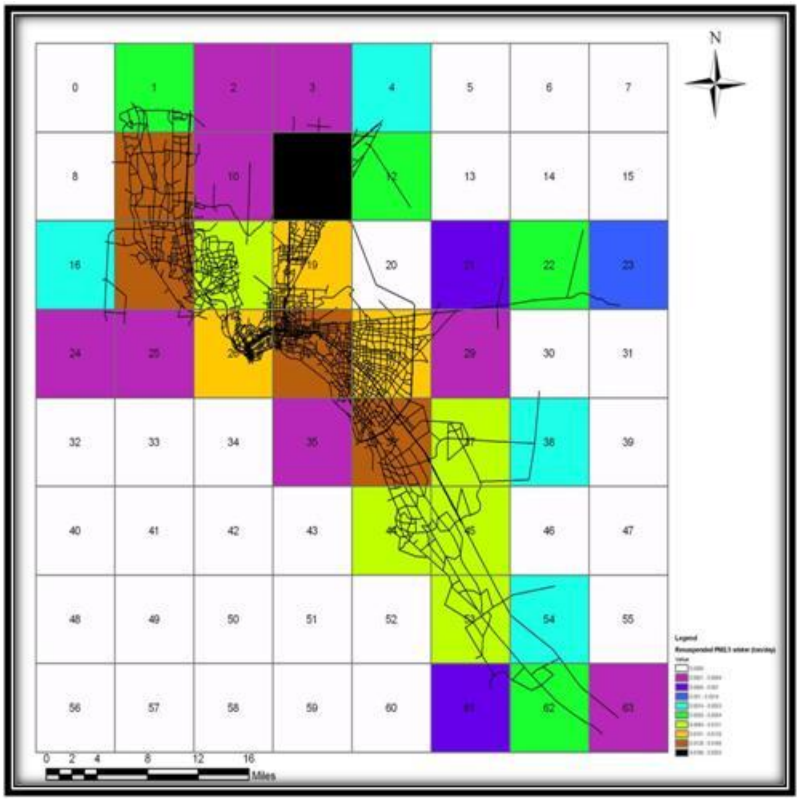


Figure C.87: Winter resuspended PM2.5 8x8 emission grid.

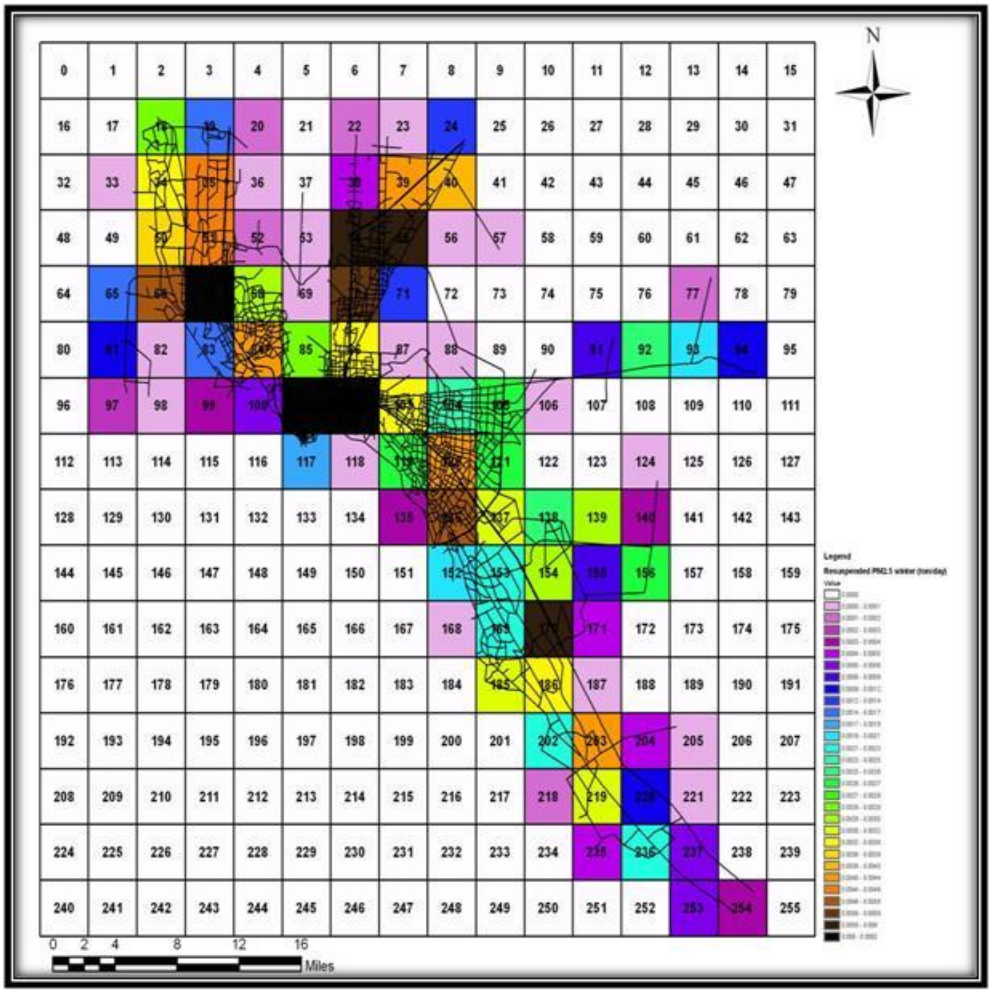


Figure C.88: Winter resuspended PM2.5 16x16 emission grid.

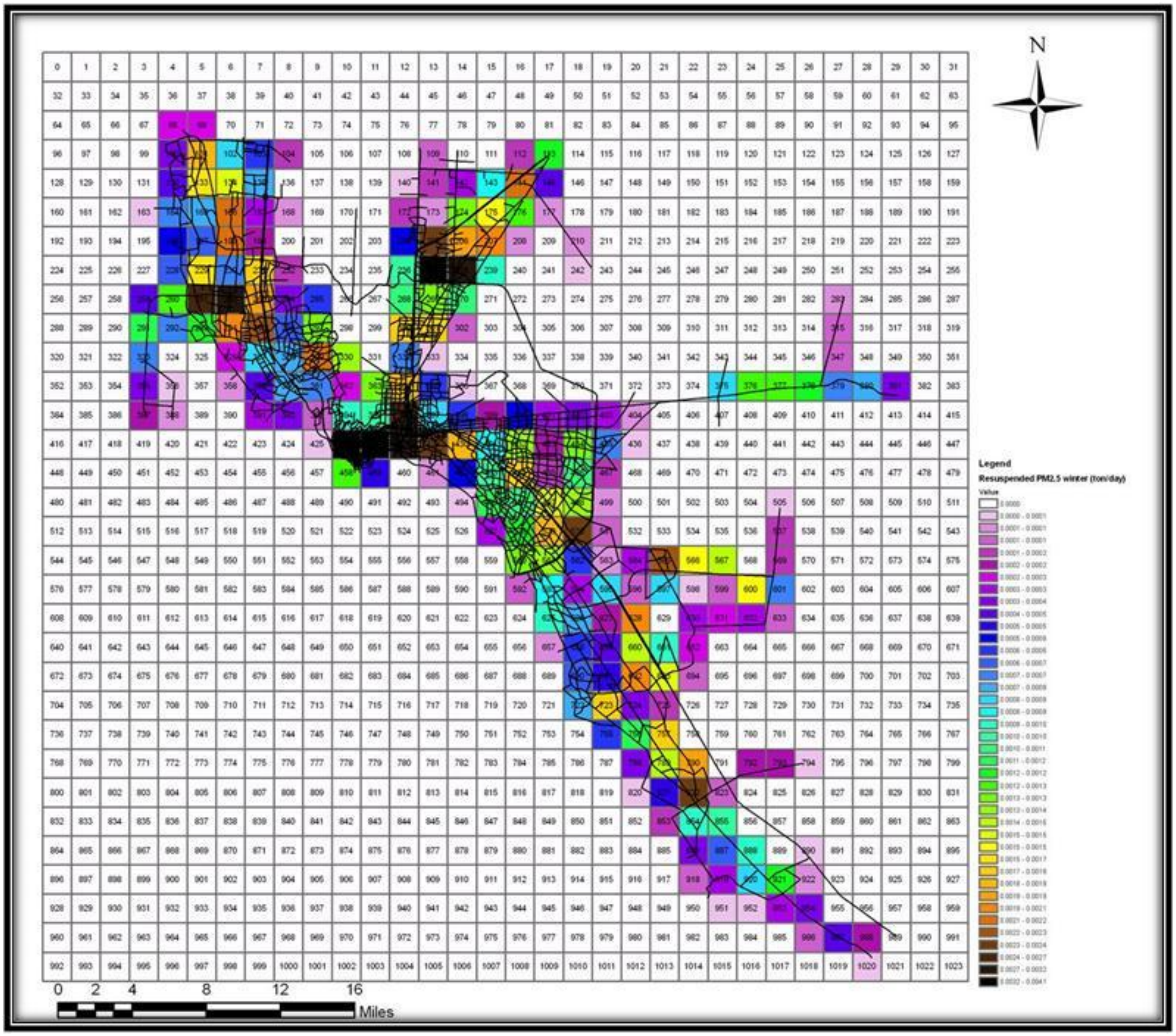


Figure C.89: Winter resuspended PM2.5 32x32 emission grid.

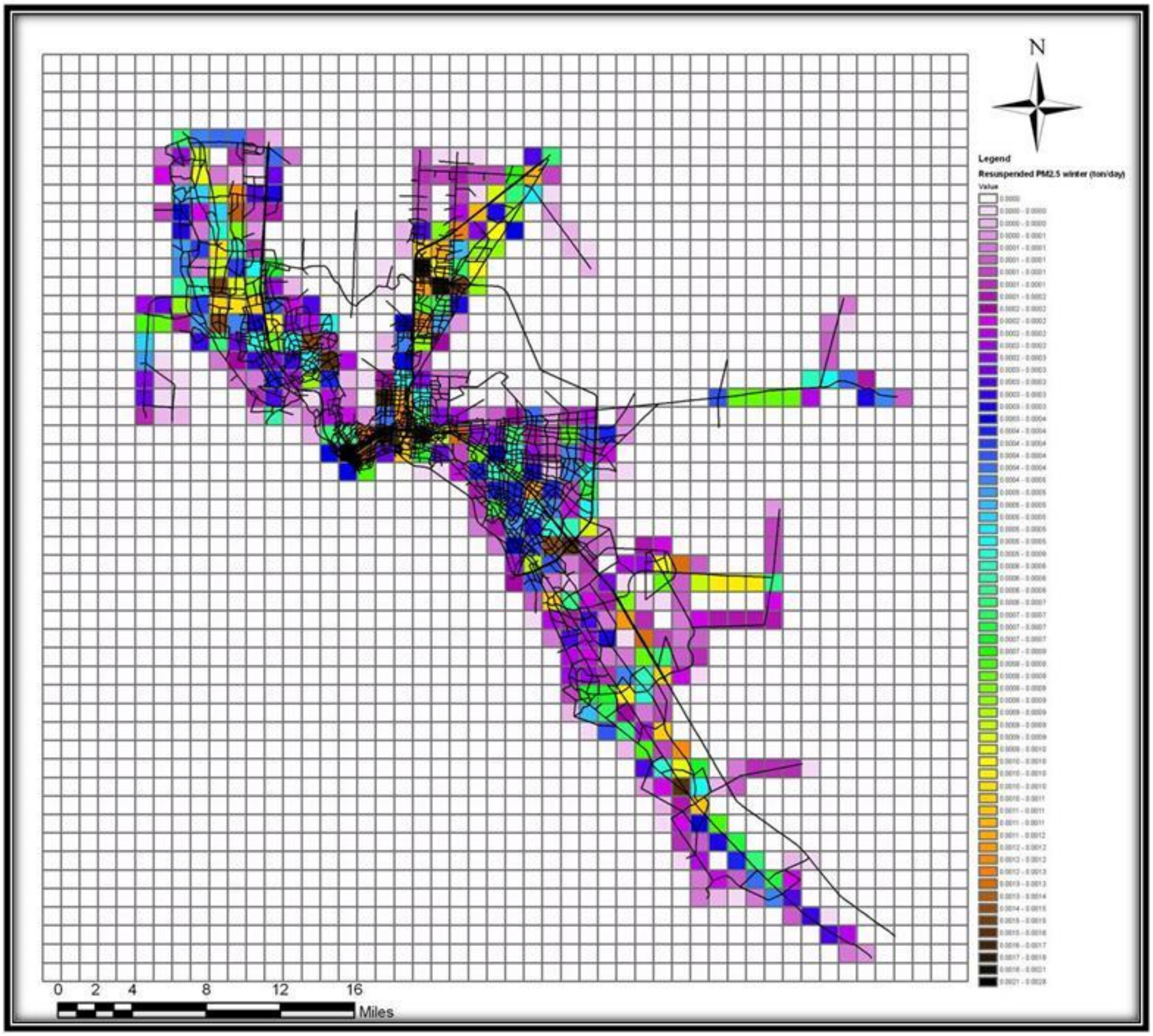


Figure C.90: Winter resuspended PM2.5 50x50 emission grid.

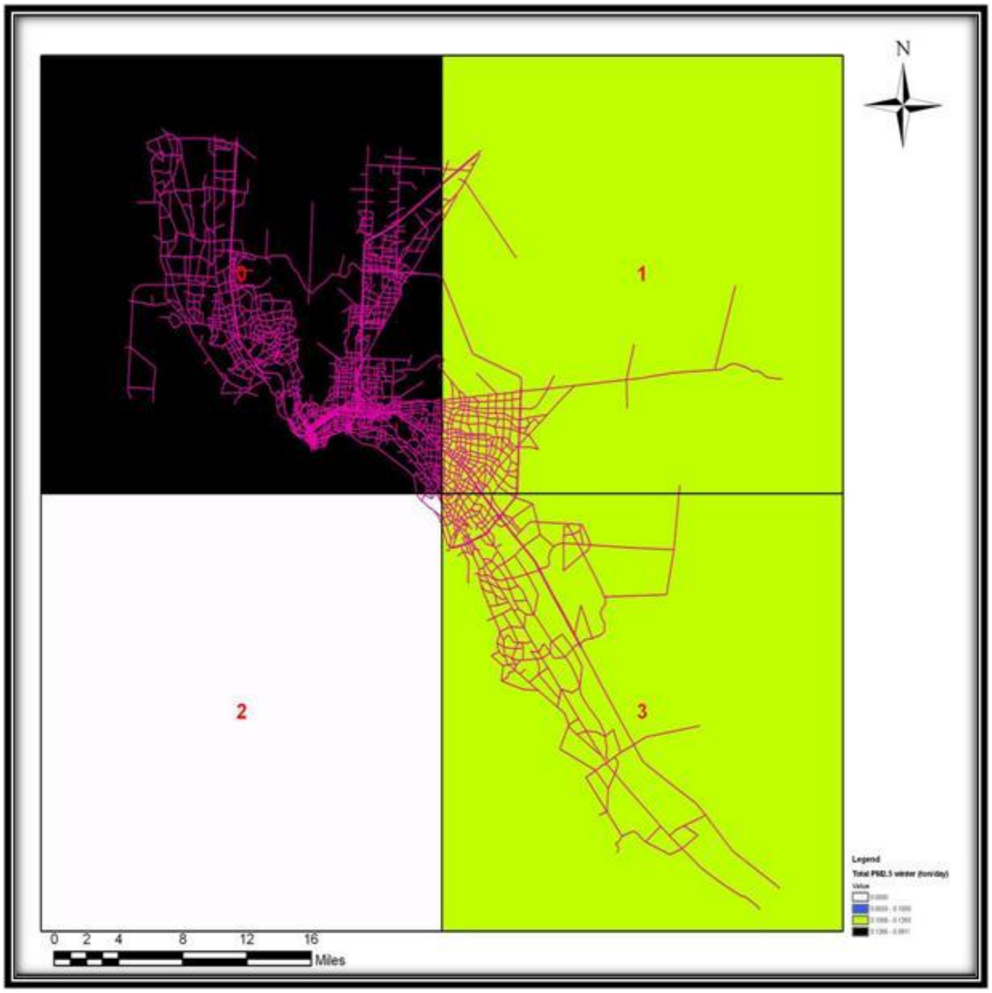


Figure C.91: Winter total PM2.5 2x2 emission grid.

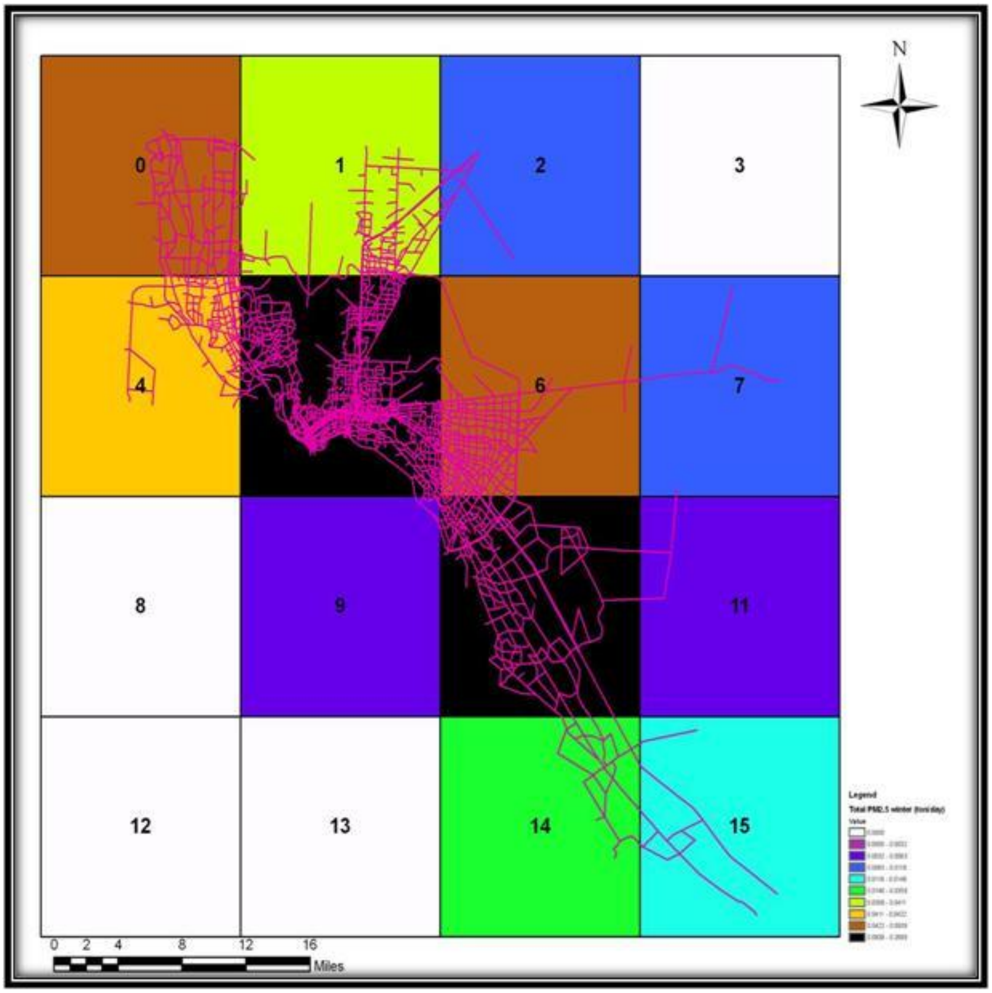


Figure C.92: Winter total PM2.5 4x4 emission grid.

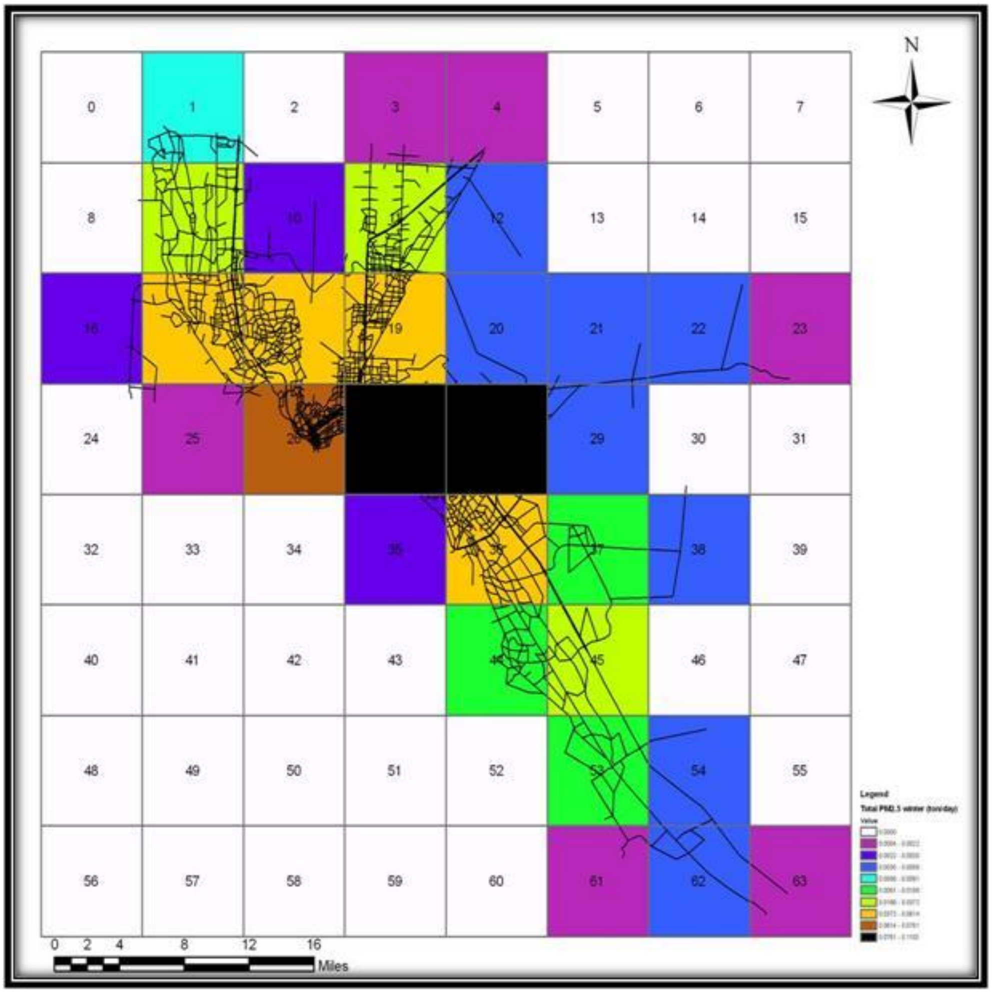


Figure C.93: Winter total PM2.5 8x8 emission grid.

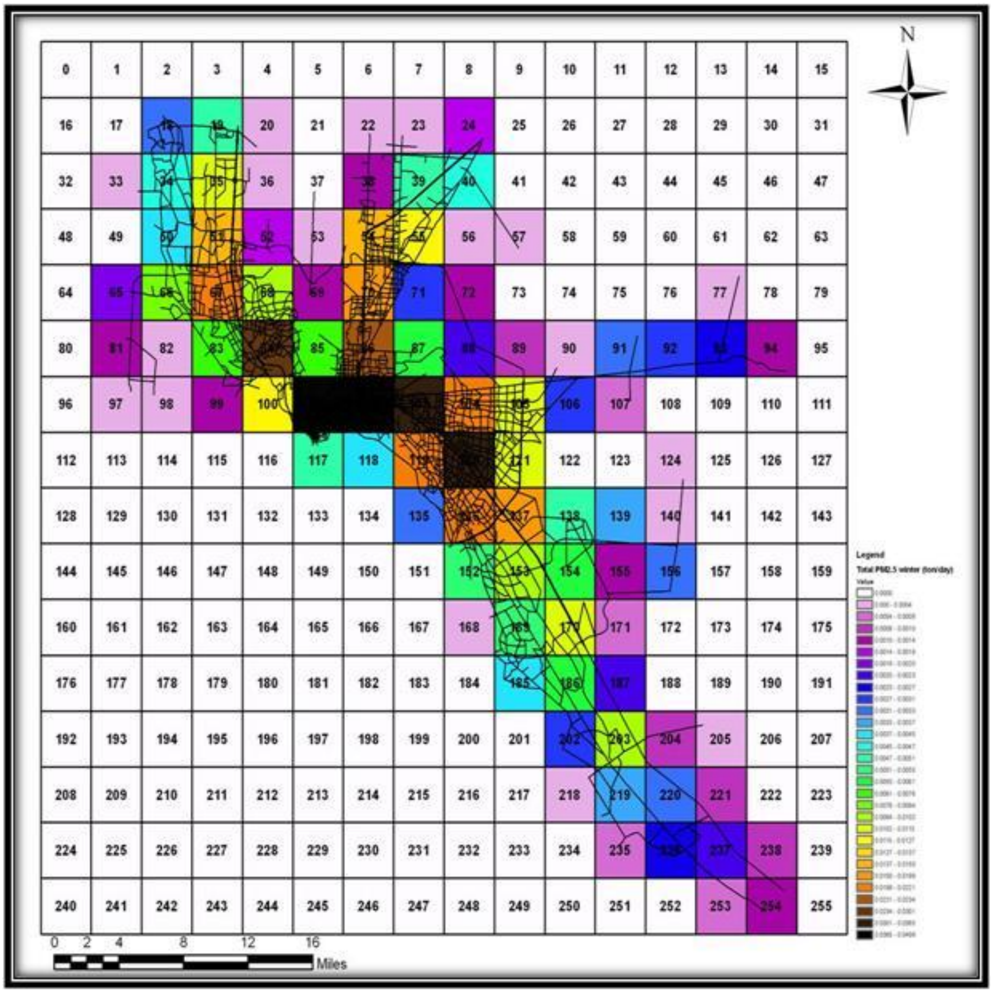


Figure C.94: Winter total PM2.5 16x16 emission grid.

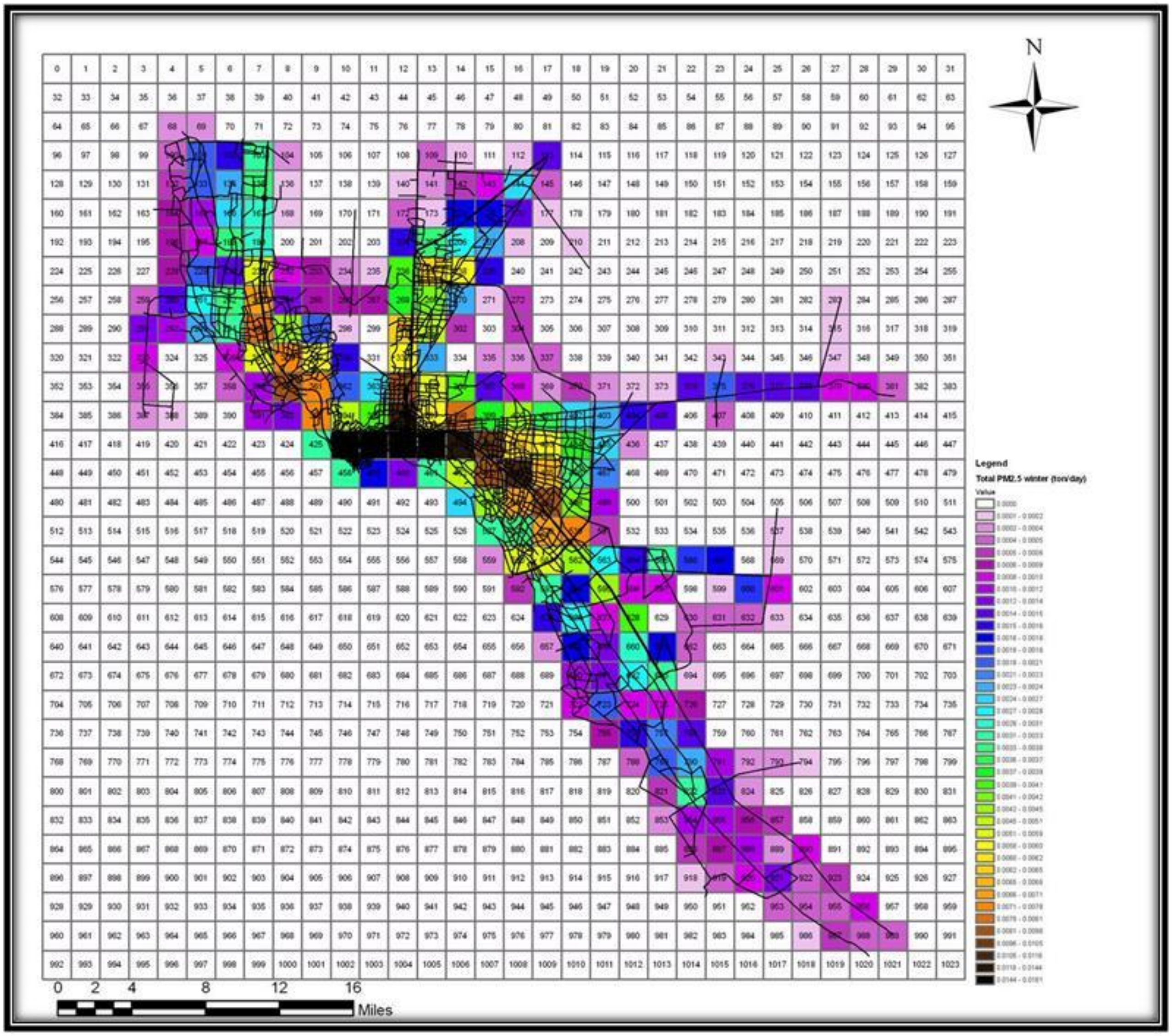


Figure C.95: Winter total PM2.5 32x32 emission grid.

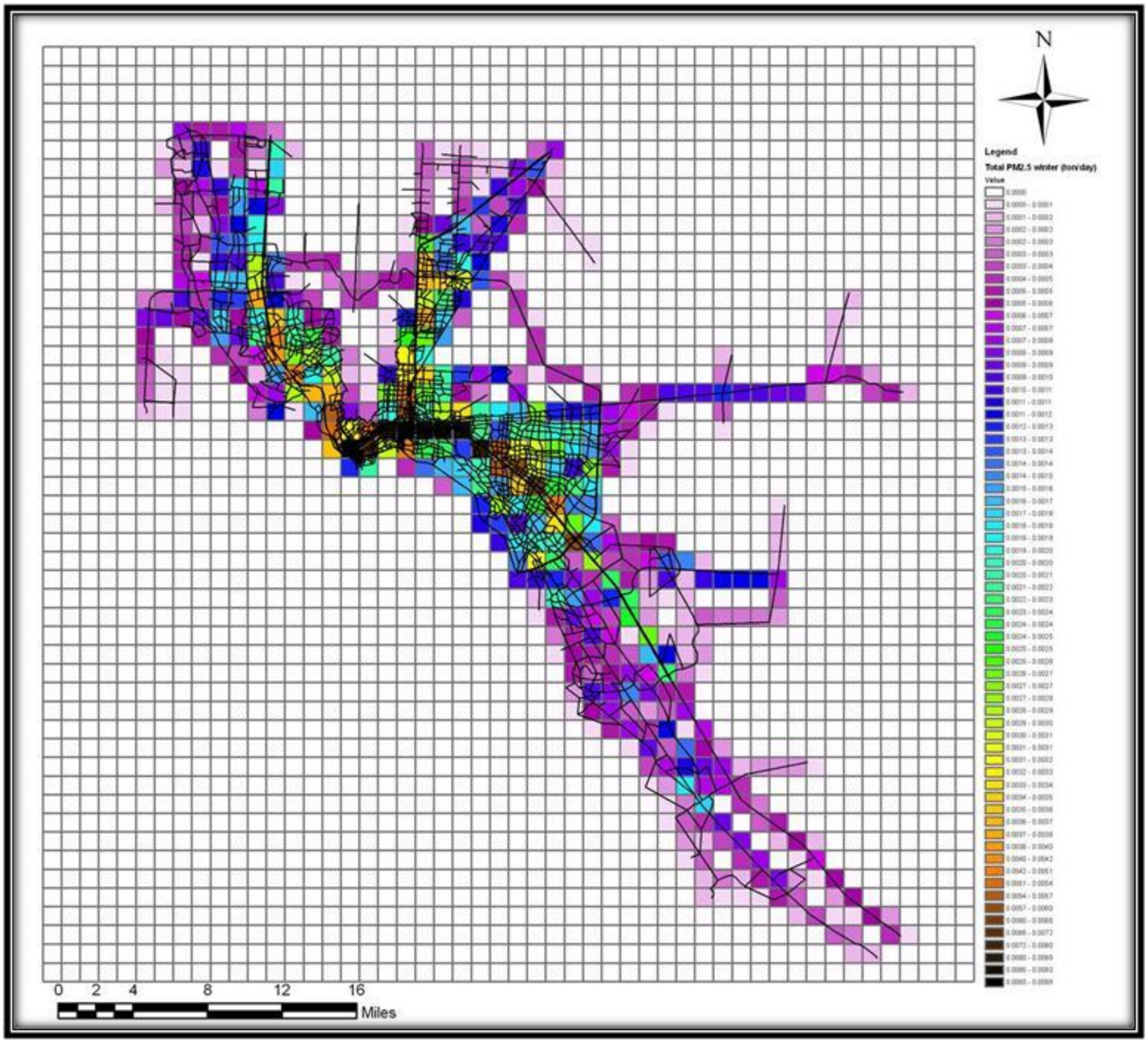


Figure C.96 Winter total PM2.5 50x50 emission grid.

C.3 Emission grid values

Table C.1: Summer CO emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	104.7174	27.4606
2	1.1041	28.3029

Table C.2: Winter CO emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	198.3710	52.0300
2	2.0910	52.8810

Table C.3: Summer CO emissions (ton/day) for the 4x4 grid.

Cell	0	1	2	3
0	8.0018	5.9641	0.3642	0.0000
4	8.7390	82.3852	26.7472	0.4005
8	0.0000	1.1041	22.6210	0.3134
12	0.0000	0.0000	2.2417	3.2110

Table C.4: Winter CO emissions (ton/day) for the 4x4 grid.

Cell	0	1	2	3
0	14.9300	11.1500	0.6600	0.0000
4	16.4000	156.4000	50.7200	0.7240
8	0.0000	2.0910	42.3900	0.5700
12	0.0000	0.0000	4.1330	5.8900

Table C.5: Summer CO emissions (ton/day) for the 8x8 grid.

Cell	0	1	2	3	4	5	6	7
0	0.0000	1.5467	0.0430	0.1631	0.0773	0.0000	0.0000	0.0000
8	0.0005	6.5403	0.7534	4.9660	0.2857	0.0000	0.0000	0.0000
16	0.1473	8.2032	13.7037	15.3796	1.8452	1.1755	0.3387	0.0553
24	0.0122	0.3191	18.2154	35.2801	22.8135	1.2916	0.0024	0.0000
32	0.0000	0.0000	0.0000	1.1041	14.8218	2.3418	0.3134	0.0000
40	0.0000	0.0000	0.0000	0.0000	1.5590	4.1580	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	2.1377	1.5013	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0920	0.9260	0.7221

Table C.6: Winter CO emissions (ton/day) for the 8x8 grid.

Cell	0	1	2	3	4	5	6	7
0	0.0000	2.8550	0.0780	0.2960	0.1400	0.0000	0.0000	0.0000
8	0.0010	12.1900	1.4300	9.2920	0.5190	0.0000	0.0000	0.0000
16	0.2660	15.4450	25.9710	29.0560	3.4150	2.1350	0.6130	0.1010
24	0.0220	0.5890	34.6510	67.0600	43.3080	2.3770	0.0040	0.0000
32	0.0000	0.0000	0.0000	2.0910	27.9190	4.3310	0.5700	0.0000
40	0.0000	0.0000	0.0000	0.0000	2.9300	7.5420	0	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	3.9480	2.7830	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.1680	1.6960	1.3270

Table C.7: Summer CO emissions (ton/day) for the 16x16 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0.1706	1.3587	0.0430	0	0.0939	0.0696	0.0773	0	0	0	0	0	0	0
32	0	0.0005	0.3635	2.5474	0.0883	0	0.2345	0.4383	0.2474	0	0	0	0	0	0	0
48	0	0	0.2819	3.3035	0.5364	0.1319	2.5330	1.7428	0.0064	0.0283	0	0	0	0	0	0
64	0	0.0758	0.8367	4.8599	2.0513	0.5759	5.0485	0.7066	0.5434	0	0	0	0	0.0527	0	0
80	0	0.0634	0.0201	2.4213	9.8912	1.1605	7.7173	1.8093	0.8191	0.3970	0.1474	1.0320	0.1270	0.1505	0.0553	0
96	0	0.0122	0.0033	0.3244	4.8596	12.4621	15.4586	11.9258	6.0527	3.1477	1.0355	0.2364	0	0	0	0
112	0	0	0	0	0	1.1259	1.4248	6.5371	10.7482	2.7523	0	0	0.0024	0	0	0
128	0	0	0	0	0	0	0	1.1041	5.9456	4.7716	0.7736	0.1496	0.0151	0	0	0
144	0	0	0	0	0	0	0	0	1.2123	3.0147	1.2476	0.1507	0.2982	0	0	0
160	0	0	0	0	0	0	0	0	0.0829	1.2050	2.1066	0.1032	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0.2671	0.8782	0.9277	0	0	0	0
192	0	0	0	0	0	0	0	0	0	0	0.2410	1.5644	0.2454	0.0150	0	0
208	0	0	0	0	0	0	0	0	0	0	0.0496	0.2722	0.7835	0.4039	0	0
224	0	0	0	0	0	0	0	0	0	0	0	0.0920	0.1358	0.7759	0.4149	0
240	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0281	0.3067	0

Table C.8: Winter CO emissions (ton/day) for the 16x16 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0.3110	2.5230	0.0780	0	0.1700	0.1270	0.1400	0	0	0	0	0	0	0
32	0	0.0010	0.6580	4.7590	0.1660	0	0.4280	0.8030	0.4500	0	0	0	0	0	0	0
48	0	0	0.5120	6.2030	1.0200	0.2490	4.7770	3.2590	0.0120	0.0520	0	0	0	0	0	0
64	0	0.1400	1.5340	9.2070	3.8830	1.0820	9.5210	1.3440	1.0320	0	0	0	0	0.0960	0	0
80	0	0.1150	0.0370	4.5800	18.7640	2.2100	14.6190	3.4240	1.5160	0.7540	0.2670	1.8720	0.2320	0.2720	0.1010	0
96	0	0.0220	0.0060	0.5930	9.1060	23.7110	29.3530	22.6510	11.5410	5.9380	1.9200	0.4310	0	0	0	0
112	0	0	0	0	0	2.1330	2.6980	12.4350	20.4370	5.2330	0	0	0.0040	0	0	0
128	0	0	0	0	0	0	0	2.0910	11.2730	8.9160	1.4510	0.2750	0.0280	0	0	0
144	0	0	0	0	0	0	0	0	2.2960	5.6060	2.2960	0.2790	0.5420	0	0	0
160	0	0	0	0	0	0	0	0	0.1560	2.2750	3.8240	0.1880	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0.4950	1.5940	1.7400	0	0	0	0
192	0	0	0	0	0	0	0	0	0	0	0.4380	2.9070	0.4480	0.0270	0	0
208	0	0	0	0	0	0	0	0	0	0	0.0900	0.4980	1.4840	0.7480	0	0
224	0	0	0	0	0	0	0	0	0	0	0	0.1680	0.2500	1.4120	0.7630	0
240	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0520	0.5640	0

Table C.9: Summer CO emissions (ton/day) for the 32x32 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0.0136	0.0141	0.0202	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0.0360	0.1051	0.2571	1.0967	0.0430	0	0	0	0	0.0939	0.0696	0
128	0	0	0	0	0.0397	0.1403	0.3078	1.0638	0.0597	0	0	0	0.0509	0.0777	0.1326	0.0442
160	0	0	0	0.0005	0.0326	0.1508	0.1634	1.0145	0.0291	0	0	0	0.1031	0.0019	0.1902	0.0824
192	0	0	0	0	0.0365	0.0996	0.4568	1.1372	0	0	0	0	0.3592	0.4073	0.3229	0.1077
224	0	0	0	0	0.0359	0.1090	0.2960	1.4605	0.2707	0.3086	0.1177	0.0277	1.0710	0.7547	1.0558	0.2739
256	0	0	0	0.0207	0.07850	0.1273	0.2865	1.9382	0.3404	0.0477	0.2540	0.2496	1.0859	1.0137	0.4973	0.0795
288	0	0	0	0.0551	0.1486	0.4810	0.4810	2.1665	1.2954	0.3593	0.0619	0	1.7832	1.1175	0.1263	0
320	0	0	0	0.0425	0.0003	0.0115	0.2923	1.7189	2.4466	1.4219	0.0810	0	2.2122	0.8546	0.0223	0.0651
352	0	0	0	0.0189	0.0067	0	0.1320	0.2716	3.3786	2.6309	0.6099	0.4683	2.9065	1.8689	1.2875	0.4643
384	0	0	0	0.0122	0.0033	0	0	0.3244	0.3265	3.0508	1.3761	1.0264	3.1974	1.8030	2.4532	1.3044
416	0	0	0	0	0	0	0	0	0	1.3928	5.0462	5.0030	5.9847	4.4423	4.5772	3.5505
448	0	0	0	0	0	0	0	0	0	0	0.6926	0.4299	0.3588	1.0716	1.4902	3.0069
480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8223	1.2269
512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0050	1.0186
544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0813
576	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
608	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
672	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
704	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
736	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
768	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
832	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
864	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
896	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
928	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
960	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
992	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C.9 Cont: Summer CO emissions (ton/day) for the 32x32 grid.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0.0096	0.0679	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0.1229	0.0292	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0.0709	0.0211	0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	0.0043	0.0019	0.0195	0	0	0	0	0	0	0	0	0	0	0	0	0
224	0	0	0.0088	0	0	0	0	0	0	0	0	0	0	0	0	0
256	0.2529	0	0	0	0	0	0	0	0	0	0	0.0197	0	0	0	0
288	0.2905	0	0	0	0	0	0	0	0	0	0	0.0331	0	0	0	0
320	0.1087	0.2182	0	0	0	0	0	0.0976	0	0	0	0.0331	0	0	0	0
352	0.2901	0.1857	0.2915	0.1055	0.0749	0.0609	0.4656	0.4434	0.0637	0.0632	0.0779	0.0386	0.0363	0.0190	0	0
384	1.3389	1.0876	0.7510	0.8622	0.5302	0.4052	0	0.2355	0	0	0	0	0	0	0	0
416	1.7804	1.8609	0.8871	0.6520	0.0866	0	0	0	0	0	0	0	0	0	0	0
448	3.7431	2.1607	0.8786	0.6524	0	0	0	0	0	0	0	0	0	0	0	0
480	2.0370	2.7684	0.9583	0.2933	0	0	0	0	0	0.0024	0	0	0	0	0	0
512	0.9511	1.7436	2.0606	0.2105	0	0	0	0	0	0.0075	0	0	0	0	0	0
544	1.6183	1.6298	1.4472	1.0079	0.4379	0.3339	0.0782	0.0723	0	0.0076	0	0	0	0	0	0
576	0.1708	0.8215	0.5213	1.4743	0.3535	0.0742	0.0045	0.0049	0.0762	0.0947	0	0	0	0	0	0
608	0	0.2156	0.7442	0.2800	0.7250	0	0.0727	0.0693	0.0830	0.0374	0	0	0	0	0	0
640	0	0.0843	0.4145	0.3088	0.5473	0.3118	0.0670	0.0000	0	0	0	0	0	0	0	0
672	0	0.0000	0.1732	0.3096	0.2471	0.9171	0.0362	0	0	0	0	0	0	0	0	0
704	0	0	0.0944	0.1237	0.2027	0.3558	0.3812	0	0	0	0	0	0	0	0	0
736	0	0	0.0004	0.0503	0.1469	0.1647	0.5652	0	0	0	0	0	0	0	0	0
768	0	0	0	0	0.0263	0.1665	0.1829	0.5898	0.0537	0.0527	0.0150	0	0	0	0	0
800	0	0	0	0	0.0113	0.0339	0.2847	0.5530	0.1218	0	0	0	0	0	0	0
832	0	0	0	0	0	0.0496	0.1044	0.0481	0.3170	0.2902	0	0	0	0	0	0
864	0	0	0	0	0	0	0.0798	0.0309	0.0441	0.1403	0.4039	0	0	0	0	0
896	0	0	0	0	0	0	0.0292	0.0526	0.0428	0.0629	0.1851	0.3210	0	0	0	0
928	0	0	0	0	0	0	0.0029	0.0073	0.0016	0.0332	0.0200	0.2260	0.4149	0	0	0
960	0	0	0	0	0	0	0	0	0	0	0.0050	0.0231	0.0691	0.2310	0	0
992	0	0	0	0	0	0	0	0	0	0	0	0	0.0059	0	0	0

Table C.10: Winter CO emissions (ton/day) for the 32x32 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0.0250	0.0260	0.0380	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0.0660	0.1910	0.4740	2.0320	0.0780	0	0	0	0	0.1700	0.1270	0
128	0	0	0	0	0.0720	0.2540	0.5560	1.9840	0.1120	0	0	0	0.0920	0.1410	0.2410	0.0800
160	0	0	0	0.0010	0.0590	0.2740	0.2990	1.9280	0.0550	0	0	0	0.1890	0.0040	0.3440	0.1520
192	0	0	0	0	0.0660	0.1820	0.8490	2.1010	0	0	0	0	0.6690	0.7670	0.6010	0.2020
224	0	0	0	0	0.0650	0.1980	0.5510	2.7670	0.5140	0.5620	0.2140	0.0520	1.9860	1.4350	1.9740	0.5040
256	0	0	0	0.0380	0.1420	0.2370	0.5400	3.6660	0.6440	0.0900	0.4840	0.4690	2.0440	1.9320	0.9490	0.1510
288	0	0	0	0.1020	0.2690	0.8850	0.9040	4.1160	2.4610	0.6760	0.1160	0	3.3530	2.1320	0.2390	0
320	0	0	0	0.0770	0.0010	0.0220	0.5470	3.2730	4.6730	2.7090	0.1530	0	4.1120	1.5890	0.0410	0.1230
352	0	0	0	0.0350	0.0120	0	0.2440	0.5070	6.3490	5.0170	1.1650	0.8920	5.5150	3.5700	2.4420	0.8610
384	0	0	0	0.0220	0.0060	0	0	0.5930	0.5890	5.7480	2.6330	1.9580	6.0670	3.4410	4.6480	2.4890
416	0	0	0	0	0	0	0	0	0	2.6520	9.5900	9.5220	11.3590	8.4420	8.6990	6.7530
448	0	0	0	0	0	0	0	0	0	0	1.3030	0.8190	0.6730	2.0290	2.8300	5.7130
480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5380	2.3480
512	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0090	1.9290
544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1530
576	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
608	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
672	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
704	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
736	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
768	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
832	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
864	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
896	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
928	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
960	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
992	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C.10 Cont: Winter CO emissions (ton/day) for the 32x32 grid.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0.0170	0.1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0.2230	0.0530	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0.1320	0.0390	0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	0.0080	0.0030	0.0360	0	0	0	0	0	0	0	0	0	0	0	0	0
224	0	0	0.0160	0	0	0	0	0	0	0	0	0	0	0	0	0
256	0.4800	0	0	0	0	0	0	0	0	0	0	0.0360	0	0	0	0
288	0.5520	0	0	0	0	0	0	0	0	0	0	0.0600	0	0	0	0
320	0.2060	0.4140	0	0	0	0	0	0.1780	0	0	0	0.0600	0	0	0	0
352	0.5370	0.3370	0.5530	0.2000	0.1410	0.1120	0.8530	0.8040	0.1170	0.1160	0.1410	0.0700	0.0670	0.0350	0	0
384	2.5510	2.0650	1.4290	1.5890	0.9840	0.7540	0	0.4300	0	0	0	0	0	0	0	0
416	3.3990	3.5430	1.6940	1.2300	0.1620	0	0	0	0	0	0	0	0	0	0	0
448	7.1220	4.1180	1.6810	1.2210	0	0	0	0	0	0	0	0	0	0	0	0
480	3.8760	5.2650	1.8250	0.5470	0	0	0	0	0	0.0040	0	0	0	0	0	0
512	1.8270	3.3030	3.8720	0.3960	0	0	0	0	0	0.0140	0	0	0	0	0	0
544	3.0650	3.0700	2.7040	1.8780	0.8250	0.6240	0.1440	0.1330	0	0.0140	0	0	0	0	0	0
576	0.3210	1.5640	0.9780	2.7130	0.6560	0.1400	0.0090	0.0090	0.1410	0.1720	0	0	0	0	0	0
608	0	0.4050	1.3990	0.5200	1.3790	0.0000	0.1360	0.1270	0.1510	0.0680	0	0	0	0	0	0
640	0	0.1580	0.7820	0.5810	1.0140	0.5660	0.1220	0	0	0	0	0	0	0	0	0
672	0	0	0.3270	0.5860	0.4590	1.6680	0.0660	0	0	0	0	0	0	0	0	0
704	0	0	0.1780	0.2270	0.3710	0.6480	0.7010	0	0	0	0	0	0	0	0	0
736	0	0	0.0010	0.0910	0.2660	0.2980	1.0650	0	0	0	0	0	0	0	0	0
768	0	0	0	0	0.0480	0.3040	0.3420	1.0770	0.0980	0.0960	0.0270	0	0	0	0	0
800	0	0	0	0	0.0210	0.0620	0.5280	1.0240	0.2310	0	0	0	0	0	0	0
832	0	0	0	0	0	0.0900	0.1910	0.0910	0.6000	0.5500	0	0	0	0	0	0
864	0	0	0	0	0	0	0.1460	0.0580	0.0830	0.2660	0.7480	0	0	0	0	0
896	0	0	0	0	0	0	0.0530	0.0960	0.0780	0.1150	0.3380	0.5900	0	0	0	0
928	0	0	0	0	0	0	0.0050	0.0130	0.0030	0.0600	0.0370	0.4150	0.7630	0	0	0
960	0	0	0	0	0	0	0	0	0	0	0.0090	0.0420	0.1270	0.4240	0	0
992	0	0	0	0	0	0	0	0	0	0	0	0	0.0110	0	0	0

Table C.11: Summer CO emissions (ton/day) for the 50x50 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0356	0.0253	0.021	0.0881	0.106	0.128	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
250	0.000	0.000	0.000	0.000	0.000	0.000	0.0028	0.0257	0.0524	0.000	0.1389	0.066	0.687	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.062	0.000	0.052	0.000	0.000
300	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.0119	0.0631	0.001	0.1293	0.000	0.577	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.083	0.018	0.083	0.005	0.005
350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0386	0.0827	0.0394	0.1871	0.174	0.706	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.069	0.000	0.077	0.000	0.047
400	0.000	0.000	0.000	0.000	0.000	0.000	0.0021	0.017	0.0776	0.0262	0.0929	0.396	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.069	0.000	0.089	0.060	0.019
450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0167	0.0182	0.0809	0.1263	0.635	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.107	0.043	0.135	0.012	0.051
500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0281	0.0244	0.1281	0.2808	0.737	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.561	0.172	0.215	0.051	0.043
550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0316	0.0071	0.0538	0.1992	0.824	0.239	0.168	0.168	0.144	0.000	0.000	0.000	0.084	0.600	0.164	0.443	0.082	0.000
600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034	0.0362	0.0809	0.2356	0.828	0.252	0.008	0.000	0.078	0.118	0.083	0.157	0.170	0.917	0.470	0.567	0.217	0.182
650	0.000	0.000	0.000	0.000	0.000	0.0113	0.0251	0.0448	0.02	0.0608	0.1164	1.075	0.276	0.197	0.035	0.000	0.132	0.117	0.000	0.000	0.911	0.542	0.271	0.000	0.000
700	0.000	0.000	0.000	0.000	0.000	0.0373	0.0502	0.1491	0.1881	0.0967	0.074	0.576	0.950	0.586	0.151	0.082	0.000	0.000	0.019	0.359	0.987	0.443	0.090	0.000	0.000
750	0.000	0.000	0.000	0.000	0.000	0.0245	0.000	0.000	0.106	0.3173	0.267	0.570	1.295	0.595	0.334	0.187	0.000	0.000	0.009	0.806	0.646	0.481	0.000	0.000	0.000
800	0.000	0.000	0.000	0.000	0.000	0.0278	0.0003	0.000	0.000	0.1177	0.0978	0.170	1.569	0.909	0.879	0.190	0.012	0.000	0.074	1.198	0.728	0.000	0.000	0.000	0.000
850	0.000	0.000	0.000	0.000	0.000	0.0121	0.0075	0.0011	0.000	0.000	0.1768	0.028	0.497	2.191	0.386	0.927	0.021	0.001	0.328	1.105	1.335	0.705	0.429	0.270	0.332
900	0.000	0.000	0.000	0.000	0.000	0.0145	0.001	0.0001	0.000	0.000	0.000	0.203	0.187	1.059	1.581	1.392	0.112	0.002	0.350	1.636	0.776	0.731	0.222	0.124	0.000
950	0.000	0.000	0.000	0.000	0.000	0.0065	0.0019	0.001	0.000	0.000	0.000	0.110	0.202	0.014	0.566	2.090	0.264	0.104	0.523	1.743	0.527	0.881	1.036	0.696	0.619
1000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.198	1.933	0.913	1.431	2.454	3.473	2.786	2.913	2.925	0.705	0.415
1050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.223	2.624	2.149	0.956	1.569	0.564	0.673	0.420	2.766	1.877
1100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.317	0.471	0.000	0.126	0.479	0.568	0.540	0.566	1.782
1150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.588	0.667	0.468
1200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.399	0.749

Table C.11 Cont: Summer CO emissions (ton/day) for the 50x50 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.339	0.455
1300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333
1350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1650	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table C.11 Cont: Summer CO emissions (ton/day) for the 50x50 grid.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
250	0.000	0.015	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
300	0.039	0.071	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
350	0.032	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
400	0.050	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
450	0.019	0.000	0.005	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
500	0.000	0.000	0.000	0.010	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
550	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
600	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
650	0.186	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.000	0.000	0.000	0.000	0.000
700	0.169	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.005	0.000	0.000	0.000	0.000	0.000	0.000
750	0.000	0.186	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
800	0.000	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
850	0.083	0.018	0.187	0.187	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.137	0.000	0.000	0.000	0.000	0.030	0.045	0.022	0.007	0.000	0.000	0.000	0.000	0.000
900	0.268	0.000	0.000	0.000	0.264	0.000	0.157	0.158	0.279	0.298	0.298	0.332	0.041	0.041	0.041	0.040	0.011	0.000	0.000	0.016	0.022	0.004	0.000	0.000	0.000
950	0.526	0.758	0.411	0.351	0.456	0.281	0.242	0.148	0.017	0.000	0.000	0.169	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1000	0.505	0.666	0.621	0.442	0.420	0.144	0.159	0.014	0.000	0.000	0.000	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1050	0.894	0.938	0.867	0.474	0.443	0.207	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1100	1.979	0.968	0.615	0.255	0.688	0.163	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1150	1.115	1.936	0.720	0.719	0.372	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1200	0.578	0.685	1.485	0.448	0.278	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table C.11 Cont: Summer CO emissions (ton/day) for the 50x50 grid.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.207	0.496	1.046	0.749	0.351	0.131	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1300	0.562	0.540	0.221	1.663	0.493	0.242	0.143	0.135	0.100	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1350	0.504	0.845	0.791	0.123	1.038	0.144	0.090	0.173	0.139	0.068	0.004	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1400	0.309	0.264	0.432	0.306	0.151	0.818	0.181	0.072	0.055	0.013	0.046	0.049	0.049	0.049	0.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1450	0.000	0.004	0.345	0.330	0.216	0.451	0.522	0.036	0.002	0.021	0.000	0.000	0.000	0.000	0.049	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1500	0.000	0.001	0.112	0.303	0.130	0.125	0.435	0.028	0.000	0.013	0.045	0.044	0.044	0.044	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1550	0.000	0.000	0.057	0.113	0.291	0.129	0.000	0.506	0.020	0.018	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1600	0.000	0.000	0.013	0.128	0.124	0.117	0.056	0.322	0.225	0.012	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1650	0.000	0.000	0.000	0.097	0.036	0.175	0.122	0.045	0.599	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1700	0.000	0.000	0.000	0.045	0.088	0.058	0.172	0.103	0.175	0.262	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1750	0.000	0.000	0.000	0.001	0.027	0.050	0.077	0.047	0.068	0.397	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1800	0.000	0.000	0.000	0.000	0.001	0.037	0.035	0.107	0.068	0.014	0.358	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1850	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.049	0.079	0.057	0.262	0.097	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027	0.073	0.060	0.068	0.359	0.016	0.034	0.034	0.034	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.011	0.076	0.057	0.293	0.192	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.043	0.212	0.000	0.218	0.121	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.051	0.034	0.036	0.000	0.154	0.235	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037	0.014	0.015	0.033	0.000	0.040	0.284	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.049	0.000	0.017	0.031	0.000	0.006	0.331	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.035	0.004	0.021	0.037	0.008	0.024	0.294	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.006	0.000	0.003	0.041	0.016	0.000	0.090	0.286	0.000	0.000	0.000	0.000	0.000	0.000
2300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.016	0.001	0.026	0.303	0.088	0.000	0.000	0.000	0.000
2350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.011	0.000	0.215	0.023	0.000	0.000	0.000
2400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.013	0.000	0.000	0.000	0.000	0.000
2450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table C.12: Winter CO emissions (ton/day) for the 50x50 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0650	0.0460	0.0390	0.1660	0.1990	0.2410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0470	0.0950	0.0000	0.2590	0.1220	1.2560	0.0340	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1150	0.0000	0.0900	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0200	0.0220	0.1150	0.0020	0.2440	0.0010	1.0720	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1490	0.0330	0.1500	0.0100	0.0100
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0700	0.1500	0.0730	0.3390	0.3210	1.3040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1250	0.0000	0.1400	0.0000	0.0870
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0310	0.1410	0.0480	0.1710	0.7280	0.6160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1240	0.0000	0.1600	0.1100	0.0350
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	0.0330	0.1510	0.2340	1.2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.2000	0.0780	0.2400	0.0200	0.0960
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0510	0.0440	0.2330	0.5260	1.3610	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	1.0480	0.3250	0.4000	0.1000	0.0810
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0580	0.0130	0.0980	0.3710	1.5480	0.4560	0.3060	0.3050	0.2710	0.0000	0.0000	0.0000	0.1580	1.1220	0.3140	0.8300	0.1500	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0610	0.0660	0.1500	0.4420	1.5590	0.4780	0.0150	0.0000	0.1460	0.2150	0.1570	0.3000	0.3200	1.7260	0.8920	1.0600	0.4000	0.3460
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0210	0.0460	0.0820	0.0380	0.1140	0.2200	2.0200	0.5250	0.3740	0.0650	0.0000	0.2510	0.2210	0.0000	0.0000	1.6950	1.0330	0.5200	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0690	0.0910	0.2710	0.3490	0.1820	0.1400	1.0930	1.8020	1.1070	0.2840	0.1540	0.0000	0.0000	0.0400	0.6680	1.8780	0.8430	0.1700	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0450	0.0000	0.0000	0.1940	0.5850	0.5010	1.0860	2.4640	1.1370	0.6310	0.3510	0.0000	0.0000	0.0200	1.4990	1.2280	0.9140	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	0.0010	0.0000	0.0000	0.2170	0.1840	0.3200	2.9960	1.7380	1.6810	0.3550	0.0230	0.0000	0.1400	2.2280	1.3420	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0220	0.0140	0.0020	0.0000	0.0000	0.3260	0.0530	0.9330	4.1630	0.7360	1.7660	0.0410	0.0020	0.6300	2.0900	2.4830	1.3320	0.8100	0.5000	0.6230
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0260	0.0020	0.0000	0.0000	0.0000	0.0000	0.3730	0.3470	1.9560	2.9490	2.6190	0.2130	0.0040	0.6700	3.1110	1.4840	1.3990	0.4300	0.2300	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0030	0.0020	0.0000	0.0000	0.0000	0.2030	0.3680	0.0250	1.0590	3.9710	0.5070	0.1990	1.0000	3.2970	1.0050	1.6700	1.9700	1.3200	1.1820
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3720	3.6890	1.7450	2.7280	4.6700	6.6010	5.3010	5.5320	5.5600	1.3500	0.7950
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.3160	4.9550	4.0780	1.8200	2.9720	1.0750	1.2810	0.8000	5.2700	3.5710
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6000	0.8950	0.0000	0.2360	0.9040	1.0650	1.0300	1.0800	3.3840
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1500	1.1100	1.2600	0.8960
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7600	1.4290

Table C.12 Cont.: Winter CO emissions (ton/day) for the 50x50 grid**.**

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0270	0.0600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0710	0.1290	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0600	0.0670	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0920	0.0000	0.0250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0350	0.0000	0.0080	0.0160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0180	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.3530	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0330	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.3210	0.0320	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	0.0090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.3530	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0390	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.3550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1310	0.0000	0.0000	0.0000	0.0000	0.0000	0.0390	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.1560	0.0340	0.3550	0.3540	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2510	0.0000	0.0000	0.0000	0.0000	0.0550	0.0810	0.0400	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.4960	0.0000	0.0000	0.0000	0.4980	0.0000	0.2910	0.2970	0.5180	0.5460	0.5460	0.6020	0.0750	0.0750	0.0740	0.0740	0.0190	0.0000	0.0000	0.0290	0.0410	0.0080	0.0000	0.0000	0.0000
950	1.0040	1.4410	0.7820	0.6680	0.8400	0.5230	0.4510	0.2780	0.0320	0.0000	0.0000	0.3090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.9630	1.2680	1.1810	0.8400	0.7970	0.2690	0.2960	0.0260	0.0000	0.0000	0.0000	0.0440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	1.7080	1.7860	1.6540	0.9040	0.8360	0.3930	0.0190	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	3.7640	1.8470	1.1760	0.4890	1.3030	0.3060	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	2.1170	3.6810	1.3730	1.3700	0.7040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	1.1030	1.3080	2.8180	0.8560	0.5230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.12 Cont.: Winter CO emissions (ton/day) for the 50x50 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.63	0.865
1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.623
1350	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1550	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1650	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1850	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2050	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2350	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C.12 Cont.: Winter CO emissions (ton/day) for the 50x50 grid.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.4000	0.9470	1.9670	1.4120	0.6590	0.2470	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	1.0760	1.0310	0.4220	3.0970	0.9310	0.4550	0.2700	0.2540	0.1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.9530	1.5960	1.4790	0.2250	1.9330	0.2660	0.1690	0.3260	0.2590	0.1250	0.0080	0.0000	0.0000	0.0000	0.0090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.5800	0.5000	0.8220	0.5750	0.2820	1.5050	0.3370	0.1340	0.1030	0.0250	0.0840	0.0910	0.0900	0.0900	0.1170	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0070	0.6500	0.6160	0.4020	0.8300	0.9780	0.0670	0.0040	0.0400	0.0000	0.0000	0.0000	0.0000	0.0890	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0010	0.2120	0.5730	0.2430	0.2340	0.8270	0.0520	0.0000	0.0250	0.0840	0.0810	0.0810	0.0810	0.0700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.1060	0.2140	0.5510	0.2420	0.0000	0.9320	0.0360	0.0340	0.0450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0250	0.2410	0.2330	0.2180	0.1060	0.5940	0.4080	0.0210	0.0620	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.1830	0.0680	0.3320	0.2270	0.0820	1.0890	0.0780	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0840	0.1650	0.1090	0.3210	0.1870	0.3180	0.4810	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0020	0.0500	0.0910	0.1400	0.0860	0.1240	0.7290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0010	0.0660	0.0630	0.1940	0.1230	0.0250	0.6710	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0880	0.1430	0.1080	0.4950	0.1840	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0480	0.1320	0.1120	0.1270	0.6790	0.0290	0.0620	0.0620	0.0620	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0250	0.0190	0.1430	0.1060	0.5440	0.3500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0110	0.0780	0.3930	0.0000	0.4130	0.2290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0930	0.0630	0.0670	0.0000	0.2910	0.4450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0670	0.0260	0.0280	0.0620	0.0000	0.0760	0.5370	0.0720	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0900	0.0000	0.0320	0.0580	0.0000	0.0110	0.6050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0330	0.0650	0.0080	0.0390	0.0670	0.0150	0.0440	0.5400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0330	0.0110	0.0010	0.0060	0.0750	0.0280	0.0000	0.1650	0.5250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0290	0.0010	0.0470	0.5570	0.1620	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0260	0.0200	0.0000	0.3950	0.0410	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0070	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.13: Summer PM10 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	0.4435	0.1193
2	0.0047	0.1120

Table C.14: Winter PM10 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	0.4560	0.1229
2	0.0048	0.1153

Table C.15: Summer PM10 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.033	0.025	0.0014	0.0000
4	0.036	0.35	0.1164	0.002
8	0.0000	0.005	0.0907	0.001
12	0.0000	0.0000	0.0086	0.011

Table C.16: Winter PM10 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.034	0.025	0.0014	0.0000
4	0.037	0.36	0.12	0.002
8	0.0000	0.005	0.0933	0.001
12	0.0000	0.0000	0.0088	0.012

Table C.17: Summer PM10 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.00000	0.00620	0.00010	0.00060	0.00030	0.00000	0.00000	0.00000
8	0.00000	0.02700	0.00320	0.02060	0.00110	0.00000	0.00000	0.00000
16	0.00060	0.03380	0.05730	0.06400	0.00730	0.00430	0.00130	0.00030
24	0.00000	0.00130	0.07790	0.14960	0.09940	0.00530	0.00000	0.00000
32	0.00000	0.00000	0.00000	0.00470	0.06080	0.00930	0.00110	0.00000
40	0.00000	0.00000	0.00000	0.00000	0.00630	0.01440	0.00000	0.00000
48	0.00000	0.00000	0.00000	0.00000	0.00000	0.00830	0.00540	0.00000
56	0.00000	0.00000	0.00000	0.00000	0.00000	0.00030	0.00340	0.00270

Table C.18: Winter PM10 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.0064	0.0001	0.0006	0.0003	0.0000	0.0000	0.0000
8	0.0000	0.0279	0.0033	0.0212	0.0011	0.0000	0.0000	0.0000
16	0.0006	0.0347	0.0590	0.0657	0.0075	0.0044	0.0014	0.0003
24	0.0001	0.0013	0.0801	0.1539	0.1022	0.0055	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0048	0.0624	0.0096	0.0011	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0064	0.0148	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0086	0.0056	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0034	0.0028

Table C.19: Summer PM10 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0007	0.0055	0.0001	0.0000	0.0004	0.0002	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0014	0.0106	0.0004	0.0000	0.0008	0.0016	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0011	0.0139	0.0023	0.0006	0.0108	0.0074	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0004	0.0033	0.0206	0.0086	0.0022	0.0210	0.0030	0.0020	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000
80	0.0000	0.0003	0.0001	0.0096	0.0409	0.0051	0.0320	0.0084	0.0033	0.0014	0.0006	0.0039	0.0006	0.0006	0.0003	0.0000
96	0.0000	0.0001	0.0000	0.0013	0.0193	0.0530	0.0648	0.0512	0.0271	0.0133	0.0045	0.0008	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0048	0.0065	0.0282	0.0463	0.0125	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0047	0.0248	0.0189	0.0034	0.0007	0.0001	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0052	0.0119	0.0047	0.0006	0.0010	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0048	0.0072	0.0003	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0032	0.0037	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0064	0.0008	0.0001	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0010	0.0034	0.0013	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0005	0.0026	0.0014	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0011	0.0000

Table C.20: Winter PM10 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0007	0.0057	0.0001	0.0000	0.0004	0.0002	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0015	0.0109	0.0004	0.0000	0.0009	0.0017	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0011	0.0143	0.0024	0.0006	0.0111	0.0076	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0004	0.0034	0.0212	0.0089	0.0023	0.0216	0.0031	0.0020	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000
80	0.0000	0.0003	0.0001	0.0099	0.0421	0.0052	0.0329	0.0087	0.0034	0.0015	0.0006	0.0040	0.0006	0.0006	0.0003	0.0000
96	0.0000	0.0001	0.0000	0.0014	0.0198	0.0546	0.0665	0.0528	0.0279	0.0137	0.0046	0.0008	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0049	0.0067	0.0290	0.0477	0.0128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0048	0.0256	0.0193	0.0035	0.0007	0.0001	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0053	0.0122	0.0049	0.0006	0.0011	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0050	0.0073	0.0003	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0033	0.0038	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0066	0.0008	0.0001	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0010	0.0035	0.0014	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0005	0.0027	0.0014	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0012	0.0000

Table C.21: Summer PM10 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0011	0.0042	0.0001	0.0000	0.0000	0.0000	0.0000	0.0004	0.0002	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0001	0.0006	0.0012	0.0043	0.0003	0.0000	0.0000	0.0000	0.0002	0.0003	0.0005	0.0002
160	0.0000	0.0000	0.0000	0.0000	0.0001	0.0005	0.0006	0.0042	0.0001	0.0000	0.0000	0.0000	0.0004	0.0000	0.0007	0.0003
192	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0020	0.0042	0.0000	0.0000	0.0000	0.0000	0.0014	0.0017	0.0014	0.0004
224	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0012	0.0062	0.0012	0.0012	0.0004	0.0001	0.0044	0.0033	0.0045	0.0010
256	0.0000	0.0000	0.0000	0.0001	0.0003	0.0005	0.0012	0.0081	0.0015	0.0002	0.0011	0.0011	0.0042	0.0044	0.0021	0.0003
288	0.0000	0.0000	0.0000	0.0003	0.0006	0.0018	0.0019	0.0092	0.0058	0.0014	0.0002	0.0000	0.0074	0.0048	0.0006	0.0000
320	0.0000	0.0000	0.0000	0.0002	0.0000	0.0001	0.0011	0.0070	0.0102	0.0060	0.0003	0.0000	0.0084	0.0035	0.0001	0.0003
352	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0006	0.0010	0.0135	0.0109	0.0026	0.0021	0.0122	0.0081	0.0060	0.0021
384	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0014	0.0122	0.0058	0.0045	0.0136	0.0078	0.0111	0.0057
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0053	0.0213	0.0212	0.0243	0.0189	0.0194	0.0151
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0019	0.0018	0.0049	0.0068	0.0130
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0036	0.0052
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0043
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.21 Cont: Summer PM10 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
288	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
320	0.0004	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
352	0.0013	0.0006	0.0011	0.0004	0.0003	0.0003	0.0021	0.0017	0.0003	0.0003	0.0003	0.0001	0.0002	0.0001	0.0000	0.0000
384	0.0059	0.0049	0.0033	0.0033	0.0023	0.0020	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0078	0.0085	0.0039	0.0029	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0159	0.0097	0.0037	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0087	0.0119	0.0043	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0038	0.0075	0.0082	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0069	0.0068	0.0057	0.0042	0.0018	0.0015	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0007	0.0035	0.0021	0.0056	0.0013	0.0003	0.0000	0.0000	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0009	0.0031	0.0011	0.0030	0.0000	0.0003	0.0002	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0004	0.0017	0.0012	0.0023	0.0011	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0007	0.0012	0.0010	0.0030	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0004	0.0005	0.0008	0.0012	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0002	0.0005	0.0006	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0001	0.0006	0.0007	0.0019	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0012	0.0020	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0002	0.0011	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0002	0.0002	0.0005	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0002	0.0006	0.0010	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0007	0.0014	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0008	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.22: Winter PM10 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0011	0.0043	0.0001	0.0000	0.0000	0.0000	0.0000	0.0004	0.0002
128	0.0000	0.0000	0.0000	0.0000	0.0002	0.0006	0.0013	0.0044	0.0003	0.0000	0.0000	0.0000	0.0002	0.0003	0.0005
160	0.0000	0.0000	0.0000	0.0000	0.0001	0.0006	0.0007	0.0044	0.0001	0.0000	0.0000	0.0000	0.0004	0.0000	0.0007
192	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0020	0.0044	0.0000	0.0000	0.0000	0.0000	0.0015	0.0018	0.0014
224	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0013	0.0064	0.0012	0.0012	0.0005	0.0001	0.0046	0.0034	0.0046
256	0.0000	0.0000	0.0000	0.0001	0.0003	0.0006	0.0013	0.0084	0.0015	0.0002	0.0011	0.0011	0.0044	0.0045	0.0022
288	0.0000	0.0000	0.0000	0.0003	0.0006	0.0019	0.0020	0.0095	0.0060	0.0014	0.0002	0.0000	0.0076	0.0050	0.0006
320	0.0000	0.0000	0.0000	0.0002	0.0000	0.0001	0.0011	0.0072	0.0105	0.0062	0.0004	0.0000	0.0086	0.0037	0.0001
352	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0006	0.0010	0.0138	0.0112	0.0026	0.0021	0.0126	0.0083	0.0062
384	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0014	0.0014	0.0125	0.0059	0.0047	0.0140	0.0080	0.0115
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0054	0.0220	0.0218	0.0250	0.0194	0.0200
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0020	0.0019	0.0050	0.0070
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0037
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.22 Cont.: Winter PM10 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0005	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
288	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
320	0.0004	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
352	0.0013	0.0006	0.0011	0.0004	0.0003	0.0003	0.0022	0.0017	0.0003	0.0003	0.0003	0.0001	0.0002	0.0001	0.0000	0.0000
384	0.0061	0.0051	0.0034	0.0034	0.0024	0.0020	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0081	0.0087	0.0040	0.0030	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0163	0.0100	0.0038	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0090	0.0123	0.0045	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0039	0.0077	0.0085	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0071	0.0070	0.0058	0.0043	0.0019	0.0015	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0008	0.0036	0.0022	0.0057	0.0014	0.0003	0.0000	0.0000	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0009	0.0032	0.0012	0.0031	0.0000	0.0003	0.0002	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0004	0.0017	0.0013	0.0024	0.0012	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0007	0.0012	0.0010	0.0030	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0004	0.0005	0.0008	0.0012	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0002	0.0006	0.0006	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0001	0.0007	0.0007	0.0019	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0013	0.0021	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0002	0.0012	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0002	0.0002	0.0005	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0002	0.0006	0.0011	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0008	0.0014	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0008	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.23: Summer PM10 emissions (ton/day) for the 50x50 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.002	0.000	0.000	0.001
650	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.001	0.001	0.000	0.000	0.001	0.001	0.000	0.000	0.004	0.002	0.000	0.000	0.000
700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.002	0.004	0.003	0.001	0.000	0.000	0.000	0.000	0.001	0.004	0.002	0.000	0.000	0.000
750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.006	0.003	0.001	0.001	0.000	0.000	0.000	0.003	0.003	0.002	0.000	0.000	0.000
800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.006	0.004	0.004	0.001	0.000	0.000	0.000	0.005	0.003	0.000	0.000	0.000	0.000
850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.008	0.002	0.004	0.000	0.000	0.000	0.005	0.005	0.003	0.000	0.000	0.002
900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.004	0.006	0.005	0.001	0.000	0.000	0.007	0.003	0.003	0.000	0.000	0.000
950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.009	0.001	0.000	0.000	0.007	0.002	0.004	0.000	0.000	0.003
1000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.008	0.004	0.006	0.010	0.014	0.012	0.013	0.010	0.000	0.002
1050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.011	0.009	0.000	0.006	0.003	0.003	0.000	0.010	0.008
1100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.001	0.002	0.002	0.000	0.000	0.008
1150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
1200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003

Table C.23 Cont: Summer PM10 emissions (ton/day) for the 50x50 grid.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0001	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0004	0.0001	0.0007	0.0007	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0012	0.0000	0.0000	0.0000	0.0009	0.0000	0.0006	0.0008	0.0010	0.0014	0.0010	0.0010	0.0002	0.0002	0.0002	0.0002	0.0001	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
950	0.0023	0.0035	0.0020	0.0015	0.0020	0.0010	0.0010	0.0007	0.0001	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0023	0.0030	0.0030	0.0020	0.0020	0.0006	0.0007	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.0039	0.0043	0.0040	0.0021	0.0020	0.0009	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.0084	0.0043	0.0030	0.0010	0.0030	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0049	0.0083	0.0030	0.0032	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0024	0.0030	0.0070	0.0020	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.23 Cont.: Summer PM10 emissions (ton/day) for the 50x50 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.23 Cont.: Summer PM10 emissions (ton/day) for the 50x50 grid.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0008	0.0021	0.0040	0.0032	0.0010	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0024	0.0024	0.0010	0.0065	0.0020	0.0010	0.0006	0.0006	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0020	0.0036	0.0030	0.0004	0.0040	0.0006	0.0003	0.0007	0.0006	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0013	0.0010	0.0020	0.0013	0.0006	0.0030	0.0008	0.0003	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0010	0.0014	0.0009	0.0020	0.0020	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0004	0.0012	0.0005	0.0005	0.0020	0.0001	0.0000	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0003	0.0004	0.0010	0.0005	0.0000	0.0020	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0001	0.0005	0.0005	0.0005	0.0003	0.0010	0.0008	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0004	0.0001	0.0007	0.0005	0.0002	0.0020	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0002	0.0004	0.0002	0.0007	0.0004	0.0006	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0002	0.0003	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0004	0.0002	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0003	0.0003	0.0009	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0003	0.0003	0.0010	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0002	0.0010	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0009	0.0000	0.0008	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0002	0.0000	0.0006	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0002	0.0000	0.0001	0.0010	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0001	0.0002	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0001	0.0002	0.0000	0.0001	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000	0.0003	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0010	0.0003	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0007	0.0001	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.24: Winter PM10 emissions (ton/day) for the 50x50 grid.

Cell	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000
600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.004	0.002	0.000	0.000	0.001
650	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.004	0.001	0.001	0.000	0.000	0.001	0.001	0.000	0.000	0.004	0.002	0.000	0.000	0.000
700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.003	0.004	0.003	0.001	0.000	0.000	0.000	0.000	0.001	0.004	0.002	0.000	0.000	0.000
750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.006	0.003	0.001	0.001	0.000	0.000	0.000	0.003	0.003	0.002	0.000	0.000	0.000
800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.006	0.004	0.004	0.001	0.000	0.000	0.000	0.005	0.003	0.000	0.000	0.000	0.000
850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.008	0.002	0.004	0.000	0.000	0.000	0.005	0.005	0.003	0.000	0.000	0.002
900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.005	0.006	0.006	0.001	0.000	0.000	0.007	0.003	0.003	0.000	0.000	0.000
950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0.009	0.001	0.000	0.000	0.008	0.002	0.004	0.000	0.000	0.003
1000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.008	0.004	0.006	0.010	0.014	0.012	0.013	0.010	0.000	0.002
1050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.011	0.009	0.000	0.007	0.003	0.003	0.000	0.010	0.008
1100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.001	0.002	0.003	0.000	0.000	0.008
1150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
1200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003

Table C.24 Cont.: Winter PM10 emissions (ton/day) for the 50x50 grid.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
650	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
700	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
750	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
800	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
850	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
900	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
950	0.002	0.004	0.002	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1000	0.002	0.003	0.003	0.002	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1050	0.004	0.004	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1100	0.009	0.004	0.003	0.001	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1150	0.005	0.009	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1200	0.003	0.003	0.007	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table C.24 Cont.: Winter PM10 emissions (ton/day) for the 50x50 grid.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
1300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
1350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1650	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table C.24 Cont.: Winter PM10 emissions (ton/day) for the 50x50 grid.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.001	0.002	0.005	0.003	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1300	0.003	0.003	0.001	0.007	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1350	0.002	0.004	0.003	0.000	0.004	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1400	0.001	0.001	0.002	0.001	0.001	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1450	0.000	0.000	0.002	0.002	0.001	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1500	0.000	0.000	0.001	0.001	0.001	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1550	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1600	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1650	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1700	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1950	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
2300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
2350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
2400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table C.25: Summer AP42 PM10 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	2.4679	0.6684
2	0.0273	0.8042

Table C.26: Winter AP42 PM10 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	2.5271	0.6844
2	0.0280	0.8235

Table C.27: Summer AP42 PM10 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.2574	0.2562	0.0349	0.0000
4	0.2663	1.6881	0.5958	0.0377
8	0.0000	0.0273	0.6362	0.0233
12	0.0000	0.0000	0.0908	0.0475

Table C.28: Winter AP42 PM10 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.2635	0.2624	0.0358	0.0000
4	0.2726	1.7286	0.6101	0.0386
8	0.0000	0.0280	0.6515	0.0239
12	0.0000	0.0000	0.0930	0.0486

Table C.29: Summer AP42 PM10 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.0504	0.0022	0.0049	0.0082	0.0000	0.0000	0.0000
8	0.0001	0.2068	0.0199	0.2292	0.0267	0.0000	0.0000	0.0000
16	0.0157	0.2435	0.2898	0.3459	0.0171	0.0202	0.0309	0.0065
24	0.0014	0.0057	0.3639	0.6885	0.5357	0.0228	0.0003	0.0000
32	0.0000	0.0000	0.0000	0.0273	0.3647	0.0894	0.0233	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0741	0.1081	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0857	0.0215	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0052	0.0255	0.0065

Table C.30: Winter AP42 PM10 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.0516	0.0023	0.0051	0.0084	0.0000	0.0000	0.0000
8	0.0001	0.2118	0.0204	0.2347	0.0274	0.0000	0.0000	0.0000
16	0.0161	0.2493	0.2967	0.3542	0.0175	0.0207	0.0317	0.0066
24	0.0014	0.0058	0.3726	0.7051	0.5485	0.0233	0.0003	0.0000
32	0.0000	0.0000	0.0000	0.0280	0.3734	0.0916	0.0239	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0759	0.1107	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0877	0.0220	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0053	0.0261	0.0066

Table C.31: Summer AP42 PM10 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0173	0.0331	0.0022	0.0000	0.0039	0.0010	0.0082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0001	0.0272	0.0705	0.0027	0.0000	0.0105	0.0321	0.0246	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0245	0.0846	0.0141	0.0030	0.1065	0.0801	0.0006	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0091	0.0495	0.1373	0.0623	0.0125	0.1294	0.0242	0.0042	0.0000	0.0000	0.0000	0.0000	0.0027	0.0000	0.0000
80	0.0000	0.0066	0.0006	0.0561	0.1738	0.0411	0.1570	0.0353	0.0099	0.0030	0.0015	0.0187	0.0147	0.0135	0.0065	0.0000
96	0.0000	0.0014	0.0004	0.0053	0.0642	0.2638	0.2948	0.2100	0.1499	0.0917	0.0221	0.0006	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0358	0.0330	0.1508	0.2237	0.0703	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0273	0.1552	0.0983	0.0326	0.0177	0.0019	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0404	0.0708	0.0305	0.0086	0.0215	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0032	0.0486	0.0577	0.0053	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0223	0.0382	0.0069	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0180	0.0431	0.0064	0.0008	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0026	0.0220	0.0113	0.0031	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0052	0.0145	0.0078	0.0028	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033	0.0036	0.0000

Table C.32: Winter AP42 PM10 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0178	0.0339	0.0023	0.0000	0.0040	0.0011	0.0084	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0001	0.0279	0.0722	0.0028	0.0000	0.0107	0.0329	0.0252	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0251	0.0867	0.0145	0.0031	0.1091	0.0820	0.0007	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0093	0.0507	0.1406	0.0638	0.0128	0.1325	0.0248	0.0043	0.0000	0.0000	0.0000	0.0000	0.0028	0.0000	0.0000
80	0.0000	0.0068	0.0006	0.0574	0.1780	0.0421	0.1608	0.0361	0.0102	0.0031	0.0015	0.0192	0.0150	0.0138	0.0066	0.0000
96	0.0000	0.0014	0.0004	0.0054	0.0658	0.2701	0.3018	0.2150	0.1535	0.0939	0.0227	0.0006	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0367	0.0338	0.1544	0.2291	0.0720	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0280	0.1589	0.1006	0.0334	0.0181	0.0019	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0413	0.0725	0.0313	0.0088	0.0220	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033	0.0497	0.0591	0.0055	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0228	0.0391	0.0071	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0184	0.0441	0.0066	0.0008	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0026	0.0226	0.0115	0.0031	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0053	0.0148	0.0079	0.0029	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0037	0.0000

Table C.33: Summer AP42 PM10 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0016	0.0017	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0028	0.0112	0.0101	0.0225	0.0022	0.0000	0.0000	0.0000	0.0000	0.0039	0.0010	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0032	0.0115	0.0138	0.0248	0.0013	0.0000	0.0000	0.0000	0.0021	0.0035	0.0059	0.0050
160	0.0000	0.0000	0.0000	0.0001	0.0039	0.0085	0.0146	0.0173	0.0014	0.0000	0.0000	0.0000	0.0045	0.0004	0.0120	0.0092
192	0.0000	0.0000	0.0000	0.0000	0.0037	0.0064	0.0242	0.0155	0.0000	0.0000	0.0000	0.0000	0.0118	0.0240	0.0185	0.0123
224	0.0000	0.0000	0.0000	0.0000	0.0039	0.0105	0.0103	0.0346	0.0079	0.0062	0.0024	0.0007	0.0258	0.0448	0.0417	0.0075
256	0.0000	0.0000	0.0000	0.0025	0.0077	0.0145	0.0221	0.0438	0.0096	0.0041	0.0059	0.0056	0.0211	0.0304	0.0197	0.0006
288	0.0000	0.0000	0.0000	0.0066	0.0071	0.0202	0.0220	0.0494	0.0353	0.0133	0.0010	0.0000	0.0412	0.0367	0.0038	0.0000
320	0.0000	0.0000	0.0000	0.0043	0.0000	0.0003	0.0087	0.0351	0.0417	0.0420	0.0084	0.0000	0.0371	0.0189	0.0001	0.0015
352	0.0000	0.0000	0.0000	0.0023	0.0004	0.0000	0.0033	0.0090	0.0523	0.0379	0.0156	0.0172	0.0597	0.0413	0.0246	0.0091
384	0.0000	0.0000	0.0000	0.0014	0.0004	0.0000	0.0000	0.0053	0.0088	0.0385	0.0381	0.0307	0.0673	0.0482	0.0565	0.0309
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0169	0.0980	0.0969	0.1001	0.0794	0.0631	0.0595
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0229	0.0130	0.0082	0.0248	0.0369	0.0585
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0186	0.0369
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0254
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0018
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.33 Cont.: Summer AP42 PM10 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0011	0.0072	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0130	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0078	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0005	0.0001	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000
288	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0000	0.0000	0.0000	0.0000
320	0.0008	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0017	0.0000	0.0000	0.0000	0.0000
352	0.0062	0.0012	0.0022	0.0008	0.0002	0.0013	0.0097	0.0088	0.0074	0.0073	0.0076	0.0041	0.0042	0.0022	0.0000	0.0000
384	0.0363	0.0253	0.0210	0.0228	0.0112	0.0089	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0473	0.0409	0.0264	0.0214	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0695	0.0473	0.0251	0.0161	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0512	0.0557	0.0223	0.0069	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0302	0.0394	0.0518	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0476	0.0380	0.0262	0.0175	0.0127	0.0200	0.0091	0.0085	0.0000	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0036	0.0243	0.0117	0.0275	0.0074	0.0062	0.0003	0.0006	0.0091	0.0061	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0125	0.0237	0.0080	0.0169	0.0000	0.0041	0.0036	0.0043	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0032	0.0153	0.0121	0.0120	0.0083	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0098	0.0113	0.0179	0.0195	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0062	0.0117	0.0091	0.0064	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0001	0.0044	0.0099	0.0128	0.0043	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0023	0.0119	0.0133	0.0040	0.0028	0.0027	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0006	0.0032	0.0185	0.0072	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0026	0.0076	0.0061	0.0024	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0044	0.0039	0.0056	0.0011	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0031	0.0049	0.0070	0.0017	0.0022	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0002	0.0024	0.0023	0.0015	0.0028	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0027	0.0017	0.0016	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000

Table C.34: Winter AP42 PM10 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0029	0.0114	0.0104	0.0231	0.0023	0.0000	0.0000	0.0000	0.0000	0.0040	0.0011	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0033	0.0118	0.0141	0.0253	0.0013	0.0000	0.0000	0.0000	0.0021	0.0036	0.0061	0.0051
160	0.0000	0.0000	0.0000	0.0001	0.0040	0.0087	0.0150	0.0177	0.0015	0.0000	0.0000	0.0000	0.0046	0.0004	0.0123	0.0094
192	0.0000	0.0000	0.0000	0.0000	0.0038	0.0065	0.0248	0.0159	0.0000	0.0000	0.0000	0.0000	0.0121	0.0246	0.0190	0.0126
224	0.0000	0.0000	0.0000	0.0000	0.0040	0.0108	0.0105	0.0355	0.0081	0.0064	0.0024	0.0007	0.0265	0.0459	0.0427	0.0077
256	0.0000	0.0000	0.0000	0.0026	0.0079	0.0149	0.0226	0.0448	0.0098	0.0042	0.0060	0.0057	0.0216	0.0311	0.0202	0.0006
288	0.0000	0.0000	0.0000	0.0068	0.0073	0.0207	0.0225	0.0506	0.0361	0.0136	0.0011	0.0000	0.0421	0.0376	0.0039	0.0000
320	0.0000	0.0000	0.0000	0.0044	0.0000	0.0003	0.0089	0.0359	0.0427	0.0430	0.0086	0.0000	0.0380	0.0193	0.0001	0.0015
352	0.0000	0.0000	0.0000	0.0023	0.0004	0.0000	0.0034	0.0092	0.0535	0.0388	0.0160	0.0176	0.0611	0.0423	0.0252	0.0094
384	0.0000	0.0000	0.0000	0.0014	0.0004	0.0000	0.0000	0.0054	0.0090	0.0395	0.0390	0.0315	0.0689	0.0494	0.0579	0.0317
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0173	0.1004	0.0993	0.1025	0.0814	0.0646	0.0609
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0234	0.0133	0.0084	0.0254	0.0378	0.0599
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0190	0.0378
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0260
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.34 Cont.: Winter AP42 PM10 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0011	0.0073	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0133	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0080	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0006	0.0001	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000
288	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	0.0000	0.0000	0.0000	0.0000
320	0.0009	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0018	0.0000	0.0000	0.0000	0.0000
352	0.0064	0.0012	0.0023	0.0008	0.0002	0.0013	0.0099	0.0090	0.0076	0.0075	0.0078	0.0042	0.0043	0.0023	0.0000	0.0000
384	0.0372	0.0259	0.0215	0.0234	0.0115	0.0091	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0485	0.0419	0.0271	0.0220	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0712	0.0485	0.0257	0.0165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0524	0.0570	0.0229	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0309	0.0403	0.0530	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0488	0.0389	0.0268	0.0179	0.0130	0.0205	0.0093	0.0087	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0037	0.0249	0.0119	0.0281	0.0076	0.0064	0.0003	0.0006	0.0093	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0128	0.0243	0.0082	0.0173	0.0000	0.0042	0.0037	0.0044	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0033	0.0157	0.0124	0.0123	0.0085	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0100	0.0116	0.0183	0.0199	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0063	0.0120	0.0093	0.0065	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0045	0.0101	0.0131	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0024	0.0121	0.0137	0.0041	0.0028	0.0028	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0006	0.0033	0.0190	0.0074	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0026	0.0078	0.0062	0.0025	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0046	0.0040	0.0057	0.0011	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0032	0.0050	0.0071	0.0017	0.0023	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0002	0.0025	0.0024	0.0016	0.0029	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0028	0.0017	0.0016	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000

Table C.35: Summer AP42 PM10 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0030	0.0025	0.0040	0.0040	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0020	0.0060	0.0000	0.0040	0.0010	0.0142	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0007	0.0060	0.0003	0.0030	0.0001	0.0111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0010	0.0000	0.0000	0.0007
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0050	0.0050	0.0100	0.0070	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0050
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0020	0.0040	0.0029	0.0090	0.0060	0.0061	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0100	0.0020
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0056	0.0080	0.0090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0050	0.0050	0.0100	0.0000	0.0060
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0020	0.0087	0.0110	0.0100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0200	0.0120	0.0100	0.0100	0.0050
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0005	0.0056	0.0070	0.0150	0.0106	0.0034	0.0030	0.0030	0.0000	0.0000	0.0000	0.0019	0.0220	0.0110	0.0100	0.0100	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0092	0.0110	0.0160	0.0088	0.0005	0.0000	0.0020	0.0024	0.0020	0.0000	0.0038	0.0260	0.0240	0.0200	0.0100	0.0010
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020	0.0050	0.0020	0.0068	0.0090	0.0220	0.0093	0.0051	0.0020	0.0000	0.0030	0.0030	0.0000	0.0000	0.0180	0.0160	0.0100	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0050	0.0050	0.0090	0.0098	0.0050	0.0140	0.0205	0.0154	0.0030	0.0050	0.0000	0.0000	0.0000	0.0114	0.0230	0.0140	0.0000	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0050	0.0103	0.0080	0.0170	0.0238	0.0192	0.0150	0.0040	0.0000	0.0000	0.0000	0.0178	0.0160	0.0120	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0030	0.0040	0.0060	0.0200	0.0198	0.0240	0.0110	0.0014	0.0000	0.0000	0.0178	0.0160	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0004	0.0001	0.0000	0.0000	0.0040	0.0010	0.0122	0.0271	0.0130	0.0200	0.0006	0.0001	0.0100	0.0221	0.0270	0.0160	0.0100	0.0000	0.0080
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0001	0.0000	0.0000	0.0000	0.0000	0.0050	0.0055	0.0176	0.0150	0.0220	0.0033	0.0000	0.0200	0.0293	0.0180	0.0150	0.0000	0.0000	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0002	0.0001	0.0000	0.0000	0.0000	0.0006	0.0063	0.0007	0.0130	0.0290	0.0075	0.0020	0.0200	0.0325	0.0170	0.0220	0.0200	0.0200	0.0150
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0250	0.0239	0.0290	0.0500	0.0449	0.0500	0.0480	0.0400	0.0200	0.0110
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0170	0.0539	0.0440	0.0200	0.0391	0.0170	0.0180	0.0100	0.0400	0.0330
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0095	0.0150	0.0000	0.0029	0.0110	0.0120	0.0100	0.0200	0.0320
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0100	0.0200	0.0140
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0220

Table C.35 Cont.: Summer AP42 PM10 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
250	0.000	0.002	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
300	0.004	0.007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
350	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
400	0.005	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
450	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
500	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
550	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
650	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
700	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
750	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
800	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
850	0.002	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.004	0.003	0.001	0.000	0.000	0.000	0.000	0.000
900	0.006	0.000	0.000	0.000	0.002	0.000	0.001	0.004	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.001	0.000	0.000	0.002	0.003	0.001	0.000	0.000	0.000
950	0.014	0.020	0.010	0.009	0.012	0.006	0.006	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1000	0.016	0.016	0.015	0.015	0.015	0.007	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1050	0.023	0.023	0.018	0.012	0.012	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1100	0.035	0.025	0.013	0.007	0.020	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1150	0.021	0.039	0.020	0.017	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1200	0.017	0.015	0.027	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table C.35 Cont.: Summer AP42 PM10 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0110
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.35 Cont.: Summer AP42 PM10 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.00860	0.01380	0.01900	0.01420	0.01500	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1300	0.01560	0.01500	0.01200	0.03730	0.00800	0.00600	0.00300	0.00400	0.00300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1350	0.01350	0.02440	0.01500	0.00290	0.01500	0.00200	0.00300	0.00600	0.00900	0.00780	0.00050	0.00000	0.00000	0.00000	0.00060	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1400	0.00830	0.00720	0.01100	0.00580	0.00200	0.01300	0.00400	0.00100	0.00500	0.00090	0.00500	0.00600	0.00600	0.00600	0.00500	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1450	0.00000	0.00040	0.01400	0.01160	0.00700	0.00900	0.01200	0.00090	0.00010	0.00130	0.00000	0.00000	0.00000	0.00000	0.00300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1500	0.00000	0.00007	0.00500	0.00800	0.00600	0.00300	0.01000	0.00090	0.00000	0.00080	0.00300	0.00200	0.00200	0.00200	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1550	0.00000	0.00000	0.00300	0.00540	0.00800	0.00700	0.00001	0.01100	0.00100	0.00090	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1600	0.00000	0.00000	0.00020	0.00570	0.00400	0.00300	0.00300	0.00700	0.00600	0.00080	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1650	0.00000	0.00000	0.00000	0.00500	0.00200	0.00500	0.00700	0.00400	0.01400	0.00230	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1700	0.00000	0.00000	0.00000	0.00200	0.00600	0.00500	0.01100	0.00600	0.00300	0.00180	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1750	0.00000	0.00000	0.00000	0.00010	0.00300	0.00400	0.00300	0.00200	0.00300	0.00270	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1800	0.00000	0.00000	0.00000	0.00000	0.00007	0.00300	0.00400	0.00500	0.00700	0.00009	0.00300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1850	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00500	0.00300	0.00720	0.00200	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00200	0.00500	0.00610	0.00600	0.00300	0.00080	0.00200	0.00200	0.00200	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1950	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00070	0.00100	0.00940	0.00400	0.00400	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00030	0.00220	0.01100	0.00000	0.00200	0.00090	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00270	0.00300	0.00500	0.00000	0.00100	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00190	0.00090	0.00200	0.00400	0.00000	0.00030	0.00200	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2150	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00010	0.00300	0.00000	0.00200	0.00400	0.00000	0.00030	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00090	0.00200	0.00050	0.00200	0.00400	0.00100	0.00020	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2250	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00090	0.00030	0.00005	0.00040	0.00300	0.00200	0.00000	0.00060	0.00200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2300	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00050	0.00200	0.00008	0.00020	0.00200	0.00060	0.00000	0.00000	0.00000	0.00000
2350	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00200	0.00100	0.00000	0.00150	0.00020	0.00000	0.00000	0.00000
2400	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00040	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000
2450	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Table C.36: Winter AP42 PM10 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0041	0.0028	0.0026	0.0046	0.0038	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0020	0.0057	0.0000	0.0042	0.0015	0.0146	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0028	0.0000	0.0008	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0007	0.0062	0.0003	0.0032	0.0001	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0036	0.0011	0.0030	0.0007	0.0007
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0051	0.0052	0.0106	0.0074	0.0141	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0000	0.0030	0.0001	0.0056
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0021	0.0036	0.0030	0.0090	0.0060	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0000	0.0040	0.0070	0.0020
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0010	0.0057	0.0083	0.0090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0050	0.0049	0.0100	0.0010	0.0061
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0025	0.0089	0.0113	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0201	0.0120	0.0090	0.0060	0.0052
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0005	0.0057	0.0070	0.0156	0.0109	0.0035	0.0035	0.0033	0.0000	0.0000	0.0000	0.0019	0.0226	0.0109	0.0150	0.0070	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0037	0.0038	0.0094	0.0109	0.0160	0.0090	0.0005	0.0000	0.0018	0.0024	0.0019	0.0040	0.0039	0.0269	0.0243	0.0230	0.0090	0.0014
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0014	0.0020	0.0052	0.0024	0.0069	0.0090	0.0228	0.0095	0.0052	0.0021	0.0000	0.0031	0.0027	0.0000	0.0000	0.0189	0.0165	0.0100	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0046	0.0051	0.0047	0.0093	0.0101	0.0049	0.0143	0.0210	0.0158	0.0027	0.0047	0.0000	0.0000	0.0003	0.0117	0.0232	0.0142	0.0030	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0047	0.0105	0.0078	0.0170	0.0244	0.0197	0.0159	0.0037	0.0000	0.0000	0.0005	0.0182	0.0167	0.0124	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0000	0.0000	0.0000	0.0031	0.0037	0.0062	0.0205	0.0203	0.0241	0.0109	0.0014	0.0000	0.0020	0.0183	0.0164	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0004	0.0001	0.0000	0.0000	0.0044	0.0013	0.0124	0.0277	0.0136	0.0206	0.0006	0.0001	0.0090	0.0226	0.0277	0.0159	0.0100	0.0050	0.0077
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016	0.0001	0.0000	0.0000	0.0000	0.0000	0.0054	0.0057	0.0180	0.0156	0.0229	0.0034	0.0000	0.0180	0.0301	0.0189	0.0155	0.0007	0.0004	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0002	0.0001	0.0000	0.0000	0.0000	0.0006	0.0065	0.0007	0.0133	0.0298	0.0076	0.0021	0.0170	0.0333	0.0172	0.0222	0.0240	0.0160	0.0153
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0047	0.0258	0.0245	0.0299	0.0480	0.0460	0.0515	0.0494	0.0430	0.0160	0.0108
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0175	0.0552	0.0446	0.0250	0.0401	0.0177	0.0186	0.0100	0.0380	0.0337
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0097	0.0158	0.0000	0.0029	0.0113	0.0124	0.0130	0.0160	0.0327
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0130	0.0170	0.0143
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0230

Table C.36 Cont.: Winter AP42 PM10 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
50	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
150	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
200	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
250	0.00000	0.00176	0.00390	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
300	0.00451	0.00722	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
350	0.00395	0.00348	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
400	0.00542	0.00000	0.00070	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
450	0.00218	0.00000	0.00020	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
500	0.00000	0.00000	0.00000	0.00052	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
550	0.00000	0.00000	0.00000	0.00000	0.00040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
600	0.00043	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
650	0.00146	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
700	0.00132	0.00013	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00090	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
750	0.00000	0.00145	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00110	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
800	0.00000	0.00146	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00110	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
850	0.00193	0.00014	0.00150	0.00146	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00040	0.00000	0.00000	0.00000	0.00000	0.00350	0.00380	0.00260	0.00090	0.00000	0.00000	0.00000	0.00000	0.00000
900	0.00595	0.00000	0.00000	0.00000	0.00250	0.00000	0.00120	0.00370	0.00626	0.00636	0.00640	0.00600	0.00480	0.00480	0.00480	0.00480	0.00130	0.00000	0.00000	0.00190	0.00265	0.00050	0.00000	0.00000	0.00000
950	0.01400	0.02042	0.00980	0.00914	0.01220	0.00610	0.00560	0.00350	0.00039	0.00000	0.00000	0.00050	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1000	0.01663	0.01583	0.01500	0.01528	0.01500	0.00670	0.00380	0.00030	0.00000	0.00000	0.00000	0.00006	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1050	0.02351	0.02321	0.01830	0.01264	0.01230	0.00690	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1100	0.03548	0.02507	0.01340	0.00724	0.02050	0.00280	0.00004	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1150	0.02125	0.04003	0.02000	0.01751	0.01130	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
1200	0.01723	0.01522	0.02780	0.00613	0.00920	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00030	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Table C.36 Cont.: Winter AP42 PM10 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0112
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0082
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C. 36 Cont.: Winter AP42 PM10 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0088	0.0142	0.0199	0.0146	0.0149	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0160	0.0154	0.0119	0.0382	0.0086	0.0060	0.0032	0.0039	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0138	0.0250	0.0152	0.0030	0.0156	0.0023	0.0035	0.0061	0.0094	0.0080	0.0005	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0086	0.0074	0.0108	0.0060	0.0023	0.0135	0.0042	0.0012	0.0055	0.0010	0.0055	0.0060	0.0060	0.0060	0.0049	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0005	0.0145	0.0119	0.0077	0.0093	0.0118	0.0009	0.0001	0.0013	0.0000	0.0000	0.0000	0.0000	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0001	0.0056	0.0082	0.0057	0.0034	0.0102	0.0009	0.0000	0.0008	0.0026	0.0023	0.0023	0.0023	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0027	0.0056	0.0085	0.0067	0.0000	0.0111	0.0012	0.0010	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0002	0.0059	0.0043	0.0035	0.0027	0.0068	0.0059	0.0008	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0051	0.0025	0.0053	0.0068	0.0041	0.0139	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0020	0.0064	0.0053	0.0109	0.0062	0.0026	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0001	0.0030	0.0046	0.0036	0.0021	0.0030	0.0028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0001	0.0029	0.0039	0.0049	0.0067	0.0001	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0049	0.0034	0.0074	0.0020	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0022	0.0050	0.0063	0.0058	0.0028	0.0008	0.0018	0.0018	0.0018	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0012	0.0096	0.0040	0.0044	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0022	0.0110	0.0000	0.0017	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0027	0.0027	0.0046	0.0000	0.0012	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0009	0.0019	0.0043	0.0000	0.0003	0.0022	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0027	0.0000	0.0022	0.0040	0.0000	0.0003	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0021	0.0006	0.0025	0.0044	0.0011	0.0002	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0003	0.0001	0.0004	0.0033	0.0018	0.0000	0.0006	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0019	0.0001	0.0002	0.0021	0.0006	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0013	0.0000	0.0015	0.0002	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.37: Summer total PM10 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	2.9113	0.7877
2	0.0320	0.9162

Table C.38: Winter total PM10 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	2.5271	0.6844
2	0.0280	0.8235

Table C.39: Summer total PM10 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.291	0.281	0.0363	0.0000
4	0.302	2.038	0.7122	0.0392
8	0.000	0.032	0.7269	0.0244
12	0.000	0.000	0.0994	0.0589

Table C.40: Winter total PM10 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.298	0.288	0.0372	0.0000
4	0.309	2.088	0.73	0.0402
8	0.000	0.033	0.7448	0.025
12	0.000	0.000	0.1018	0.0604

Table C.41: Summer total PM10 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.0567	0.0024	0.0055	0.0085	0.0000	0.0000	0.0000
8	0.0001	0.2338	0.0231	0.2498	0.0278	0.0000	0.0000	0.0000
16	0.0163	0.2773	0.3471	0.4099	0.0244	0.0245	0.0323	0.0067
24	0.0014	0.0070	0.4417	0.8381	0.6351	0.0281	0.0003	0.0000
32	0.0000	0.0000	0.0000	0.0320	0.4254	0.0988	0.0244	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0803	0.1225	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0940	0.0269	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0054	0.0288	0.0091

Table C.42: Winter total PM10 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.0581	0.0024	0.0057	0.0087	0.0000	0.0000	0.0000
8	0.0001	0.2396	0.0237	0.2559	0.0284	0.0000	0.0000	0.0000
16	0.0167	0.2840	0.3557	0.4198	0.0250	0.0251	0.0330	0.0069
24	0.0014	0.0071	0.4526	0.8589	0.6507	0.0288	0.0003	0.0000
32	0.0000	0.0000	0.0000	0.0328	0.4358	0.1012	0.0250	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0823	0.1254	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0963	0.0276	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0056	0.0295	0.0094

Table C.43: Summer total PM10 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0180	0.0386	0.0024	0.0000	0.0043	0.0013	0.0085	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0001	0.0286	0.0811	0.0031	0.0000	0.0113	0.0337	0.0255	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0256	0.0986	0.0164	0.0036	0.1173	0.0874	0.0007	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0095	0.0529	0.1579	0.0710	0.0147	0.1504	0.0272	0.0061	0.0000	0.0000	0.0000	0.0000	0.0029	0.0000	0.0000
80	0.0000	0.0069	0.0007	0.0657	0.2147	0.0462	0.1890	0.0437	0.0132	0.0045	0.0020	0.0226	0.0153	0.0141	0.0067	0.0000
96	0.0000	0.0014	0.0004	0.0066	0.0835	0.3168	0.3595	0.2612	0.1771	0.1050	0.0266	0.0014	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0406	0.0395	0.1790	0.2700	0.0828	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0320	0.1800	0.1171	0.0360	0.0184	0.0019	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0455	0.0828	0.0353	0.0091	0.0225	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0035	0.0534	0.0648	0.0057	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0233	0.0414	0.0106	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0189	0.0494	0.0072	0.0008	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0230	0.0147	0.0044	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0054	0.0150	0.0104	0.0042	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0048	0.0000

Table C.44: Winter total PM10 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0185	0.0396	0.0024	0.0000	0.0044	0.0013	0.0087	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0001	0.0293	0.0831	0.0032	0.0000	0.0116	0.0345	0.0261	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0262	0.1010	0.0169	0.0037	0.1201	0.0896	0.0007	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0097	0.0541	0.1617	0.0727	0.0151	0.1541	0.0279	0.0063	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000
80	0.0000	0.0070	0.0007	0.0673	0.2201	0.0474	0.1936	0.0448	0.0136	0.0046	0.0021	0.0231	0.0156	0.0144	0.0069	0.0000
96	0.0000	0.0014	0.0004	0.0068	0.0855	0.3247	0.3683	0.2678	0.1815	0.1076	0.0273	0.0014	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0416	0.0405	0.1834	0.2768	0.0849	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0328	0.1845	0.1200	0.0369	0.0188	0.0020	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0466	0.0848	0.0362	0.0093	0.0230	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0036	0.0547	0.0664	0.0058	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0239	0.0424	0.0109	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0194	0.0507	0.0074	0.0008	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0028	0.0236	0.0151	0.0045	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0056	0.0153	0.0106	0.0043	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0035	0.0049	0.0000

Table C.45: Summer total PM10 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0017	0.0018	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0030	0.0116	0.0112	0.0267	0.0024	0.0000	0.0000	0.0000	0.0000	0.0043	0.0013	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0034	0.0121	0.0151	0.0290	0.0016	0.0000	0.0000	0.0000	0.0023	0.0038	0.0064	0.0051
160	0.0000	0.0000	0.0000	0.0001	0.0041	0.0091	0.0152	0.0215	0.0015	0.0000	0.0000	0.0000	0.0049	0.0004	0.0127	0.0095
192	0.0000	0.0000	0.0000	0.0000	0.0038	0.0068	0.0262	0.0197	0.0000	0.0000	0.0000	0.0000	0.0133	0.0257	0.0199	0.0128
224	0.0000	0.0000	0.0000	0.0000	0.0041	0.0109	0.0115	0.0409	0.0091	0.0074	0.0028	0.0008	0.0303	0.0481	0.0462	0.0085
256	0.0000	0.0000	0.0000	0.0026	0.0081	0.0151	0.0233	0.0519	0.0111	0.0043	0.0070	0.0066	0.0254	0.0347	0.0219	0.0009
288	0.0000	0.0000	0.0000	0.0069	0.0077	0.0220	0.0239	0.0587	0.0411	0.0147	0.0012	0.0000	0.0486	0.0416	0.0044	0.0000
320	0.0000	0.0000	0.0000	0.0045	0.0000	0.0003	0.0098	0.0421	0.0519	0.0480	0.0087	0.0000	0.0455	0.0224	0.0001	0.0018
352	0.0000	0.0000	0.0000	0.0024	0.0004	0.0000	0.0039	0.0100	0.0657	0.0488	0.0182	0.0193	0.0719	0.0494	0.0306	0.0112
384	0.0000	0.0000	0.0000	0.0014	0.0004	0.0000	0.0000	0.0066	0.0102	0.0507	0.0439	0.0353	0.0809	0.0560	0.0676	0.0366
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0222	0.1193	0.1181	0.1244	0.0983	0.0825	0.0746
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0258	0.0149	0.0099	0.0297	0.0437	0.0715
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0222	0.0421
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0297
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.45 Cont.: Summer total PM10 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0011	0.0075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0135	0.0028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0081	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0006	0.0001	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0000	0.0000	0.0000	0.0000
288	0.0033	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	0.0000	0.0000	0.0000	0.0000
320	0.0012	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0018	0.0000	0.0000	0.0000	0.0000
352	0.0075	0.0018	0.0033	0.0012	0.0005	0.0015	0.0118	0.0104	0.0077	0.0076	0.0080	0.0043	0.0044	0.0023	0.0000	0.0000
384	0.0423	0.0303	0.0243	0.0261	0.0135	0.0109	0.0000	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0552	0.0494	0.0303	0.0244	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0854	0.0571	0.0288	0.0191	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0600	0.0676	0.0266	0.0083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0340	0.0469	0.0600	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0545	0.0448	0.0319	0.0217	0.0145	0.0215	0.0095	0.0089	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0044	0.0278	0.0138	0.0330	0.0088	0.0065	0.0003	0.0006	0.0095	0.0065	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0134	0.0268	0.0091	0.0199	0.0000	0.0044	0.0038	0.0045	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0036	0.0170	0.0134	0.0143	0.0094	0.0037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0105	0.0125	0.0189	0.0224	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0066	0.0122	0.0099	0.0076	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0001	0.0046	0.0104	0.0134	0.0066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0024	0.0125	0.0140	0.0059	0.0029	0.0029	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0006	0.0034	0.0197	0.0093	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0080	0.0063	0.0035	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0047	0.0041	0.0058	0.0016	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016	0.0033	0.0050	0.0072	0.0023	0.0032	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0002	0.0025	0.0024	0.0023	0.0042	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0028	0.0019	0.0023	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000

Table C.46: Winter total PM10 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0017	0.0018	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0030	0.0119	0.0115	0.0274	0.0024	0.0000	0.0000	0.0000	0.0000	0.0044	0.0013	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0035	0.0124	0.0154	0.0297	0.0016	0.0000	0.0000	0.0000	0.0023	0.0039	0.0066	0.0052
160	0.0000	0.0000	0.0000	0.0001	0.0042	0.0093	0.0156	0.0221	0.0016	0.0000	0.0000	0.0000	0.0050	0.0004	0.0130	0.0097
192	0.0000	0.0000	0.0000	0.0000	0.0039	0.0069	0.0269	0.0202	0.0000	0.0000	0.0000	0.0000	0.0136	0.0264	0.0204	0.0131
224	0.0000	0.0000	0.0000	0.0000	0.0042	0.0112	0.0118	0.0419	0.0093	0.0076	0.0029	0.0008	0.0310	0.0492	0.0473	0.0087
256	0.0000	0.0000	0.0000	0.0027	0.0082	0.0154	0.0239	0.0532	0.0114	0.0044	0.0072	0.0068	0.0260	0.0356	0.0224	0.0009
288	0.0000	0.0000	0.0000	0.0071	0.0079	0.0226	0.0245	0.0601	0.0421	0.0150	0.0013	0.0000	0.0498	0.0426	0.0045	0.0000
320	0.0000	0.0000	0.0000	0.0046	0.0000	0.0003	0.0100	0.0431	0.0531	0.0492	0.0089	0.0000	0.0466	0.0230	0.0001	0.0019
352	0.0000	0.0000	0.0000	0.0024	0.0004	0.0000	0.0040	0.0102	0.0673	0.0501	0.0186	0.0197	0.0737	0.0506	0.0314	0.0115
384	0.0000	0.0000	0.0000	0.0014	0.0004	0.0000	0.0000	0.0068	0.0104	0.0520	0.0449	0.0362	0.0829	0.0574	0.0694	0.0375
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0227	0.1223	0.1211	0.1274	0.1008	0.0846	0.0765
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0264	0.0152	0.0102	0.0305	0.0448	0.0733
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0228	0.0431
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0305
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.46 Cont.: Winter total PM10 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0011	0.0076	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0138	0.0028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0083	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0006	0.0001	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0000	0.0000	0.0000	0.0000
288	0.0034	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0000	0.0000	0.0000	0.0000
320	0.0013	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0019	0.0000	0.0000	0.0000	0.0000
352	0.0077	0.0018	0.0034	0.0012	0.0005	0.0016	0.0121	0.0107	0.0079	0.0078	0.0081	0.0044	0.0045	0.0024	0.0000	0.0000
384	0.0433	0.0310	0.0249	0.0267	0.0139	0.0112	0.0000	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0565	0.0506	0.0310	0.0250	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0875	0.0585	0.0295	0.0196	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0614	0.0693	0.0273	0.0085	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0349	0.0480	0.0615	0.0037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0559	0.0459	0.0326	0.0222	0.0148	0.0220	0.0097	0.0091	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0045	0.0285	0.0141	0.0338	0.0090	0.0067	0.0003	0.0006	0.0097	0.0066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0137	0.0275	0.0093	0.0204	0.0000	0.0045	0.0039	0.0047	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0037	0.0174	0.0137	0.0147	0.0097	0.0038	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0108	0.0128	0.0194	0.0230	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0067	0.0125	0.0101	0.0077	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0047	0.0107	0.0138	0.0067	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0025	0.0128	0.0144	0.0060	0.0030	0.0030	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0006	0.0034	0.0202	0.0095	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0028	0.0081	0.0065	0.0036	0.0033	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0048	0.0042	0.0060	0.0016	0.0045	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0016	0.0034	0.0052	0.0074	0.0023	0.0033	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0002	0.0026	0.0025	0.0023	0.0043	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0029	0.0020	0.0024	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000

Table C.47: Summer total PM10 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0030	0.0026	0.0050	0.0040	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0020	0.0060	0.0000	0.0050	0.0020	0.0167	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0007	0.0060	0.0003	0.0040	0.0001	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0010	0.0000	0.0000	0.0007
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0050	0.0052	0.0110	0.0080	0.0165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0060
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0020	0.0040	0.0030	0.0090	0.0070	0.0073	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0100	0.0020
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0060	0.0090	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0050	0.0050	0.0100	0.0000	0.0060
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0092	0.0120	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0220	0.0120	0.0100	0.0100	0.0050
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0005	0.0057	0.0080	0.0190	0.0117	0.0040	0.0040	0.0040	0.0000	0.0000	0.0000	0.0023	0.0240	0.0110	0.0200	0.0100	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0095	0.0120	0.0190	0.0099	0.0005	0.0000	0.0020	0.0028	0.0020	0.0000	0.0046	0.0300	0.0260	0.0200	0.0100	0.0020
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020	0.0050	0.0020	0.0070	0.0090	0.0270	0.0105	0.0059	0.0020	0.0000	0.0036	0.0030	0.0000	0.0000	0.0220	0.0180	0.0100	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0050	0.0050	0.0100	0.0102	0.0050	0.0160	0.0246	0.0180	0.0030	0.0050	0.0000	0.0000	0.0000	0.0128	0.0270	0.0160	0.0000	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0050	0.0116	0.0090	0.0190	0.0293	0.0218	0.0170	0.0040	0.0000	0.0000	0.0000	0.0210	0.0190	0.0140	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0035	0.0040	0.0070	0.0262	0.0236	0.0270	0.0110	0.0014	0.0000	0.0000	0.0224	0.0190	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0004	0.0001	0.0000	0.0000	0.0050	0.0010	0.0141	0.0353	0.0150	0.0240	0.0006	0.0001	0.0100	0.0266	0.0320	0.0190	0.0100	0.0100	0.0090
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0001	0.0000	0.0000	0.0000	0.0000	0.0060	0.0063	0.0219	0.0210	0.0280	0.0038	0.0000	0.0200	0.0361	0.0220	0.0180	0.0000	0.0000	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0002	0.0001	0.0000	0.0000	0.0000	0.0010	0.0071	0.0007	0.0150	0.0380	0.0085	0.0020	0.0200	0.0398	0.0190	0.0260	0.0300	0.0200	0.0180
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0330	0.0278	0.0350	0.0600	0.0589	0.0620	0.0610	0.0500	0.0200	0.0120
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0220	0.0647	0.0520	0.0300	0.0455	0.0200	0.0210	0.0100	0.0500	0.0410
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108	0.0170	0.0000	0.0035	0.0130	0.0150	0.0200	0.0200	0.0400
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0200	0.0200	0.0160
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0260

Table C.47 Cont.: Summer total PM10 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0018	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0045	0.0073	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0040	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0055	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0022	0.0000	0.0003	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0019	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0023	0.0002	0.0020	0.0021	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0030	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0070	0.0000	0.0000	0.0000	0.0030	0.0000	0.0020	0.0040	0.0070	0.0076	0.0080	0.0070	0.0050	0.0050	0.0050	0.0050	0.0010	0.0000	0.0000	0.0020	0.0027	0.0005	0.0000	0.0000	0.0000
950	0.0160	0.0234	0.0110	0.0104	0.0140	0.0070	0.0060	0.0040	0.0005	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0185	0.0185	0.0170	0.0169	0.0170	0.0070	0.0040	0.0004	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.0269	0.0269	0.0220	0.0145	0.0140	0.0080	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.0430	0.0288	0.0160	0.0081	0.0230	0.0030	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0256	0.0474	0.0230	0.0203	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0193	0.0179	0.0340	0.0079	0.0100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.47 Cont.: Summer total PM10 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0130
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.47 Cont.: Summer total PM10 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0094	0.0159	0.0240	0.0174	0.0160	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0180	0.0174	0.0130	0.0439	0.0100	0.0070	0.0040	0.0040	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0155	0.0280	0.0180	0.0033	0.0190	0.0030	0.0040	0.0070	0.0100	0.0081	0.0005	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0096	0.0083	0.0120	0.0071	0.0030	0.0160	0.0050	0.0010	0.0060	0.0010	0.0060	0.0060	0.0060	0.0060	0.0050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0005	0.0160	0.0130	0.0080	0.0110	0.0140	0.0010	0.0001	0.0014	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0001	0.0060	0.0092	0.0060	0.0040	0.0120	0.0010	0.0000	0.0008	0.0030	0.0020	0.0020	0.0020	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0030	0.0059	0.0090	0.0070	0.0000	0.0130	0.0010	0.0010	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0003	0.0063	0.0050	0.0040	0.0030	0.0080	0.0070	0.0008	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0054	0.0030	0.0060	0.0070	0.0040	0.0150	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0022	0.0070	0.0050	0.0110	0.0060	0.0030	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0001	0.0030	0.0050	0.0040	0.0020	0.0030	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0001	0.0030	0.0040	0.0050	0.0070	0.0001	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0050	0.0040	0.0075	0.0030	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0050	0.0064	0.0060	0.0040	0.0009	0.0020	0.0020	0.0020	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0010	0.0097	0.0040	0.0050	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0023	0.0120	0.0000	0.0020	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0028	0.0030	0.0050	0.0000	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0020	0.0040	0.0000	0.0004	0.0030	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0030	0.0000	0.0020	0.0040	0.0000	0.0004	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020	0.0006	0.0030	0.0040	0.0010	0.0002	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0003	0.0001	0.0004	0.0030	0.0020	0.0000	0.0009	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0020	0.0001	0.0003	0.0030	0.0009	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0000	0.0022	0.0002	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.48: Winter total PM10 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0020	0.0060	0.0000	0.0050	0.0020	0.0171	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0007	0.0060	0.0003	0.0040	0.0001	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0010	0.0000	0.0000	0.0007
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0050	0.0053	0.0110	0.0080	0.0169	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0060
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0020	0.0040	0.0031	0.0090	0.0080	0.0075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0100	0.0020
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0061	0.0090	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0050	0.0050	0.0100	0.0000	0.0060
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0094	0.0130	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0220	0.0130	0.0100	0.0100	0.0050
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0005	0.0059	0.0080	0.0190	0.0120	0.0041	0.0040	0.0040	0.0000	0.0000	0.0000	0.0023	0.0250	0.0120	0.0200	0.0100	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0098	0.0120	0.0200	0.0101	0.0005	0.0000	0.0020	0.0029	0.0020	0.0000	0.0047	0.0310	0.0260	0.0300	0.0100	0.0020
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020	0.0050	0.0020	0.0072	0.0090	0.0270	0.0107	0.0061	0.0020	0.0000	0.0037	0.0030	0.0000	0.0000	0.0230	0.0190	0.0100	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0050	0.0050	0.0100	0.0105	0.0050	0.0170	0.0252	0.0185	0.0030	0.0050	0.0000	0.0000	0.0000	0.0131	0.0270	0.0160	0.0000	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0050	0.0119	0.0090	0.0190	0.0301	0.0223	0.0170	0.0040	0.0000	0.0000	0.0000	0.0216	0.0200	0.0150	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0036	0.0040	0.0070	0.0268	0.0242	0.0280	0.0120	0.0015	0.0000	0.0000	0.0229	0.0190	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0004	0.0001	0.0000	0.0000	0.0050	0.0010	0.0144	0.0361	0.0150	0.0250	0.0007	0.0001	0.0100	0.0272	0.0330	0.0190	0.0100	0.0100	0.0090
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0001	0.0000	0.0000	0.0000	0.0000	0.0060	0.0065	0.0224	0.0220	0.0290	0.0039	0.0000	0.0200	0.0370	0.0220	0.0190	0.0000	0.0000	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0002	0.0001	0.0000	0.0000	0.0000	0.0010	0.0073	0.0007	0.0160	0.0390	0.0087	0.0030	0.0200	0.0408	0.0200	0.0260	0.0300	0.0200	0.0180
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0340	0.0285	0.0360	0.0600	0.0603	0.0640	0.0620	0.0600	0.0200	0.0130
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0230	0.0663	0.0540	0.0300	0.0466	0.0200	0.0220	0.0100	0.0500	0.0420
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0111	0.0180	0.0000	0.0036	0.0130	0.0150	0.0200	0.0200	0.0410
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0200	0.0200	0.0160
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0260

Table C.48 Cont.: Winter total PM10 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0018	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0047	0.0075	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0041	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0056	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0023	0.0000	0.0003	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0020	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0024	0.0002	0.0020	0.0022	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0030	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0072	0.0000	0.0000	0.0000	0.0030	0.0000	0.0020	0.0050	0.0080	0.0078	0.0080	0.0070	0.0050	0.0050	0.0050	0.0050	0.0010	0.0000	0.0000	0.0020	0.0028	0.0006	0.0000	0.0000	0.0000
950	0.0163	0.0240	0.0120	0.0107	0.0140	0.0070	0.0070	0.0040	0.0005	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0190	0.0189	0.0180	0.0174	0.0170	0.0070	0.0050	0.0004	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.0276	0.0276	0.0220	0.0148	0.0140	0.0080	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.0441	0.0295	0.0160	0.0083	0.0240	0.0030	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0263	0.0486	0.0230	0.0208	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0197	0.0183	0.0350	0.0081	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.48 Cont.: Winter total PM10 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100	0.0130
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0100
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.48 Cont.: Winter total PM10 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0097	0.0163	0.0240	0.0178	0.0160	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0185	0.0179	0.0130	0.0449	0.0110	0.0070	0.0040	0.0050	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0159	0.0287	0.0180	0.0034	0.0200	0.0030	0.0040	0.0070	0.0100	0.0083	0.0005	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0099	0.0085	0.0130	0.0072	0.0030	0.0170	0.0050	0.0010	0.0060	0.0010	0.0060	0.0060	0.0060	0.0060	0.0050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0005	0.0160	0.0133	0.0090	0.0110	0.0140	0.0010	0.0001	0.0014	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0001	0.0060	0.0095	0.0060	0.0040	0.0120	0.0010	0.0000	0.0009	0.0030	0.0020	0.0020	0.0020	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0030	0.0060	0.0100	0.0070	0.0000	0.0130	0.0010	0.0010	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0003	0.0064	0.0050	0.0040	0.0030	0.0080	0.0070	0.0008	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0055	0.0030	0.0060	0.0070	0.0040	0.0160	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0022	0.0070	0.0060	0.0120	0.0070	0.0030	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0001	0.0030	0.0050	0.0040	0.0020	0.0030	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0001	0.0030	0.0040	0.0050	0.0070	0.0001	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0050	0.0040	0.0077	0.0030	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0050	0.0065	0.0060	0.0040	0.0009	0.0020	0.0020	0.0020	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0010	0.0100	0.0040	0.0060	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0024	0.0120	0.0000	0.0020	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0029	0.0030	0.0050	0.0000	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0020	0.0040	0.0000	0.0005	0.0030	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0030	0.0000	0.0020	0.0040	0.0000	0.0004	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020	0.0006	0.0030	0.0050	0.0010	0.0002	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0003	0.0001	0.0004	0.0030	0.0020	0.0000	0.0009	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0020	0.0001	0.0003	0.0030	0.0009	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0000	0.0022	0.0002	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.49: Summer VOC emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	11.5667	3.0625
2	0.1198	2.8675

Table C.50: Winter VOC emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	14.7670	3.9071
2	0.1527	3.6539

Table C.51: Summer VOC emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.7980	0.6063	0.0313	0.0000
4	0.9125	9.2693	3.0006	0.0345
8	0.0000	0.1198	2.3289	0.0271
12	0.0000	0.0000	0.2105	0.2910

Table C.52: Winter VOC emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	1.0153	0.7720	0.0398	0.0000
4	1.1632	11.8351	3.8277	0.0438
8	0.0000	0.1527	2.9708	0.0345
12	0.0000	0.0000	0.2678	0.3698

Table C.53: Summer VOC emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.1469	0.0037	0.0144	0.0068	0.0000	0.0000	0.0000
8	4.7E-05	0.6508	0.0819	0.5074	0.0247	0.0000	0.0000	0.0000
16	0.0127	0.8689	1.5100	1.6681	0.1781	0.1027	0.0296	0.0051
24	0.0011	0.0304	2.1248	3.9958	2.5891	0.1222	0.0002	0.0000
32	0.0000	0.0000	0.0000	0.1198	1.5721	0.2265	0.0271	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.1614	0.3585	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.2033	0.1429	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0834	0.0638

Table C.54: Winter VOC emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.1869	0.0047	0.0183	0.0086	0.0000	0.0000	0.0000
8	5.9E-05	0.8277	0.1042	0.6463	0.0314	0.0000	0.0000	0.0000
16	0.0161	1.1086	1.9287	2.1297	0.2269	0.1306	0.0376	0.0064
24	0.0014	0.0387	2.7143	5.1042	3.3052	0.1555	0.0003	0.0000
32	0.0000	0.0000	0.0000	0.1527	2.0049	0.2884	0.0345	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.2058	0.4558	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.2588	0.1818	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0101	0.1061	0.0808

Table C.55: Summer VOC emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0163	0.1327	0.0037	0.0000	0.0081	0.0061	0.0068	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0001	0.0320	0.2568	0.0092	0.0000	0.0204	0.0393	0.0217	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0246	0.3429	0.0591	0.0139	0.2696	0.1783	0.0006	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0073	0.0773	0.5317	0.2232	0.0593	0.5409	0.0797	0.0554	0.0000	0.0000	0.0000	0.0000	0.0046	0.0000	0.0000
80	0.0000	0.0055	0.0018	0.2601	1.0914	0.1321	0.8455	0.2021	0.0796	0.0404	0.0129	0.0902	0.0115	0.0131	0.0051	0.0000
96	0.0000	0.0011	0.0003	0.0299	0.5009	1.4558	1.7368	1.3586	0.7029	0.3394	0.1026	0.0204	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.1380	0.1576	0.7480	1.2343	0.3140	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1198	0.6575	0.4840	0.0809	0.0140	0.0013	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1315	0.2986	0.1166	0.0144	0.0258	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0087	0.1271	0.1816	0.0089	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0258	0.0760	0.0910	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0211	0.1546	0.0213	0.0013	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0043	0.0243	0.0822	0.0376	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0127	0.0672	0.0355	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0026	0.0271	0.0000

Table C.56: Winter VOC emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0208	0.1689	0.0047	0.0000	0.0102	0.0078	0.0086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0001	0.0408	0.3267	0.0118	0.0000	0.0259	0.0499	0.0275	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0312	0.4365	0.0753	0.0177	0.3437	0.2273	0.0008	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0092	0.0983	0.6784	0.2848	0.0756	0.6903	0.1017	0.0702	0.0000	0.0000	0.0000	0.0000	0.0059	0.0000	0.0000
80	0.0000	0.0070	0.0022	0.3320	1.3930	0.1687	1.0790	0.2578	0.1013	0.0513	0.0163	0.1146	0.0145	0.0167	0.0064	0.0000
96	0.0000	0.0014	0.0004	0.0381	0.6393	1.8603	2.2171	1.7349	0.8971	0.4330	0.1306	0.0259	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.1766	0.2009	0.9555	1.5768	0.4007	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1527	0.8396	0.6168	0.1030	0.0177	0.0017	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1678	0.3801	0.1486	0.0183	0.0328	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0111	0.1620	0.2311	0.0114	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0328	0.0966	0.1155	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0268	0.1968	0.0271	0.0017	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0055	0.0309	0.1044	0.0478	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0101	0.0162	0.0853	0.0449	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033	0.0343	0.0000

Table C.57: Summer VOC emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0013	0.0014	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0035	0.0098	0.0251	0.1049	0.0037	0.0000	0.0000	0.0000	0.0000	0.0081	0.0061	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0035	0.0124	0.0269	0.1059	0.0063	0.0000	0.0000	0.0000	0.0044	0.0067	0.0114	0.0038
160	0.0000	0.0000	0.0000	0.0000	0.0028	0.0130	0.0150	0.1120	0.0030	0.0000	0.0000	0.0000	0.0094	0.0002	0.0162	0.0077
192	0.0000	0.0000	0.0000	0.0000	0.0032	0.0090	0.0456	0.1066	0.0000	0.0000	0.0000	0.0000	0.0355	0.0429	0.0325	0.0111
224	0.0000	0.0000	0.0000	0.0000	0.0031	0.0094	0.0294	0.1588	0.0297	0.0271	0.0103	0.0029	0.1046	0.0852	0.1084	0.0252
256	0.0000	0.0000	0.0000	0.0020	0.0070	0.0127	0.0304	0.2095	0.0370	0.0049	0.0299	0.0259	0.1128	0.1145	0.0565	0.0081
288	0.0000	0.0000	0.0000	0.0053	0.0128	0.0447	0.0498	0.2420	0.1460	0.0370	0.0061	0.0000	0.1884	0.1275	0.0143	0.0000
320	0.0000	0.0000	0.0000	0.0037	0.0000	0.0012	0.0294	0.1915	0.2833	0.1598	0.0088	0.0000	0.2181	0.0854	0.0020	0.0070
352	0.0000	0.0000	0.0000	0.0018	0.0006	0.0000	0.0129	0.0271	0.3542	0.2946	0.0693	0.0539	0.3231	0.2163	0.1465	0.0467
384	0.0000	0.0000	0.0000	0.0011	0.0003	0.0000	0.0000	0.0299	0.0285	0.3234	0.1586	0.1192	0.3573	0.2076	0.2796	0.1504
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1505	0.5994	0.5857	0.6637	0.5087	0.5210	0.4057
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0855	0.0510	0.0375	0.1185	0.1685	0.3455
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0853	0.1425
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.1105
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0085
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.57 Cont.: Summer VOC emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0008	0.0059	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0106	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0070	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0005	0.0002	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0258	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0000	0.0000	0.0000	0.0000
288	0.0296	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0000	0.0000	0.0000	0.0000
320	0.0111	0.0222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0086	0.0000	0.0000	0.0000	0.0029	0.0000	0.0000	0.0000	0.0000
352	0.0289	0.0157	0.0297	0.0107	0.0075	0.0055	0.0420	0.0388	0.0058	0.0057	0.0068	0.0034	0.0033	0.0017	0.0000	0.0000
384	0.1538	0.1231	0.0851	0.0816	0.0533	0.0401	0.0000	0.0206	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.2078	0.2161	0.1025	0.0705	0.0089	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.4303	0.2510	0.1030	0.0691	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.2328	0.3180	0.1106	0.0307	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.1120	0.1921	0.2153	0.0213	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.1792	0.1739	0.1464	0.1012	0.0463	0.0344	0.0072	0.0068	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0181	0.0914	0.0536	0.1381	0.0343	0.0079	0.0005	0.0005	0.0073	0.0082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0224	0.0777	0.0275	0.0817	0.0000	0.0072	0.0060	0.0072	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0087	0.0435	0.0321	0.0513	0.0270	0.0058	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0183	0.0330	0.0245	0.0792	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0098	0.0116	0.0185	0.0308	0.0327	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0044	0.0127	0.0143	0.0570	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0023	0.0150	0.0184	0.0512	0.0047	0.0046	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0010	0.0030	0.0283	0.0526	0.0122	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0043	0.0093	0.0052	0.0318	0.0292	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0069	0.0033	0.0048	0.0141	0.0376	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0025	0.0046	0.0038	0.0057	0.0161	0.0275	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0006	0.0001	0.0029	0.0018	0.0194	0.0355	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0021	0.0061	0.0198	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000

Table C.58: Winter VOC emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0017	0.0017	0.0028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0045	0.0125	0.0320	0.1334	0.0047	0.0000	0.0000	0.0000	0.0000	0.0102	0.0078	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0045	0.0158	0.0342	0.1349	0.0080	0.0000	0.0000	0.0000	0.0056	0.0085	0.0145	0.0048
160	0.0000	0.0000	0.0000	0.0001	0.0036	0.0165	0.0190	0.1429	0.0039	0.0000	0.0000	0.0000	0.0120	0.0002	0.0206	0.0098
192	0.0000	0.0000	0.0000	0.0000	0.0040	0.0114	0.0580	0.1355	0.0000	0.0000	0.0000	0.0000	0.0451	0.0546	0.0413	0.0141
224	0.0000	0.0000	0.0000	0.0000	0.0040	0.0119	0.0375	0.2025	0.0378	0.0344	0.0131	0.0037	0.1332	0.1086	0.1381	0.0320
256	0.0000	0.0000	0.0000	0.0025	0.0088	0.0162	0.0387	0.2671	0.0472	0.0062	0.0382	0.0330	0.1438	0.1461	0.0721	0.0103
288	0.0000	0.0000	0.0000	0.0067	0.0162	0.0568	0.0634	0.3088	0.1862	0.0471	0.0078	0.0000	0.2403	0.1628	0.0183	0.0000
320	0.0000	0.0000	0.0000	0.0047	0.0000	0.0015	0.0375	0.2447	0.3620	0.2039	0.0112	0.0000	0.2780	0.1088	0.0025	0.0089
352	0.0000	0.0000	0.0000	0.0023	0.0007	0.0000	0.0164	0.0345	0.4521	0.3756	0.0885	0.0689	0.4126	0.2763	0.1868	0.0595
384	0.0000	0.0000	0.0000	0.0014	0.0004	0.0000	0.0000	0.0381	0.0363	0.4129	0.2026	0.1523	0.4560	0.2650	0.3570	0.1920
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1916	0.7667	0.7482	0.8472	0.6496	0.6654	0.5182
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1098	0.0651	0.0476	0.1511	0.2149	0.4414
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1086	0.1821
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.1409
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0108
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.58 Cont.: Winter VOC emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0011	0.0076	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0134	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0089	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0006	0.0002	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0327	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0022	0.0000	0.0000	0.0000	0.0000
288	0.0375	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0037	0.0000	0.0000	0.0000	0.0000
320	0.0140	0.0282	0.0000	0.0000	0.0000	0.0000	0.0000	0.0109	0.0000	0.0000	0.0000	0.0037	0.0000	0.0000	0.0000	0.0000
352	0.0368	0.0200	0.0377	0.0136	0.0095	0.0070	0.0533	0.0493	0.0073	0.0072	0.0086	0.0043	0.0042	0.0022	0.0000	0.0000
384	0.1964	0.1571	0.1087	0.1039	0.0679	0.0509	0.0000	0.0262	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.2653	0.2760	0.1308	0.0899	0.0113	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.5499	0.3205	0.1315	0.0880	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.2976	0.4062	0.1412	0.0391	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.1432	0.2450	0.2746	0.0272	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.2289	0.2217	0.1867	0.1289	0.0590	0.0438	0.0091	0.0086	0.0000	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0231	0.1166	0.0682	0.1759	0.0437	0.0101	0.0007	0.0006	0.0092	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0286	0.0990	0.0350	0.1043	0.0000	0.0092	0.0076	0.0091	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0111	0.0554	0.0409	0.0650	0.0343	0.0074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0234	0.0421	0.0311	0.1007	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0125	0.0147	0.0235	0.0392	0.0412	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0055	0.0162	0.0181	0.0723	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0029	0.0191	0.0234	0.0651	0.0059	0.0058	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0012	0.0039	0.0360	0.0669	0.0155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0055	0.0118	0.0066	0.0404	0.0370	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0088	0.0042	0.0060	0.0179	0.0478	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0032	0.0058	0.0049	0.0072	0.0204	0.0347	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0008	0.0002	0.0037	0.0023	0.0244	0.0449	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0027	0.0077	0.0250	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0000	0.0000	0.0000

Table C.59: Summer VOC emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0020	0.0020	0.0090	0.0110	0.0127	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0020	0.0050	0.0000	0.0140	0.0060	0.0617	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	0.0060	0.0001	0.0140	0.0001	0.0569	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0070	0.0020	0.0100	0.0000	0.0005
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0070	0.0038	0.0160	0.0170	0.0676	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0000	0.0100	0.0000	0.0040
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0010	0.0070	0.0023	0.0090	0.0370	0.0314	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0000	0.0100	0.0100	0.0020
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020	0.0083	0.0120	0.0700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0110	0.0040	0.0100	0.0000	0.0050
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0020	0.0115	0.0290	0.0690	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0570	0.0190	0.0200	0.0100	0.0050
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0006	0.0046	0.0200	0.0860	0.0279	0.0147	0.0150	0.0170	0.0000	0.0000	0.0000	0.0096	0.0610	0.0190	0.0500	0.0100	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0079	0.0250	0.0870	0.0278	0.0008	0.0000	0.0090	0.0102	0.0100	0.0200	0.0195	0.0970	0.0530	0.0600	0.0200	0.0190
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020	0.0040	0.0020	0.0064	0.0130	0.1110	0.0312	0.0217	0.0040	0.0000	0.0155	0.0130	0.0000	0.0000	0.0900	0.0630	0.0300	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0130	0.0180	0.0101	0.0080	0.0630	0.1051	0.0636	0.0160	0.0090	0.0000	0.0000	0.0000	0.0353	0.1100	0.0500	0.0100	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0000	0.0090	0.0307	0.0270	0.0640	0.1466	0.0693	0.0360	0.0190	0.0000	0.0000	0.0000	0.0802	0.0730	0.0550	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0000	0.0000	0.0115	0.0100	0.0180	0.1765	0.1058	0.1020	0.0190	0.0013	0.0000	0.0100	0.1181	0.0700	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0007	0.0001	0.0000	0.0000	0.0170	0.0030	0.0512	0.2392	0.0440	0.1050	0.0025	0.0001	0.0400	0.1202	0.1320	0.0770	0.0500	0.0300	0.0350
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0001	0.0000	0.0000	0.0000	0.0000	0.0190	0.0183	0.1029	0.1580	0.1450	0.0129	0.0002	0.0400	0.1845	0.0920	0.0860	0.0300	0.0100	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0002	0.0001	0.0000	0.0000	0.0000	0.0100	0.0183	0.0012	0.0590	0.2320	0.0301	0.0110	0.0600	0.1904	0.0590	0.1000	0.1200	0.0800	0.0720
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0210	0.2200	0.1067	0.1690	0.2800	0.3855	0.3180	0.3340	0.3400	0.0800	0.0480
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1340	0.3177	0.2550	0.1100	0.1714	0.0660	0.0780	0.0500	0.3200	0.2150
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0389	0.0570	0.0000	0.0131	0.0520	0.0590	0.0600	0.0700	0.2050
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0600	0.0700	0.0560
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	0.0850

Table C.59 Cont.: Summer VOC emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0013	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0034	0.0062	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0031	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0048	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0019	0.0000	0.0004	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0008	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0056	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0189	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0172	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0189	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0191	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0088	0.0018	0.0190	0.0190	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0120	0.0000	0.0000	0.0000	0.0000	0.0030	0.0040	0.0020	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0266	0.0000	0.0000	0.0000	0.0260	0.0000	0.0160	0.0170	0.0270	0.0269	0.0270	0.0290	0.0040	0.0040	0.0040	0.0040	0.0010	0.0000	0.0000	0.0010	0.0020	0.0004	0.0000	0.0000	0.0000
950	0.0605	0.0868	0.0460	0.0397	0.0430	0.0280	0.0240	0.0160	0.0020	0.0000	0.0000	0.0150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0587	0.0769	0.0710	0.0505	0.0480	0.0140	0.0160	0.0020	0.0000	0.0000	0.0000	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.1039	0.1093	0.1010	0.0553	0.0480	0.0230	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.2273	0.1127	0.0710	0.0302	0.0780	0.0170	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.1278	0.2217	0.0840	0.0835	0.0410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0654	0.0802	0.1700	0.0523	0.0300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.59 Cont.: Summer VOC emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	0.0500
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0340
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.59 Cont.: Summer VOC emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0246	0.0563	0.1110	0.0801	0.0360	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0658	0.0631	0.0250	0.1662	0.0530	0.0250	0.0150	0.0150	0.0100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0540	0.0922	0.0800	0.0112	0.1040	0.0140	0.0090	0.0180	0.0140	0.0064	0.0004	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0323	0.0288	0.0480	0.0317	0.0150	0.0760	0.0180	0.0070	0.0060	0.0014	0.0040	0.0050	0.0050	0.0050	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0003	0.0370	0.0337	0.0220	0.0420	0.0530	0.0040	0.0002	0.0024	0.0000	0.0000	0.0000	0.0000	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0001	0.0120	0.0319	0.0130	0.0130	0.0500	0.0030	0.0000	0.0015	0.0040	0.0040	0.0040	0.0040	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0060	0.0121	0.0310	0.0130	0.0000	0.0460	0.0020	0.0016	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0010	0.0136	0.0130	0.0120	0.0060	0.0290	0.0190	0.0010	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0103	0.0040	0.0190	0.0120	0.0040	0.0520	0.0037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0048	0.0090	0.0060	0.0170	0.0090	0.0150	0.0224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0001	0.0030	0.0040	0.0070	0.0040	0.0060	0.0340	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0001	0.0030	0.0030	0.0090	0.0060	0.0012	0.0340	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0040	0.0070	0.0060	0.0260	0.0100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0060	0.0061	0.0070	0.0360	0.0010	0.0030	0.0030	0.0030	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0009	0.0080	0.0060	0.0280	0.0170	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0037	0.0210	0.0000	0.0220	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0044	0.0030	0.0040	0.0000	0.0150	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0032	0.0010	0.0020	0.0040	0.0000	0.0040	0.0280	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0040	0.0000	0.0020	0.0030	0.0000	0.0006	0.0290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0030	0.0004	0.0020	0.0030	0.0007	0.0020	0.0250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0005	0.0000	0.0003	0.0040	0.0010	0.0000	0.0080	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0010	0.0001	0.0020	0.0260	0.0076	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	0.0000	0.0184	0.0020	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.60: Winter VOC emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0030	0.0026	0.0120	0.0140	0.0161	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0030	0.0060	0.0000	0.0180	0.0080	0.0785	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0000	0.0100	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	0.0070	0.0001	0.0180	0.0001	0.0725	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090	0.0020	0.0100	0.0000	0.0006
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0090	0.0048	0.0210	0.0210	0.0860	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0000	0.0100	0.0000	0.0050
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0020	0.0080	0.0029	0.0110	0.0470	0.0399	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0000	0.0100	0.0100	0.0020
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0020	0.0105	0.0150	0.0900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0140	0.0050	0.0200	0.0000	0.0070
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030	0.0146	0.0370	0.0880	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0720	0.0240	0.0300	0.0100	0.0060
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0008	0.0059	0.0260	0.1100	0.0356	0.0187	0.0190	0.0210	0.0000	0.0000	0.0000	0.0122	0.0770	0.0240	0.0600	0.0100	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0040	0.0100	0.0320	0.1110	0.0354	0.0010	0.0000	0.0110	0.0130	0.0120	0.0200	0.0249	0.1240	0.0670	0.0700	0.0300	0.0240
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0030	0.0050	0.0030	0.0082	0.0160	0.1420	0.0398	0.0277	0.0050	0.0000	0.0198	0.0170	0.0000	0.0000	0.1140	0.0810	0.0400	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0050	0.0170	0.0230	0.0128	0.0100	0.0810	0.1341	0.0810	0.0200	0.0110	0.0000	0.0000	0.0000	0.0450	0.1400	0.0630	0.0100	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0120	0.0390	0.0350	0.0820	0.1873	0.0885	0.0460	0.0240	0.0000	0.0000	0.0000	0.1022	0.0930	0.0700	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0146	0.0130	0.0220	0.2255	0.1352	0.1310	0.0250	0.0017	0.0000	0.0100	0.1504	0.0890	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0008	0.0001	0.0000	0.0000	0.0220	0.0040	0.0654	0.3057	0.0560	0.1340	0.0032	0.0002	0.0500	0.1535	0.1690	0.0980	0.0600	0.0300	0.0450
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0001	0.0000	0.0000	0.0000	0.0000	0.0240	0.0233	0.1311	0.2010	0.1840	0.0165	0.0002	0.0500	0.2356	0.1170	0.1100	0.0300	0.0200	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0002	0.0001	0.0000	0.0000	0.0000	0.0130	0.0233	0.0016	0.0750	0.2970	0.0384	0.0150	0.0800	0.2429	0.0760	0.1280	0.1500	0.1000	0.0920
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0260	0.2800	0.1364	0.2160	0.3600	0.4921	0.4070	0.4270	0.4300	0.1000	0.0620
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1710	0.4064	0.3270	0.1400	0.2186	0.0840	0.0990	0.0600	0.4000	0.2750
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0498	0.0730	0.0000	0.0167	0.0660	0.0750	0.0800	0.0800	0.2620
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0110	0.0800	0.1000	0.0710
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.1090

Table C.60 Cont.: Winter VOC emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0017	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0043	0.0078	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0039	0.0040	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0061	0.0000	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0024	0.0000	0.0005	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0011	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0071	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0219	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0242	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0112	0.0023	0.0240	0.0241	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0150	0.0000	0.0000	0.0000	0.0000	0.0030	0.0050	0.0030	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0339	0.0000	0.0000	0.0000	0.0330	0.0000	0.0200	0.0210	0.0350	0.0341	0.0340	0.0370	0.0050	0.0050	0.0050	0.0050	0.0010	0.0000	0.0000	0.0020	0.0026	0.0005	0.0000	0.0000	0.0000
950	0.0772	0.1108	0.0590	0.0507	0.0550	0.0360	0.0310	0.0200	0.0020	0.0000	0.0000	0.0190	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0749	0.0982	0.0910	0.0645	0.0610	0.0180	0.0210	0.0020	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.1327	0.1395	0.1290	0.0706	0.0620	0.0290	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.2905	0.1439	0.0910	0.0386	0.1000	0.0220	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.1633	0.2830	0.1070	0.1066	0.0520	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0835	0.1024	0.2160	0.0667	0.0390	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.60 Cont.: Winter VOC emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0400	0.0630
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0440
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.60 Cont.: Winter VOC emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0314	0.0717	0.1410	0.1022	0.0460	0.0170	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0840	0.0806	0.0320	0.2118	0.0670	0.0320	0.0190	0.0190	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0690	0.1176	0.1020	0.0142	0.1330	0.0180	0.0120	0.0230	0.0180	0.0082	0.0005	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0412	0.0368	0.0610	0.0404	0.0190	0.0970	0.0240	0.0090	0.0070	0.0018	0.0050	0.0060	0.0060	0.0060	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0004	0.0470	0.0430	0.0280	0.0540	0.0670	0.0050	0.0003	0.0031	0.0000	0.0000	0.0000	0.0000	0.0050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0001	0.0150	0.0407	0.0170	0.0160	0.0630	0.0030	0.0000	0.0019	0.0060	0.0050	0.0050	0.0050	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0080	0.0154	0.0400	0.0170	0.0000	0.0580	0.0020	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0020	0.0173	0.0160	0.0150	0.0080	0.0370	0.0250	0.0013	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0132	0.0050	0.0240	0.0160	0.0050	0.0660	0.0047	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0061	0.0120	0.0080	0.0220	0.0120	0.0190	0.0283	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0001	0.0030	0.0060	0.0080	0.0050	0.0070	0.0429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0001	0.0040	0.0040	0.0120	0.0070	0.0015	0.0430	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0050	0.0090	0.0076	0.0330	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0080	0.0078	0.0090	0.0460	0.0020	0.0040	0.0040	0.0040	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	0.0101	0.0070	0.0360	0.0210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0047	0.0270	0.0000	0.0280	0.0150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0056	0.0040	0.0050	0.0000	0.0200	0.0300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0040	0.0020	0.0020	0.0050	0.0000	0.0050	0.0360	0.0050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0050	0.0000	0.0020	0.0040	0.0000	0.0007	0.0370	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0040	0.0005	0.0030	0.0040	0.0009	0.0030	0.0320	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0007	0.0000	0.0003	0.0050	0.0020	0.0000	0.0100	0.0310	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0020	0.0001	0.0030	0.0330	0.0095	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0000	0.0232	0.0020	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.61: Summer PM2.5 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	0.2709	0.0739
2	0.0029	0.0680

Table C.62: Winter PM2.5 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	0.2835	0.0769
2	0.0030	0.0707

Table C.63: Summer PM2.5 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.0206	0.0151	0.0008	0.0000
4	0.0218	0.2132	0.0722	0.0010
8	0.0000	0.0029	0.0551	0.0006
12	0.0000	0.0000	0.0052	0.0068

Table C.64: Winter PM2.5 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.0215	0.0158	0.0009	0.0000
4	0.0227	0.2222	0.0754	0.0010
8	0.0000	0.0030	0.0573	0.0007
12	0.0000	0.0000	0.0054	0.0071

Table C.65: Summer PM2.5 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.0039	7.7E-05	0.0004	0.0002	0.0000	0.0000	0.0000
8	1.53E-06	0.0167	0.0020	0.0127	0.0007	0.0000	0.0000	0.0000
16	0.0004	0.0206	0.0348	0.0390	0.0044	0.0026	0.0008	0.0002
24	3.1E-05	0.0008	0.0478	0.0915	0.0616	0.0034	4.3E-06	0.0000
32	0.0000	0.0000	0.0000	0.0029	0.0369	0.0058	0.0006	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0038	0.0086	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0051	0.0032	0.0000
56	0.0000	0.0000	0.0000	0.000	0.0000	0.0002	0.0020	0.0016

Table C.66: Winter PM2.5 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.00406	7.94E-05	0.000377	0.000205	0.0000	0.0000	0.0000
8	1.6E-06	0.017483	0.002053	0.013209	0.000686	0.0000	0.0000	0.0000
16	0.000414	0.021502	0.036323	0.040661	0.004637	0.00271	0.000879	0.000176
24	3.27E-05	0.000803	0.049984	0.095	0.064101	0.003509	4.42E-06	0.0000
32	0.0000	0.0000	0.0000	0.003001	0.038506	0.006024	0.000667	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.003923	0.008952	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.005314	0.003302	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.00017	0.002085	0.001678

Table C.67: Summer PM2.5 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0004	0.0034	0.0001	0.0000	0.0002	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0009	0.0066	0.0002	0.0000	0.0005	0.0010	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0007	0.0086	0.0014	0.0004	0.0066	0.0050	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0002	0.0021	0.0126	0.0053	0.0013	0.0128	0.0020	0.0010	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
80	0.0000	0.0002	0.0000	0.0057	0.0247	0.0031	0.0194	0.0050	0.0020	0.0008	0.0003	0.0020	0.0004	0.0004	0.0002	0.0000
96	0.0000	0.0000	0.0000	0.0008	0.0116	0.0325	0.0394	0.0320	0.0170	0.0082	0.0029	0.0004	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0041	0.0170	0.0290	0.0078	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0150	0.0114	0.0021	0.0005	0.0000	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0073	0.0029	0.0003	0.0006	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0029	0.0042	0.0002	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0019	0.0020	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0040	0.0004	0.0000	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0006	0.0020	0.0008	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0003	0.0020	0.0008	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0007	0.0000

Table C.68: Winter PM2.5 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0005	0.0036	0.0001	0.0000	0.0002	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0009	0.0069	0.0002	0.0000	0.0005	0.0010	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0007	0.0089	0.0015	0.0004	0.0069	0.0048	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0002	0.0022	0.0131	0.0055	0.0014	0.0134	0.0019	0.0011	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
80	0.0000	0.0002	0.0000	0.0060	0.0257	0.0033	0.0202	0.0056	0.0021	0.0008	0.0004	0.0025	0.0004	0.0004	0.0002	0.0000
96	0.0000	0.0000	0.0000	0.0009	0.0121	0.0339	0.0411	0.0329	0.0176	0.0086	0.0030	0.0004	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0043	0.0181	0.0298	0.0082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0158	0.0119	0.0022	0.0005	0.0000	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033	0.0076	0.0030	0.0003	0.0006	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0030	0.0044	0.0002	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0020	0.0023	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0041	0.0005	0.0000	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0006	0.0022	0.0008	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0003	0.0016	0.0008	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0007	0.0000

Table C.69: Summer PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0007	0.0025	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0008	0.0026	0.0002	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0001
160	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0004	0.0026	0.0001	0.0000	0.0000	0.0000	0.0002	0.0000	0.0005	0.0002
192	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0013	0.0025	0.0000	0.0000	0.0000	0.0000	0.0009	0.0010	0.0009	0.0003
224	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0008	0.0038	0.0007	0.0007	0.0003	0.0001	0.0028	0.0020	0.0028	0.0006
256	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0007	0.0050	0.0009	0.0001	0.0007	0.0007	0.0025	0.0027	0.0013	0.0002
288	0.0000	0.0000	0.0000	0.0002	0.0003	0.0011	0.0012	0.0056	0.0036	0.0008	0.0001	0.0000	0.0046	0.0029	0.0004	0.0000
320	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0006	0.0042	0.0061	0.0036	0.0002	0.0000	0.0050	0.0022	0.0000	0.0002
352	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0004	0.0006	0.0081	0.0066	0.0015	0.0013	0.0074	0.0049	0.0038	0.0013
384	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0009	0.0074	0.0034	0.0028	0.0083	0.0048	0.0070	0.0035
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0131	0.0130	0.0146	0.0116	0.0119	0.0093
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	0.0012	0.0012	0.0031	0.0043	0.0080
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023	0.0032
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0026
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.69 Cont.: Summer PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
288	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
320	0.0002	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
352	0.0008	0.0003	0.0006	0.0002	0.0001	0.0002	0.0014	0.0010	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0000	0.0000
384	0.0037	0.0031	0.0020	0.0020	0.0015	0.0013	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0048	0.0053	0.0024	0.0018	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0097	0.0061	0.0023	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0053	0.0073	0.0027	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0023	0.0046	0.0050	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0042	0.0042	0.0034	0.0026	0.0011	0.0009	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0005	0.0021	0.0013	0.0034	0.0008	0.0002	0.0000	0.0000	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0005	0.0019	0.0007	0.0018	0.0000	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0002	0.0010	0.0008	0.0014	0.0007	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0004	0.0007	0.0006	0.0017	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0002	0.0003	0.0005	0.0007	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0001	0.0003	0.0004	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0004	0.0011	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0008	0.0012	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0006	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0003	0.0006	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0004	0.0008	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0004	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.70: Winter PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0007	0.0026	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0008	0.0027	0.0002	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0001
160	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0004	0.0027	0.0001	0.0000	0.0000	0.0000	0.0003	0.0000	0.0005	0.0002
192	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0013	0.0027	0.0000	0.0000	0.0000	0.0000	0.0009	0.0011	0.0009	0.0003
224	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0008	0.0040	0.0007	0.0008	0.0003	0.0001	0.0029	0.0021	0.0029	0.0006
256	0.0000	0.0000	0.0000	0.0001	0.0002	0.0004	0.0008	0.0052	0.0010	0.0001	0.0007	0.0007	0.0026	0.0028	0.0014	0.0002
288	0.0000	0.0000	0.0000	0.0002	0.0004	0.0012	0.0012	0.0059	0.0038	0.0008	0.0001	0.0000	0.0047	0.0031	0.0004	0.0000
320	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0007	0.0043	0.0064	0.0038	0.0002	0.0000	0.0052	0.0023	0.0000	0.0002
352	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0004	0.0006	0.0085	0.0068	0.0016	0.0014	0.0077	0.0051	0.0040	0.0014
384	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	0.0076	0.0036	0.0029	0.0087	0.0050	0.0074	0.0037
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0032	0.0140	0.0140	0.0150	0.0120	0.0120	0.0096
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0012	0.0012	0.0032	0.0044	0.0084
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0024	0.0033
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0028
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.70 Cont.: Winter PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
288	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
320	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
352	0.0009	0.0003	0.0006	0.0002	0.0002	0.0002	0.0015	0.0011	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0000	0.0000
384	0.0038	0.0032	0.0021	0.0021	0.0015	0.0014	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0050	0.0056	0.0025	0.0019	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0100	0.0063	0.0024	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0056	0.0076	0.0028	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0024	0.0048	0.0052	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0044	0.0044	0.0036	0.0027	0.0012	0.0010	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0005	0.0022	0.0013	0.0035	0.0008	0.0002	0.0000	0.0000	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0006	0.0020	0.0007	0.0019	0.0000	0.0002	0.0001	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0002	0.0010	0.0008	0.0015	0.0007	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0004	0.0007	0.0007	0.0018	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0002	0.0003	0.0005	0.0007	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0001	0.0004	0.0004	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0004	0.0011	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0008	0.0013	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0007	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0002	0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0002	0.0003	0.0006	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0004	0.0008	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0004	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.71: Summer PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0003	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0004	0.0002	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0001	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0003	0.0000	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0002	0.0000	0.0000
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0001	0.0005	0.0004	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0002	0.0000	0.0001
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0002	0.0010	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0002	0.0002	0.0000
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0001	0.0004	0.0000	0.0001
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0004	0.0008	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0014	0.0005	0.0006	0.0001	0.0001
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0005	0.0022	0.0007	0.0004	0.0004	0.0005	0.0000	0.0000	0.0000	0.0003	0.0015	0.0004	0.0010	0.0002	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0007	0.0021	0.0007	0.0000	0.0000	0.0003	0.0003	0.0003	0.0005	0.0006	0.0024	0.0013	0.0010	0.0005	0.0004
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0002	0.0003	0.0026	0.0007	0.0005	0.0001	0.0000	0.0004	0.0004	0.0000	0.0000	0.0021	0.0015	0.0007	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0004	0.0004	0.0002	0.0002	0.0015	0.0025	0.0017	0.0004	0.0002	0.0000	0.0000	0.0000	0.0008	0.0024	0.0012	0.0003	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0002	0.0009	0.0006	0.0015	0.0033	0.0016	0.0009	0.0004	0.0000	0.0000	0.0000	0.0020	0.0017	0.0013	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0003	0.0002	0.0004	0.0036	0.0023	0.0023	0.0005	0.0000	0.0000	0.0002	0.0027	0.0017	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0001	0.0011	0.0047	0.0010	0.0025	0.0001	0.0000	0.0008	0.0027	0.0031	0.0019	0.0010	0.0007	0.0011
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0027	0.0035	0.0033	0.0003	0.0000	0.0009	0.0041	0.0020	0.0019	0.0006	0.0002	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0005	0.0000	0.0015	0.0051	0.0006	0.0002	0.0010	0.0045	0.0013	0.0026	0.0030	0.0020	0.0016
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0046	0.0024	0.0037	0.0060	0.0083	0.0072	0.0078	0.0080	0.0020	0.0010
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0067	0.0055	0.0030	0.0039	0.0016	0.0020	0.0010	0.0070	0.0049
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0013	0.0000	0.0004	0.0013	0.0016	0.0010	0.0020	0.0048
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0020	0.0020	0.0012
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020

Table C.71 Cont.: Summer PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0003	0.0000	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0008	0.0000	0.0000	0.0000	0.0005	0.0000	0.0004	0.0005	0.0009	0.0009	0.0009	0.0008	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
950	0.0014	0.0022	0.0011	0.0009	0.0010	0.0007	0.0006	0.0005	0.0001	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0014	0.0019	0.0018	0.0013	0.0012	0.0003	0.0005	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.0024	0.0027	0.0024	0.0013	0.0013	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.0052	0.0026	0.0016	0.0006	0.0021	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0030	0.0051	0.0020	0.0020	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0015	0.0018	0.0041	0.0012	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.71 Cont.: Summer PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0011
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.71 Cont.: Summer PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0005	0.0013	0.0027	0.0019	0.0008	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0014	0.0015	0.0006	0.0040	0.0013	0.0006	0.0004	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0012	0.0022	0.0018	0.0003	0.0025	0.0003	0.0002	0.0004	0.0004	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0008	0.0006	0.0011	0.0008	0.0003	0.0020	0.0005	0.0002	0.0001	0.0000	0.0001	0.0002	0.0002	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0009	0.0009	0.0006	0.0010	0.0014	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0003	0.0007	0.0003	0.0003	0.0012	0.0001	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0002	0.0003	0.0007	0.0003	0.0000	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0002	0.0008	0.0005	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0002	0.0001	0.0004	0.0003	0.0001	0.0011	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0004	0.0003	0.0004	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0001	0.0002	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0002	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0002	0.0007	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0002	0.0007	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0006	0.0000	0.0004	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0003	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0001	0.0000	0.0001	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0001	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0001	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0006	0.0002	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.72: Winter PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0003	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0004	0.0002	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0004	0.0000	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0001	0.0005	0.0004	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0001
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0002	0.0010	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0001
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0001	0.0000	0.0000	0.0001
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0004	0.0008	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015	0.0005	0.0000	0.0000	0.0001
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0005	0.0023	0.0007	0.0004	0.0004	0.0005	0.0000	0.0000	0.0000	0.0003	0.0015	0.0004	0.0000	0.0000	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0007	0.0022	0.0007	0.0000	0.0000	0.0003	0.0003	0.0003	0.0000	0.0006	0.0025	0.0010	0.0000	0.0000	0.0004
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0002	0.0003	0.0027	0.0008	0.0005	0.0001	0.0000	0.0004	0.0004	0.0000	0.0000	0.0022	0.0020	0.0000	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0004	0.0004	0.0003	0.0002	0.0015	0.0026	0.0017	0.0004	0.0002	0.0000	0.0000	0.0000	0.0009	0.0025	0.0010	0.0000	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0002	0.0009	0.0006	0.0016	0.0035	0.0016	0.0009	0.0004	0.0000	0.0000	0.0000	0.0021	0.0017	0.0010	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0003	0.0002	0.0004	0.0037	0.0024	0.0020	0.0005	0.0000	0.0000	0.0000	0.0028	0.0018	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0001	0.0012	0.0049	0.0010	0.0030	0.0001	0.0000	0.0000	0.0028	0.0032	0.0020	0.0000	0.0000	0.0010
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0028	0.0040	0.0030	0.0003	0.0000	0.0000	0.0043	0.0021	0.0020	0.0000	0.0000	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0005	0.0000	0.0020	0.0050	0.0006	0.0002	0.0000	0.0047	0.0014	0.0030	0.0000	0.0000	0.0020
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0050	0.0025	0.0040	0.0100	0.0086	0.0075	0.0080	0.0100	0.0000	0.0010
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0070	0.0060	0.0000	0.0040	0.0017	0.0020	0.0000	0.0100	0.0050
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0010	0.0000	0.0004	0.0014	0.0020	0.0000	0.0000	0.0050
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0010
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020

Table C.72 Cont.: Winter PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0003	0.0000	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0008	0.0000	0.0000	0.0000	0.0005	0.0000	0.0004	0.0005	0.0009	0.0009	0.0009	0.0008	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
950	0.0015	0.0023	0.0010	0.0010	0.0010	0.0007	0.0006	0.0005	0.0001	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0015	0.0020	0.0020	0.0013	0.0010	0.0004	0.0005	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.0025	0.0028	0.0020	0.0014	0.0010	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.0054	0.0028	0.0020	0.0006	0.0020	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0032	0.0054	0.0020	0.0021	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0015	0.0019	0.0040	0.0013	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.72 Cont.: Winter PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.72 Cont.: Winter PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0005	0.0013	0.0030	0.0020	0.0009	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0015	0.0015	0.0006	0.0041	0.0010	0.0006	0.0004	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0013	0.0023	0.0020	0.0003	0.0030	0.0004	0.0002	0.0004	0.0004	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0008	0.0006	0.0010	0.0008	0.0004	0.0020	0.0005	0.0002	0.0001	0.0000	0.0001	0.0002	0.0002	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0010	0.0009	0.0006	0.0010	0.0010	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0003	0.0007	0.0003	0.0003	0.0010	0.0001	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0002	0.0003	0.0008	0.0003	0.0000	0.0010	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0003	0.0003	0.0003	0.0002	0.0009	0.0005	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0002	0.0001	0.0005	0.0003	0.0001	0.0010	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0004	0.0003	0.0004	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0001	0.0002	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0002	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0002	0.0007	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0002	0.0007	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0006	0.0000	0.0005	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0003	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0001	0.0000	0.0001	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0001	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0001	0.0000	0.0001	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0006	0.0002	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.73: Summer AP42 PM2.5 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	0.1051	0.0237
2	0.0003	0.0544

Table C.74: Winter AP42 PM2.5 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	0.1076	0.0243
2	0.0003	0.0557

Table C.75: Summer AP42 PM2.5 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.020	0.0204	0.0054	0.0000
4	0.019	0.0460	0.0126	0.0057
8	0.000	0.0003	0.0364	0.0029
12	0.000	0.0000	0.0101	0.0046

Table C.76: Winter AP42 PM2.5 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.0208	0.0209	0.0055	0.0000
4	0.0192	0.0467	0.0129	0.0059
8	0.0000	0.0003	0.0373	0.0030
12	0.0000	0.0000	0.0103	0.0047

Table C.77: Summer AP42 PM2.5 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.00411	0.00016	0.00014	0.00134	0.0000	0.0000	0.0000
8	0.00003	0.01619	0.00024	0.01985	0.00402	0.0000	0.0000	0.0000
16	0.00257	0.01559	0.00986	0.00991	0.00000	0.00078	0.00462	0.00107
24	0.00023	0.00038	0.01120	0.01463	0.01177	8.2E-05	0.00005	0.00000
32	0.0000	0.0000	0.0000	0.00029	0.01256	0.00897	0.00294	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.00534	0.00952	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.00962	0.00139	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.00044	0.00329	0.00032

Table C.78: Winter AP42 PM2.5 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.00421	0.00016	0.00014	0.00137	0.0000	0.0000	0.0000
8	2.8E-05	0.01658	0.00024	0.02033	0.00412	0.0000	0.0000	0.0000
16	0.00264	0.01596	0.01010	0.01015	0.00000	0.00080	0.00473	0.00109
24	0.00023	0.00039	0.01147	0.01498	0.01205	8.4E-05	0.00005	0.0000
32	0.0000	0.0000	0.0000	0.00030	0.01286	0.00919	0.00301	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.00547	0.00974	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.00985	0.00142	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.00045	0.00337	0.00033

Table C.79: Summer AP42 PM2.5 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0027	0.0014	0.0002	0.0000	0.0001	0.0000	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0035	0.0045	0.0001	0.0000	0.0005	0.0039	0.0038	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0035	0.0047	0.0002	0.0000	0.0078	0.0077	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0015	0.0054	0.0087	0.0029	0.0000	0.0056	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000
80	0.0000	0.0011	0.0000	0.0015	0.0042	0.0028	0.0031	0.0001	0.0000	0.0000	0.0000	0.0008	0.0024	0.0020	0.0011	0.0000
96	0.0000	0.0002	0.0001	0.0003	0.0005	0.0090	0.0085	0.0034	0.0024	0.0026	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0001	0.0026	0.0043	0.0026	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0055	0.0031	0.0025	0.0029	0.0003	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0021	0.0029	0.0007	0.0026	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0022	0.0057	0.0004	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0034	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023	0.0042	0.0004	0.0001	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0029	0.0009	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0023	0.0005	0.0000	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0003	0.0000

Table C.80: Winter AP42 PM2.5 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0028	0.0014	0.0002	0.0000	0.0001	0.0000	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0036	0.0047	0.0001	0.0000	0.0005	0.0040	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0036	0.0048	0.0002	0.0000	0.0080	0.0079	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0015	0.0055	0.0089	0.0030	0.0000	0.0057	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000
80	0.0000	0.0011	0.0000	0.0016	0.0043	0.0029	0.0032	0.0001	0.0000	0.0000	0.0000	0.0008	0.0025	0.0020	0.0011	0.0000
96	0.0000	0.0002	0.0001	0.0003	0.0006	0.0092	0.0087	0.0035	0.0024	0.0026	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017	0.0001	0.0027	0.0044	0.0027	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0056	0.0032	0.0026	0.0030	0.0003	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0022	0.0029	0.0007	0.0027	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0022	0.0059	0.0004	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023	0.0043	0.0004	0.0001	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0030	0.0009	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0023	0.0005	0.0000	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0003	0.0000

Table C.81: Summer AP42 PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0004	0.0018	0.0008	0.0006	0.0002	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0004	0.0016	0.0014	0.0007	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0008
160	0.0000	0.0000	0.0000	0.0000	0.0007	0.0008	0.0021	0.0003	0.0001	0.0000	0.0000	0.0000	0.0001	0.0001	0.0013	0.0015
192	0.0000	0.0000	0.0000	0.0000	0.0006	0.0007	0.0021	0.0002	0.0000	0.0000	0.0000	0.0000	0.0006	0.0022	0.0019	0.0020
224	0.0000	0.0000	0.0000	0.0000	0.0007	0.0016	0.0007	0.0017	0.0001	0.0000	0.0000	0.0000	0.0010	0.0040	0.0030	0.0009
256	0.0000	0.0000	0.0000	0.0004	0.0012	0.0023	0.0026	0.0018	0.0004	0.0006	0.0000	0.0000	0.0010	0.0013	0.0010	0.0000
288	0.0000	0.0000	0.0000	0.0011	0.0007	0.0012	0.0020	0.0022	0.0007	0.0012	0.0000	0.0000	0.0016	0.0017	0.0001	0.0000
320	0.0000	0.0000	0.0000	0.0007	0.0000	0.0000	0.0003	0.0008	0.0007	0.0021	0.0013	0.0000	0.0007	0.0000	0.0000	0.0000
352	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0001	0.0004	0.0007	0.0007	0.0002	0.0013	0.0018	0.0006	0.0001	0.0000
384	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000	0.0000	0.0003	0.0004	0.0001	0.0009	0.0010	0.0026	0.0008	0.0006	0.0002
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0040	0.0031	0.0028	0.0023	0.0018	0.0008
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0005	0.0000	0.0001	0.0005	0.0010
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.81 Cont.: Summer AP42 PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0002	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0021	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0012	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
288	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
320	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
352	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0012	0.0012	0.0012	0.0007	0.0007	0.0004	0.0000	0.0000
384	0.0006	0.0003	0.0003	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0013	0.0002	0.0012	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0016	0.0002	0.0011	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0010	0.0014	0.0013	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0011	0.0018	0.0023	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0013	0.0013	0.0006	0.0001	0.0003	0.0022	0.0015	0.0014	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0001	0.0009	0.0003	0.0008	0.0001	0.0008	0.0000	0.0001	0.0015	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0009	0.0008	0.0002	0.0020	0.0000	0.0003	0.0003	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0001	0.0006	0.0004	0.0013	0.0009	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0006	0.0005	0.0020	0.0015	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0007	0.0017	0.0004	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0006	0.0011	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0003	0.0014	0.0019	0.0000	0.0002	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0022	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0009	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0006	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0008	0.0011	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0002	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.82: Winter AP42 PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0004	0.0018	0.0008	0.0006	0.0002	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0005	0.0016	0.0015	0.0007	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0008
160	0.0000	0.0000	0.0000	0.0000	0.0007	0.0008	0.0021	0.0003	0.0001	0.0000	0.0000	0.0000	0.0001	0.0001	0.0013	0.0015
192	0.0000	0.0000	0.0000	0.0000	0.0006	0.0007	0.0021	0.0002	0.0000	0.0000	0.0000	0.0000	0.0006	0.0023	0.0019	0.0020
224	0.0000	0.0000	0.0000	0.0000	0.0007	0.0016	0.0007	0.0018	0.0002	0.0000	0.0000	0.0000	0.0010	0.0041	0.0030	0.0009
256	0.0000	0.0000	0.0000	0.0004	0.0012	0.0024	0.0027	0.0019	0.0004	0.0006	0.0000	0.0000	0.0011	0.0013	0.0010	0.0000
288	0.0000	0.0000	0.0000	0.0011	0.0007	0.0012	0.0021	0.0022	0.0007	0.0013	0.0000	0.0000	0.0017	0.0017	0.0001	0.0000
320	0.0000	0.0000	0.0000	0.0007	0.0000	0.0000	0.0003	0.0008	0.0007	0.0021	0.0013	0.0000	0.0007	0.0000	0.0000	0.0000
352	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0001	0.0004	0.0007	0.0007	0.0003	0.0013	0.0018	0.0006	0.0001	0.0000
384	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000	0.0000	0.0003	0.0004	0.0001	0.0009	0.0010	0.0026	0.0008	0.0006	0.0002
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0041	0.0032	0.0029	0.0023	0.0018	0.0009
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0005	0.0000	0.0001	0.0005	0.0010
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.82 Cont.: Winter AP42 PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0002	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0022	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0013	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
288	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
320	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
352	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0012	0.0012	0.0012	0.0007	0.0007	0.0004	0.0000	0.0000
384	0.0006	0.0003	0.0003	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0013	0.0002	0.0013	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0017	0.0002	0.0011	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0011	0.0015	0.0013	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0012	0.0018	0.0023	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0013	0.0013	0.0006	0.0001	0.0003	0.0022	0.0015	0.0014	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0001	0.0009	0.0003	0.0008	0.0001	0.0008	0.0000	0.0001	0.0015	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0009	0.0008	0.0002	0.0020	0.0000	0.0003	0.0003	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0001	0.0006	0.0005	0.0014	0.0010	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0007	0.0005	0.0021	0.0015	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0007	0.0018	0.0004	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0006	0.0012	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0003	0.0014	0.0019	0.0000	0.0002	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0023	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0009	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0007	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0008	0.0012	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0005	0.0002	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.83: Summer AP42 PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0004	0.0004	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0009	0.0000	0.0001	0.0001	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0009	0.0001	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0001	0.0001
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0009	0.0012	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0000	0.0009
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0002	0.0005	0.0013	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0002	0.0010	0.0003
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0001	0.0006	0.0008	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0008	0.0010	0.0002	0.0010
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0004	0.0010	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	0.0005	0.0008	0.0008
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0001	0.0009	0.0004	0.0005	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0007	0.0009	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	0.0015	0.0009	0.0008	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0021	0.0010	0.0008	0.0000
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0003	0.0008	0.0004	0.0011	0.0010	0.0010	0.0004	0.0002	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	0.0003	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0008	0.0001	0.0005	0.0015	0.0004	0.0003	0.0009	0.0002	0.0002	0.0005	0.0000	0.0000	0.0000	0.0003	0.0012	0.0005	0.0001	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0003	0.0006	0.0003	0.0006	0.0008	0.0005	0.0014	0.0001	0.0000	0.0000	0.0000	0.0004	0.0008	0.0002	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0003	0.0003	0.0005	0.0016	0.0002	0.0000	0.0000	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0004	0.0002	0.0008	0.0004	0.0000	0.0000	0.0002	0.0005	0.0002	0.0001	0.0001	0.0000	0.0000
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0001	0.0000	0.0002	0.0001	0.0000	0.0020	0.0011	0.0005	0.0001	0.0000	0.0000	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0001	0.0002	0.0002	0.0001	0.0004	0.0012	0.0007	0.0002	0.0002	0.0001	0.0001
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	0.0013	0.0020	0.0011	0.0018	0.0009	0.0010	0.0002	0.0002
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0028	0.0015	0.0003	0.0011	0.0007	0.0003	0.0001	0.0008	0.0003
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0007	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0006
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0007

Table C.83 Cont.: Summer AP42 PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0003	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0007	0.0011	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0006	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0008	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0005	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0008	0.0008	0.0008	0.0008	0.0002	0.0000	0.0000	0.0003	0.0004	0.0001	0.0000	0.0000	0.0000
950	0.0002	0.0004	0.0001	0.0001	0.0002	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0006	0.0002	0.0001	0.0007	0.0004	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.0006	0.0002	0.0001	0.0004	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.0007	0.0003	0.0000	0.0004	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0004	0.0012	0.0003	0.0001	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0004	0.0005	0.0004	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.83 Cont.: Summer AP42 PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.83 Cont.: Summer AP42 PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0005	0.0003	0.0005	0.0006	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0003	0.0004	0.0013	0.0016	0.0001	0.0001	0.0000	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0002	0.0009	0.0004	0.0001	0.0001	0.0000	0.0002	0.0002	0.0009	0.0013	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0002	0.0004	0.0001	0.0000	0.0001	0.0002	0.0000	0.0000	0.0008	0.0001	0.0009	0.0010	0.0010	0.0010	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0001	0.0010	0.0006	0.0002	0.0002	0.0008	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0002	0.0002	0.0003	0.0001	0.0012	0.0001	0.0000	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0001	0.0003	0.0002	0.0003	0.0000	0.0013	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0002	0.0002	0.0001	0.0001	0.0008	0.0006	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0002	0.0002	0.0001	0.0004	0.0006	0.0010	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0001	0.0007	0.0007	0.0010	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0005	0.0007	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0006	0.0002	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0001	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0005	0.0009	0.0007	0.0000	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0015	0.0005	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0003	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0004	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0001	0.0004	0.0007	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0001	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.84: Winter AP42 PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0005	0.0004	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0009	0.0000	0.0001	0.0001	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0010	0.0001	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0001	0.0001
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0009	0.0012	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0001	0.0000	0.0009
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0002	0.0005	0.0013	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0002	0.0010	0.0003
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0001	0.0006	0.0008	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0008	0.0010	0.0002	0.0010
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0004	0.0010	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0011	0.0005	0.0009	0.0008
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0001	0.0009	0.0004	0.0005	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0010	0.0007	0.0010	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	0.0015	0.0009	0.0008	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0021	0.0020	0.0009	0.0000
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0003	0.0009	0.0004	0.0011	0.0010	0.0011	0.0004	0.0002	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0007	0.0003	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0008	0.0002	0.0005	0.0015	0.0004	0.0003	0.0010	0.0003	0.0002	0.0005	0.0000	0.0000	0.0000	0.0004	0.0013	0.0005	0.0001	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0003	0.0007	0.0003	0.0006	0.0008	0.0005	0.0015	0.0001	0.0000	0.0000	0.0000	0.0005	0.0009	0.0002	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0003	0.0003	0.0005	0.0016	0.0002	0.0000	0.0000	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0004	0.0002	0.0008	0.0004	0.0000	0.0000	0.0002	0.0005	0.0003	0.0001	0.0001	0.0000	0.0000
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0001	0.0000	0.0002	0.0001	0.0000	0.0020	0.0011	0.0005	0.0001	0.0000	0.0000	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0001	0.0002	0.0002	0.0001	0.0004	0.0013	0.0007	0.0002	0.0002	0.0001	0.0001
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0006	0.0013	0.0020	0.0011	0.0018	0.0009	0.0010	0.0002	0.0003
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0028	0.0015	0.0003	0.0011	0.0007	0.0003	0.0001	0.0008	0.0004
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0008	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0006
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0007

Table C.84 Cont.: Winter AP42 PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0003	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0008	0.0011	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0007	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0009	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0005	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0008	0.0008	0.0008	0.0008	0.0002	0.0000	0.0000	0.0003	0.0004	0.0001	0.0000	0.0000	0.0000
950	0.0002	0.0004	0.0001	0.0001	0.0002	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0007	0.0002	0.0001	0.0008	0.0004	0.0004	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.0006	0.0002	0.0001	0.0005	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.0007	0.0003	0.0000	0.0004	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0004	0.0012	0.0004	0.0001	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0004	0.0005	0.0005	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.84 Cont.: Winter AP42 PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.84 Cont.: Winter AP42 PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0005	0.0003	0.0006	0.0006	0.0009	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0003	0.0004	0.0014	0.0016	0.0001	0.0001	0.0000	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0002	0.0009	0.0004	0.0001	0.0001	0.0000	0.0002	0.0002	0.0010	0.0013	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0002	0.0004	0.0001	0.0000	0.0001	0.0003	0.0000	0.0000	0.0008	0.0001	0.0009	0.0010	0.0010	0.0010	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0001	0.0010	0.0006	0.0002	0.0002	0.0008	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0002	0.0002	0.0003	0.0001	0.0012	0.0001	0.0000	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0001	0.0003	0.0002	0.0003	0.0000	0.0013	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0002	0.0002	0.0001	0.0001	0.0008	0.0007	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0002	0.0002	0.0001	0.0004	0.0006	0.0011	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0001	0.0007	0.0007	0.0010	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0005	0.0007	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0007	0.0002	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0001	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0006	0.0009	0.0007	0.0000	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0016	0.0005	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0003	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0004	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0001	0.0004	0.0007	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0001	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.85: Summer Total PM2.5 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	0.3760	0.0977
2	0.0032	0.1224

Table C.86: Winter Total PM2.5 emissions (ton/day) for the 2x2 grid design.

Cell	0	1
0	0.3911	0.1012
2	0.0033	0.1263

Table C.87: Summer total PM2.5 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.0410	0.0355	0.0062	0.0000
4	0.0406	0.2588	0.0848	0.0067
8	0/0000	0.0032	0.0915	0.0036
12	0.0000	0.0000	0.0153	0.0113

Table C.88: Winter total PM2.5 emissions (ton/day) for the 4x4 grid design.

Cell	0	1	2	3
0	0.0423	0.0367	0.0064	0.0000
4	0.0420	0.2689	0.0883	0.0069
8	0.0000	0.0033	0.0945	0.0037
12	0.0000	0.0000	0.0157	0.0117

Table C.89: Summer total PM2.5 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.0080	0.0002	0.0005	0.0015	0.0000	0.0000	0.0000
8	2.9E-05	0.0329	0.0022	0.0325	0.0047	0.0000	0.000	0.0000
16	0.0030	0.0362	0.0447	0.0489	0.0045	0.0034	0.0055	0.0012
24	0.0003	0.0011	0.0590	0.1061	0.0734	0.0034	5.6E-05	0.0000
32	0.0000	0.0000	0.0000	0.0032	0.0495	0.0147	0.0036	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0091	0.0181	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0147	0.0046	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0053	0.0019

Table C.90: Winter total PM2.5 emissions (ton/day) for the 8x8 grid design.

Cell	0	1	2	3	4	5	6	7
0	0.0000	0.00827	0.00024	0.00052	0.00158	0.0000	0.0000	0.0000
8	2.95E-05	0.03406	0.00230	0.03354	0.00481	0.0000	0.0000	0.0000
16	0.00305	0.03746	0.04642	0.05081	0.00464	0.00351	0.00561	0.00127
24	0.00026	0.00119	0.06145	0.11032	0.07616	0.00359	0.00006	0.0000
32	0.0000	0.0000	0.0000	0.00330	0.05137	0.01521	0.00367	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.00939	0.01870	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.01516	0.00473	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.00062	0.00545	0.00201

Table C.91: Summer total PM2.5 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0032	0.0048	0.0002	0.0000	0.0004	0.0001	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0044	0.0111	0.0003	0.0000	0.0010	0.0049	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0042	0.0133	0.0016	0.0004	0.0144	0.0123	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0017	0.0075	0.0212	0.0082	0.0013	0.0184	0.0030	0.0011	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000
80	0.0000	0.0012	0.0001	0.0073	0.0289	0.0059	0.0225	0.0054	0.0020	0.0008	0.0003	0.0032	0.0028	0.0024	0.0012	0.0000
96	0.0000	0.0003	0.0001	0.0011	0.0122	0.0415	0.0479	0.0350	0.0192	0.0108	0.0029	0.0004	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0047	0.0042	0.0199	0.0328	0.0104	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0032	0.0206	0.0145	0.0046	0.0034	0.0004	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0051	0.0094	0.0058	0.0010	0.0032	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0051	0.0100	0.0006	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0037	0.0053	0.0022	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0028	0.0082	0.0008	0.0001	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0035	0.0030	0.0008	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0026	0.0020	0.0008	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0010	0.0000

Table C.92: Winter total PM2.5 emissions (ton/day) for the 16x16 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0032	0.0050	0.0002	0.0000	0.0004	0.0001	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0045	0.0115	0.0003	0.0000	0.0010	0.0050	0.0045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0043	0.0137	0.0016	0.0004	0.0149	0.0127	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0018	0.0077	0.0220	0.0085	0.0014	0.0191	0.0031	0.0011	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000
80	0.0000	0.0013	0.0001	0.0075	0.0300	0.0061	0.0234	0.0056	0.0021	0.0008	0.0004	0.0033	0.0029	0.0024	0.0013	0.0000
96	0.0000	0.0003	0.0001	0.0012	0.0127	0.0431	0.0498	0.0364	0.0200	0.0112	0.0031	0.0004	0.0000	0.0000	0.0000	0.0000
112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0048	0.0044	0.0208	0.0341	0.0108	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0033	0.0214	0.0151	0.0048	0.0035	0.0004	0.0000	0.0000	0.0000
144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0052	0.0097	0.0059	0.0010	0.0033	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0053	0.0103	0.0006	0.0000	0.0000	0.0000	0.0000
176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0038	0.0055	0.0023	0.0000	0.0000	0.0000	0.0000
192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029	0.0084	0.0009	0.0001	0.0000	0.0000
208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0036	0.0031	0.0008	0.0000	0.0000
224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0027	0.0021	0.0008	0.0000
240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0010	0.0000

Table C.93: Summer total PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0004	0.0021	0.0015	0.0031	0.0002	0.0000	0.0000	0.0000	0.0000	0.0004	0.0001
128	0.0000	0.0000	0.0000	0.0000	0.0005	0.0019	0.0022	0.0033	0.0002	0.0000	0.0000	0.0000	0.0002	0.0003	0.0006
160	0.0000	0.0000	0.0000	0.0000	0.0008	0.0011	0.0025	0.0029	0.0001	0.0000	0.0000	0.0000	0.0004	0.0001	0.0017
192	0.0000	0.0000	0.0000	0.0000	0.0007	0.0009	0.0034	0.0027	0.0000	0.0000	0.0000	0.0000	0.0014	0.0033	0.0027
224	0.0000	0.0000	0.0000	0.0000	0.0007	0.0018	0.0014	0.0055	0.0009	0.0007	0.0003	0.0001	0.0038	0.0060	0.0058
256	0.0000	0.0000	0.0000	0.0005	0.0014	0.0027	0.0034	0.0068	0.0013	0.0007	0.0007	0.0007	0.0036	0.0039	0.0023
288	0.0000	0.0000	0.0000	0.0013	0.0010	0.0023	0.0032	0.0078	0.0043	0.0020	0.0001	0.0000	0.0062	0.0046	0.0005
320	0.0000	0.0000	0.0000	0.0008	0.0000	0.0000	0.0009	0.0050	0.0069	0.0057	0.0015	0.0000	0.0057	0.0022	0.0000
352	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0004	0.0010	0.0088	0.0072	0.0018	0.0026	0.0092	0.0055	0.0038
384	0.0000	0.0000	0.0000	0.0003	0.0001	0.0000	0.0000	0.0011	0.0013	0.0074	0.0043	0.0038	0.0109	0.0056	0.0076
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0171	0.0161	0.0175	0.0139	0.0137
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0017	0.0012	0.0032	0.0048
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.93 Cont.: Summer total PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0002	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0009	0.0024	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0017	0.0014	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0022	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
288	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
320	0.0002	0.0002	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
352	0.0013	0.0008	0.0003	0.0006	0.0002	0.0001	0.0002	0.0014	0.0018	0.0014	0.0014	0.0014	0.0008	0.0008	0.0004	0.0000	0.0000
384	0.0037	0.0042	0.0034	0.0024	0.0023	0.0015	0.0013	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0101	0.0061	0.0056	0.0036	0.0025	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0090	0.0113	0.0062	0.0033	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0043	0.0064	0.0088	0.0040	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0029	0.0034	0.0064	0.0073	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0003	0.0055	0.0055	0.0040	0.0027	0.0014	0.0031	0.0017	0.0016	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0000	0.0006	0.0030	0.0016	0.0042	0.0009	0.0010	0.0000	0.0001	0.0017	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0014	0.0027	0.0009	0.0038	0.0000	0.0004	0.0004	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0003	0.0016	0.0012	0.0028	0.0016	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0011	0.0012	0.0026	0.0032	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0009	0.0020	0.0009	0.0009	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0007	0.0015	0.0021	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0018	0.0023	0.0011	0.0003	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0006	0.0030	0.0013	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0011	0.0012	0.0006	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0008	0.0011	0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0009	0.0013	0.0004	0.0006	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0004	0.0008	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0005	0.0004	0.0004	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000

Table C.94: Winter total PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0000	0.0000	0.0000	0.0005	0.0021	0.0016	0.0032	0.0002	0.0000	0.0000	0.0000	0.0000	0.0004	0.0001
128	0.0000	0.0000	0.0000	0.0000	0.0006	0.0020	0.0023	0.0034	0.0002	0.0000	0.0000	0.0000	0.0002	0.0003	0.0006
160	0.0000	0.0000	0.0000	0.0000	0.0008	0.0011	0.0026	0.0030	0.0002	0.0000	0.0000	0.0000	0.0004	0.0001	0.0018
192	0.0000	0.0000	0.0000	0.0000	0.0007	0.0009	0.0035	0.0029	0.0000	0.0000	0.0000	0.0000	0.0015	0.0034	0.0028
224	0.0000	0.0000	0.0000	0.0000	0.0008	0.0019	0.0015	0.0057	0.0009	0.0008	0.0003	0.0001	0.0039	0.0062	0.0060
256	0.0000	0.0000	0.0000	0.0005	0.0015	0.0027	0.0035	0.0071	0.0013	0.0008	0.0007	0.0007	0.0037	0.0041	0.0024
288	0.0000	0.0000	0.0000	0.0013	0.0010	0.0024	0.0033	0.0081	0.0044	0.0021	0.0001	0.0000	0.0064	0.0048	0.0005
320	0.0000	0.0000	0.0000	0.0008	0.0000	0.0000	0.0009	0.0051	0.0071	0.0059	0.0016	0.0000	0.0059	0.0023	0.0000
352	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0005	0.0010	0.0092	0.0075	0.0019	0.0026	0.0096	0.0058	0.0040
384	0.0000	0.0000	0.0000	0.0003	0.0001	0.0000	0.0000	0.0012	0.0013	0.0077	0.0045	0.0040	0.0113	0.0058	0.0080
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0032	0.0178	0.0167	0.0181	0.0144	0.0142
448	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0017	0.0012	0.0033	0.0050
480	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0024
512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.94 Cont.: Winter total PM2.5 emissions (ton/day) for the 32x32 grid design.

Cell	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
96	0.0000	0.0002	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
128	0.0010	0.0025	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0017	0.0015	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
192	0.0023	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
224	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
256	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
288	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
320	0.0002	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
352	0.0014	0.0009	0.0003	0.0006	0.0002	0.0002	0.0002	0.0015	0.0019	0.0015	0.0014	0.0014	0.0008	0.0008	0.0004	0.0000	0.0000
384	0.0039	0.0044	0.0036	0.0025	0.0024	0.0016	0.0014	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0105	0.0063	0.0058	0.0037	0.0026	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
448	0.0094	0.0118	0.0065	0.0035	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
480	0.0044	0.0066	0.0091	0.0041	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
512	0.0031	0.0035	0.0067	0.0075	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
544	0.0003	0.0057	0.0057	0.0042	0.0028	0.0015	0.0032	0.0018	0.0017	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
576	0.0000	0.0006	0.0031	0.0017	0.0043	0.0009	0.0010	0.0000	0.0001	0.0018	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
608	0.0000	0.0000	0.0015	0.0028	0.0009	0.0039	0.0000	0.0004	0.0004	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
640	0.0000	0.0000	0.0003	0.0016	0.0012	0.0029	0.0017	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
672	0.0000	0.0000	0.0000	0.0011	0.0012	0.0027	0.0033	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
704	0.0000	0.0000	0.0000	0.0010	0.0021	0.0009	0.0009	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
736	0.0000	0.0000	0.0000	0.0000	0.0008	0.0015	0.0021	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0019	0.0023	0.0011	0.0003	0.0003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0006	0.0031	0.0014	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0012	0.0012	0.0007	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
864	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0008	0.0011	0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0004	0.0009	0.0013	0.0004	0.0006	0.0000	0.0000	0.0000	0.0000
928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0005	0.0004	0.0008	0.0000	0.0000	0.0000
960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0005	0.0004	0.0004	0.0000	0.0000
992	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000

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Table C.95: Summer total PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0005	0.0005	0.0007	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0010	0.0000	0.0005	0.0002	0.0019	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0001	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0011	0.0001	0.0004	0.0000	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0001	0.0003	0.0001	0.0001
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0007	0.0010	0.0017	0.0007	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0003	0.0000	0.0010
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0004	0.0005	0.0015	0.0011	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0004	0.0010	0.0004
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0001	0.0008	0.0011	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0009	0.0020	0.0003	0.0011
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0004	0.0013	0.0013	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0025	0.0016	0.0010	0.0010	0.0009
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0001	0.0010	0.0009	0.0027	0.0014	0.0004	0.0004	0.0005	0.0000	0.0000	0.0000	0.0003	0.0034	0.0014	0.0020	0.0010	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	0.0017	0.0016	0.0029	0.0009	0.0000	0.0000	0.0003	0.0003	0.0003	0.0005	0.0006	0.0036	0.0034	0.0030	0.0010	0.0004
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0010	0.0004	0.0012	0.0013	0.0036	0.0011	0.0007	0.0004	0.0000	0.0004	0.0004	0.0000	0.0000	0.0029	0.0022	0.0010	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	0.0005	0.0009	0.0017	0.0006	0.0018	0.0034	0.0019	0.0006	0.0007	0.0000	0.0000	0.0000	0.0012	0.0037	0.0017	0.0003	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0005	0.0015	0.0009	0.0021	0.0041	0.0021	0.0023	0.0005	0.0000	0.0000	0.0001	0.0024	0.0025	0.0015	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0004	0.0004	0.0007	0.0038	0.0026	0.0028	0.0020	0.0003	0.0000	0.0002	0.0030	0.0018	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0006	0.0001	0.0015	0.0049	0.0018	0.0028	0.0001	0.0000	0.0010	0.0033	0.0034	0.0020	0.0010	0.0007	0.0011
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0008	0.0028	0.0035	0.0035	0.0004	0.0000	0.0030	0.0052	0.0026	0.0020	0.0006	0.0002	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0011	0.0001	0.0016	0.0053	0.0008	0.0003	0.0020	0.0057	0.0020	0.0028	0.0030	0.0020	0.0017
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0052	0.0030	0.0049	0.0080	0.0094	0.0090	0.0086	0.0090	0.0020	0.0013
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0095	0.0069	0.0030	0.0049	0.0023	0.0022	0.0010	0.0080	0.0052
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0020	0.0000	0.0004	0.0013	0.0016	0.0020	0.0020	0.0054
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0020	0.0020	0.0015
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0027

Table C.95 Cont.: Summer total PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0003	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0008	0.0013	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0007	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0010	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0004	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0003	0.0000	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0007	0.0006	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0008	0.0000	0.0000	0.0000	0.0005	0.0000	0.0004	0.0005	0.0009	0.0009	0.0009	0.0012	0.0009	0.0009	0.0009	0.0009	0.0002	0.0000	0.0000	0.0004	0.0005	0.0001	0.0000	0.0000	0.0000
950	0.0016	0.0026	0.0012	0.0011	0.0012	0.0007	0.0007	0.0005	0.0001	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0021	0.0021	0.0018	0.0020	0.0016	0.0007	0.0005	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.0030	0.0029	0.0025	0.0017	0.0015	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.0058	0.0030	0.0017	0.0010	0.0026	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0034	0.0063	0.0023	0.0021	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0018	0.0023	0.0045	0.0014	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.95 Cont.: Summer total PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0013
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.95 Cont.: Summer total PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0009	0.0016	0.0033	0.0025	0.0017	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0018	0.0019	0.0019	0.0055	0.0013	0.0007	0.0004	0.0006	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0014	0.0031	0.0022	0.0003	0.0027	0.0003	0.0004	0.0006	0.0013	0.0015	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0010	0.0010	0.0012	0.0008	0.0004	0.0022	0.0005	0.0002	0.0009	0.0001	0.0010	0.0011	0.0011	0.0011	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0001	0.0019	0.0015	0.0008	0.0012	0.0022	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0005	0.0009	0.0006	0.0004	0.0024	0.0002	0.0000	0.0001	0.0003	0.0002	0.0002	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0002	0.0005	0.0009	0.0006	0.0000	0.0025	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0005	0.0005	0.0004	0.0003	0.0016	0.0011	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0005	0.0003	0.0006	0.0008	0.0007	0.0022	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0002	0.0009	0.0009	0.0014	0.0008	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0005	0.0008	0.0003	0.0002	0.0003	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0007	0.0004	0.0012	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0003	0.0014	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0007	0.0011	0.0009	0.0007	0.0001	0.0002	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0018	0.0007	0.0007	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0016	0.0000	0.0004	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0004	0.0009	0.0000	0.0003	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0004	0.0008	0.0000	0.0001	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0004	0.0008	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0001	0.0005	0.0008	0.0002	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0001	0.0005	0.0003	0.0000	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0000	0.0001	0.0006	0.0002	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0002	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.96: Winter total PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0005	0.0005	0.0007	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0010	0.0000	0.0005	0.0003	0.0020	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0001	0.0000	0.0000
300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0011	0.0001	0.0004	0.0000	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0001	0.0003	0.0001	0.0001
350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0007	0.0010	0.0018	0.0007	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0003	0.0000	0.0011
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0004	0.0006	0.0016	0.0011	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0004	0.0010	0.0004
450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0001	0.0008	0.0011	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0009	0.0020	0.0003	0.0011
500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0004	0.0014	0.0014	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0026	0.0016	0.0010	0.0010	0.0010
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0001	0.0010	0.0009	0.0028	0.0014	0.0004	0.0004	0.0005	0.0000	0.0000	0.0000	0.0003	0.0035	0.0014	0.0020	0.0010	0.0000
600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0007	0.0017	0.0016	0.0030	0.0010	0.0001	0.0000	0.0003	0.0003	0.0003	0.0005	0.0006	0.0037	0.0035	0.0030	0.0010	0.0004
650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0003	0.0010	0.0004	0.0013	0.0013	0.0038	0.0012	0.0008	0.0004	0.0000	0.0004	0.0004	0.0000	0.0000	0.0030	0.0023	0.0010	0.0000	0.0000
700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0009	0.0005	0.0009	0.0017	0.0006	0.0019	0.0036	0.0020	0.0006	0.0007	0.0000	0.0000	0.0000	0.0012	0.0038	0.0017	0.0003	0.0000	0.0000
750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0005	0.0016	0.0009	0.0021	0.0043	0.0022	0.0024	0.0005	0.0000	0.0000	0.0001	0.0025	0.0026	0.0016	0.0000	0.0000	0.0000
800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0004	0.0004	0.0007	0.0040	0.0027	0.0029	0.0021	0.0003	0.0000	0.0002	0.0032	0.0019	0.0000	0.0000	0.0000	0.0000
850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0006	0.0001	0.0015	0.0051	0.0019	0.0029	0.0001	0.0000	0.0010	0.0034	0.0035	0.0021	0.0010	0.0008	0.0011
900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007	0.0008	0.0029	0.0037	0.0036	0.0004	0.0000	0.0030	0.0054	0.0027	0.0021	0.0006	0.0003	0.0000
950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0012	0.0001	0.0017	0.0055	0.0008	0.0003	0.0020	0.0059	0.0021	0.0029	0.0030	0.0020	0.0018
1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0054	0.0032	0.0051	0.0080	0.0098	0.0093	0.0090	0.0090	0.0020	0.0013
1050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0035	0.0098	0.0072	0.0030	0.0051	0.0024	0.0023	0.0010	0.0080	0.0054
1100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0021	0.0000	0.0004	0.0014	0.0016	0.0020	0.0020	0.0056
1150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0020	0.0020	0.0016
1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0028

Table C.96 Cont.: Winter total PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
250	0.0000	0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
300	0.0008	0.0013	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
350	0.0008	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0010	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
450	0.0004	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
500	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
600	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
650	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
700	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
750	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
800	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
850	0.0003	0.0000	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0007	0.0006	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
900	0.0008	0.0000	0.0000	0.0000	0.0005	0.0000	0.0004	0.0005	0.0009	0.0009	0.0009	0.0012	0.0009	0.0009	0.0009	0.0009	0.0002	0.0000	0.0000	0.0004	0.0005	0.0001	0.0000	0.0000	0.0000
950	0.0016	0.0027	0.0012	0.0011	0.0012	0.0007	0.0007	0.0005	0.0001	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1000	0.0022	0.0021	0.0019	0.0021	0.0017	0.0007	0.0005	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1050	0.0031	0.0030	0.0026	0.0018	0.0015	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1100	0.0060	0.0031	0.0017	0.0011	0.0027	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0035	0.0066	0.0024	0.0022	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1200	0.0019	0.0024	0.0047	0.0015	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.96 Cont.: Winter total PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0013
1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010
1350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table C.96 Cont.: Winter total PM2.5 emissions (ton/day) for the 50x50 grid design.

Cell	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1250	0.0010	0.0017	0.0034	0.0026	0.0018	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1300	0.0018	0.0019	0.0020	0.0057	0.0014	0.0007	0.0004	0.0006	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1350	0.0015	0.0032	0.0023	0.0003	0.0028	0.0004	0.0004	0.0007	0.0014	0.0015	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1400	0.0010	0.0010	0.0012	0.0008	0.0005	0.0023	0.0005	0.0002	0.0009	0.0001	0.0010	0.0011	0.0011	0.0011	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1450	0.0000	0.0001	0.0020	0.0016	0.0008	0.0012	0.0023	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1500	0.0000	0.0000	0.0005	0.0009	0.0006	0.0004	0.0025	0.0002	0.0000	0.0001	0.0003	0.0002	0.0002	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1550	0.0000	0.0000	0.0002	0.0005	0.0010	0.0006	0.0000	0.0026	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1600	0.0000	0.0000	0.0000	0.0006	0.0005	0.0004	0.0003	0.0017	0.0012	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1650	0.0000	0.0000	0.0000	0.0005	0.0003	0.0006	0.0008	0.0007	0.0022	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1700	0.0000	0.0000	0.0000	0.0002	0.0010	0.0009	0.0014	0.0009	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1750	0.0000	0.0000	0.0000	0.0000	0.0006	0.0008	0.0003	0.0002	0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0007	0.0005	0.0012	0.0000	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1850	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0003	0.0014	0.0005	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0007	0.0011	0.0009	0.0007	0.0001	0.0002	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1950	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0018	0.0007	0.0007	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0017	0.0000	0.0005	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0004	0.0009	0.0000	0.0003	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0001	0.0004	0.0008	0.0000	0.0001	0.0006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0004	0.0008	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0001	0.0005	0.0008	0.0002	0.0001	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0001	0.0005	0.0003	0.0000	0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0000	0.0001	0.0006	0.0002	0.0000	0.0000	0.0000	0.0000
2350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003	0.0002	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000
2400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
2450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Appendix D

This appendix provides the information necessary to execute the framework. Includes a set of figures and explains the steps that are required. However, it is important to mention that this appendix only explains the steps necessary to execute the framework and not the steps necessary to perform operations in TransCAD or ArcGIS as the many operation may be performed as needed by the user.

The initial step in executing the framework is to open ArcMap from ArcGIS; this is done by clicking on the ArcMap icon on the computer Desktop (Figure D.1 show the ArcMap icon). Once ArcMap executes, the initial screen that appears is shown on Figure D.2.

Figure D.1: ArcMap Icon.

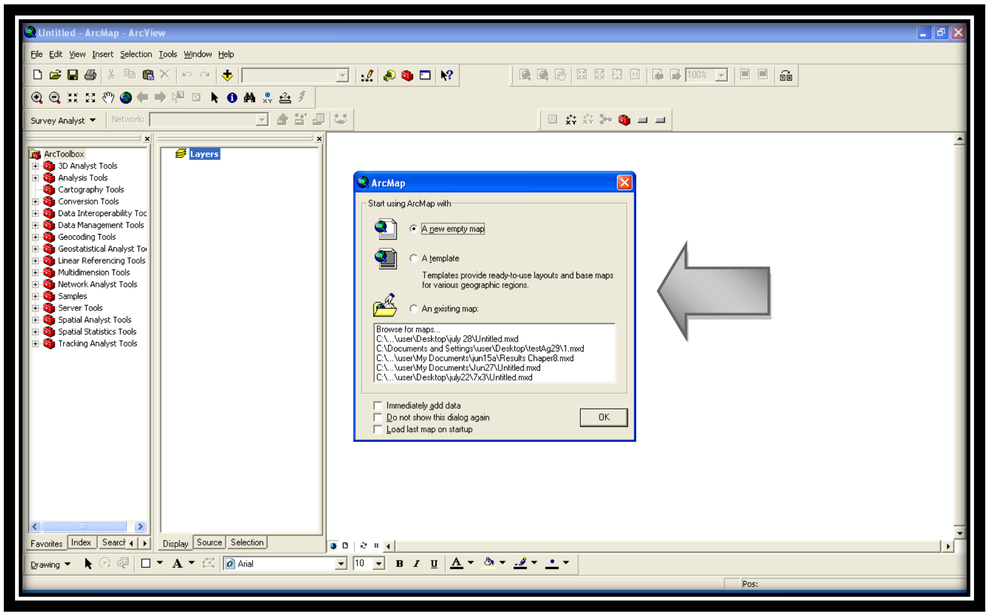

Figure D.2: ArcMap first screen.

Figure D.2 shows the first screen seen by the user after ArcMap initiates. This screen enables the user to open predefined map layers (or files) or allows the user to start from scratch. If the user needs to open previous files it is necessary to click on the file name and then ok button on the center window indicated by the arrow in Figure D.2. If the user wishes to start a new map the screen can be closed down.

D.1 Execution of the GIS database Module

The GIS database module makes use of two interfaces to perform all the tasks assigned to the framework. The first (main) interface performs the following tasks: executes TransCAD, adds the transportation network layer to ArcMap, creates the grid, executes the Emission module and the Post-processing module, and generates the emission grids ((a) in Figure D.3). The second interface ((b) in Figure D.3) updates the transportation information (e.g., VMT) after the grid layer and the transportation network layer intersects and before the Emission module and Post-

processor module executes. In order to execute the framework GIS database module main interface, it is necessary to click on the second left hand side button (starting from right to left) of the toolbar shown in Figure D.3. Once the button is clicked, the GIS database module interface appears on the screen as shown in Figure D.4.

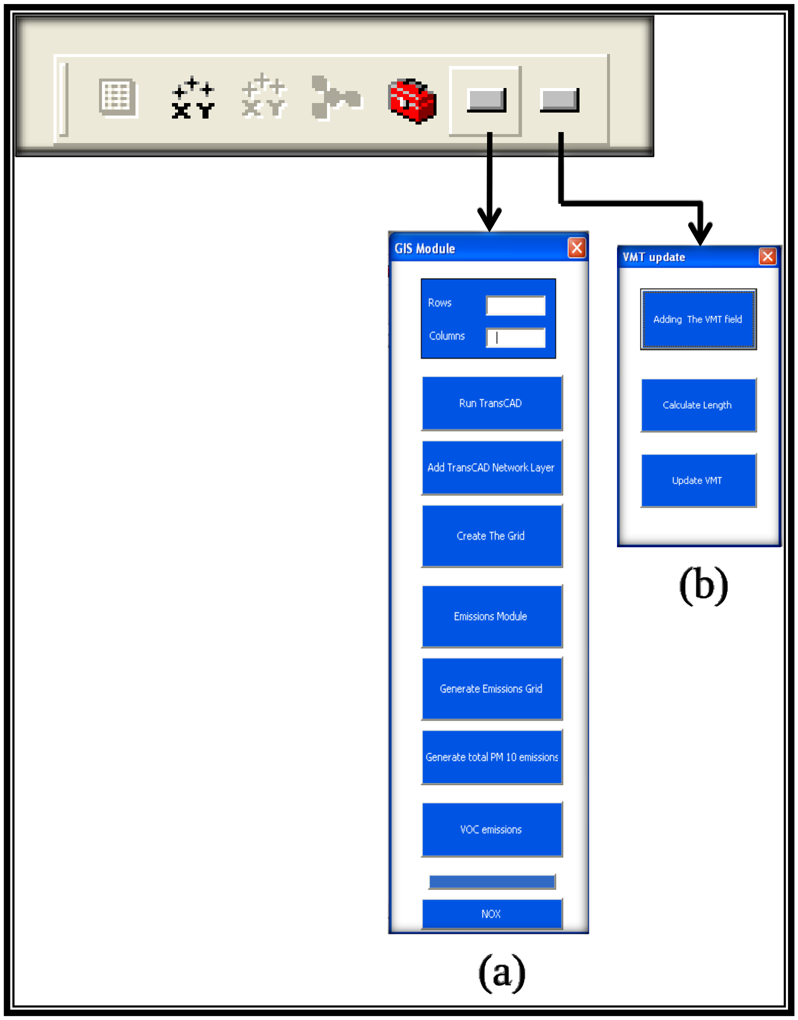

Figure D.3: Framework toolbar.

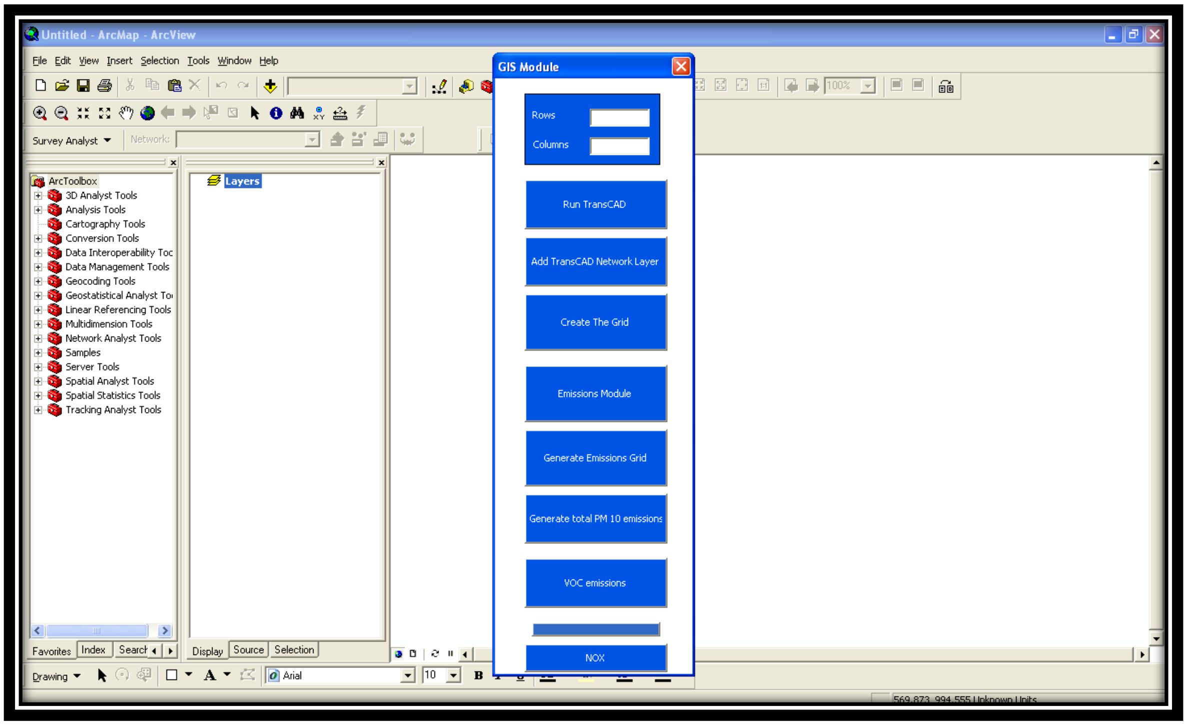

Figure D.4: GIS database module interface.

The GIS database interface is, as mentioned previously, in charge of executing other modules of the framework; in order to do this, the interface is composed of 8 buttons that at the same time execute other modules. Figure D.5 shows a closer view of the main GIS database interface and the links between the buttons and the modules executed by these buttons. For example, the Generate Emission Grid button executes an interface that is necessary to execute the Graphical representation module so that the emission grid desired is defined. Further details on the operation of these buttons and the modules they call are provided later in this appendix in the following sections.

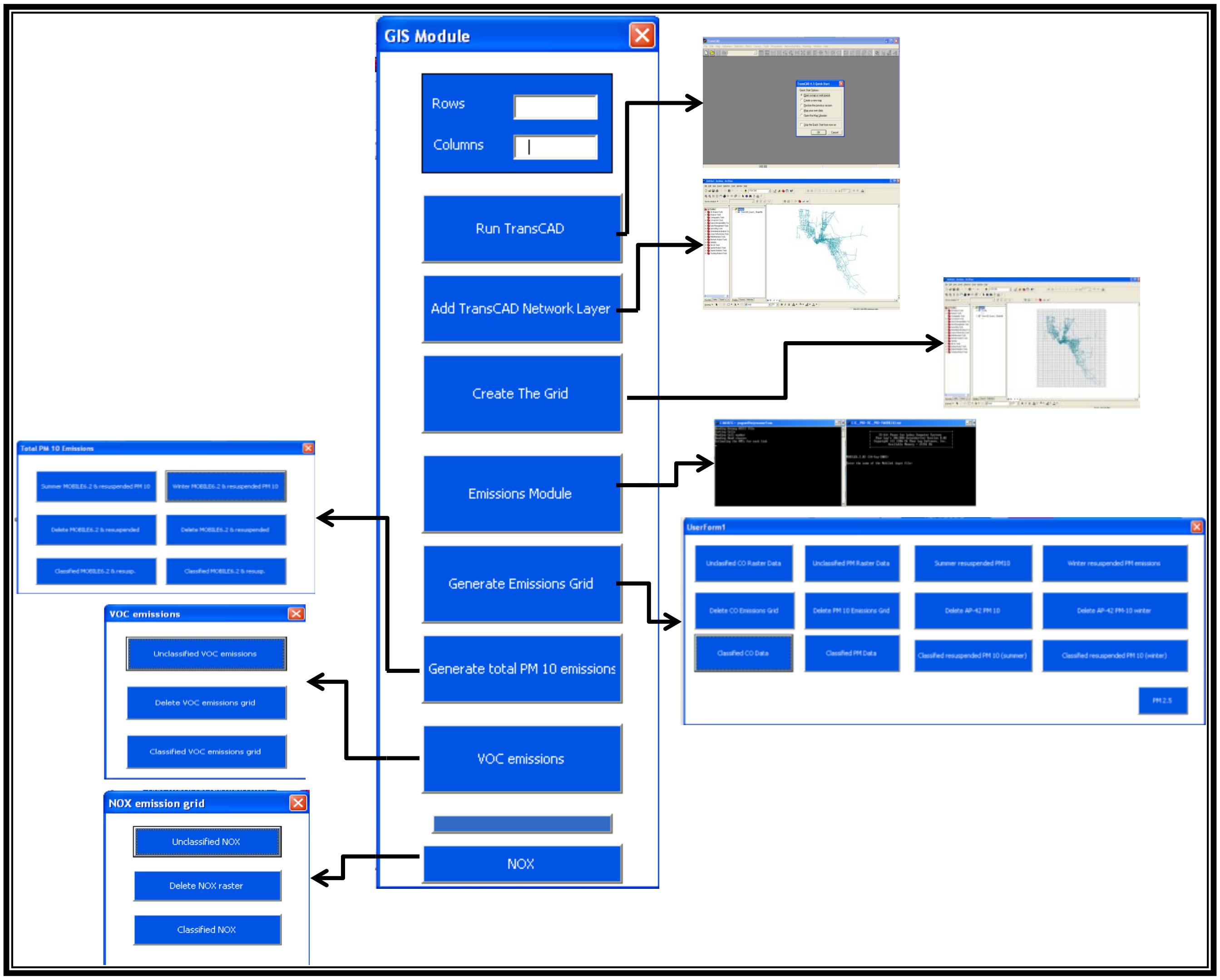

Figure D.5: GIS database module and the function of its buttons.

D.2 Execution of the Transportation Module

The Run TransCAD button, in Figure D.5, is in charge of executing the Transportation module (TransCAD); by clicking this button, the user has the opportunity to perform all desired operations in TransCAD. After performing all operations in TransCAD, the user needs to export the transportation network in the ESRI shape file format so that this file is readable by the GIS data base module. Figure D.6 shows the screenshots of the process that needs to be followed to

successfully run the Transportation module and export the transportation network to the GIS database module.

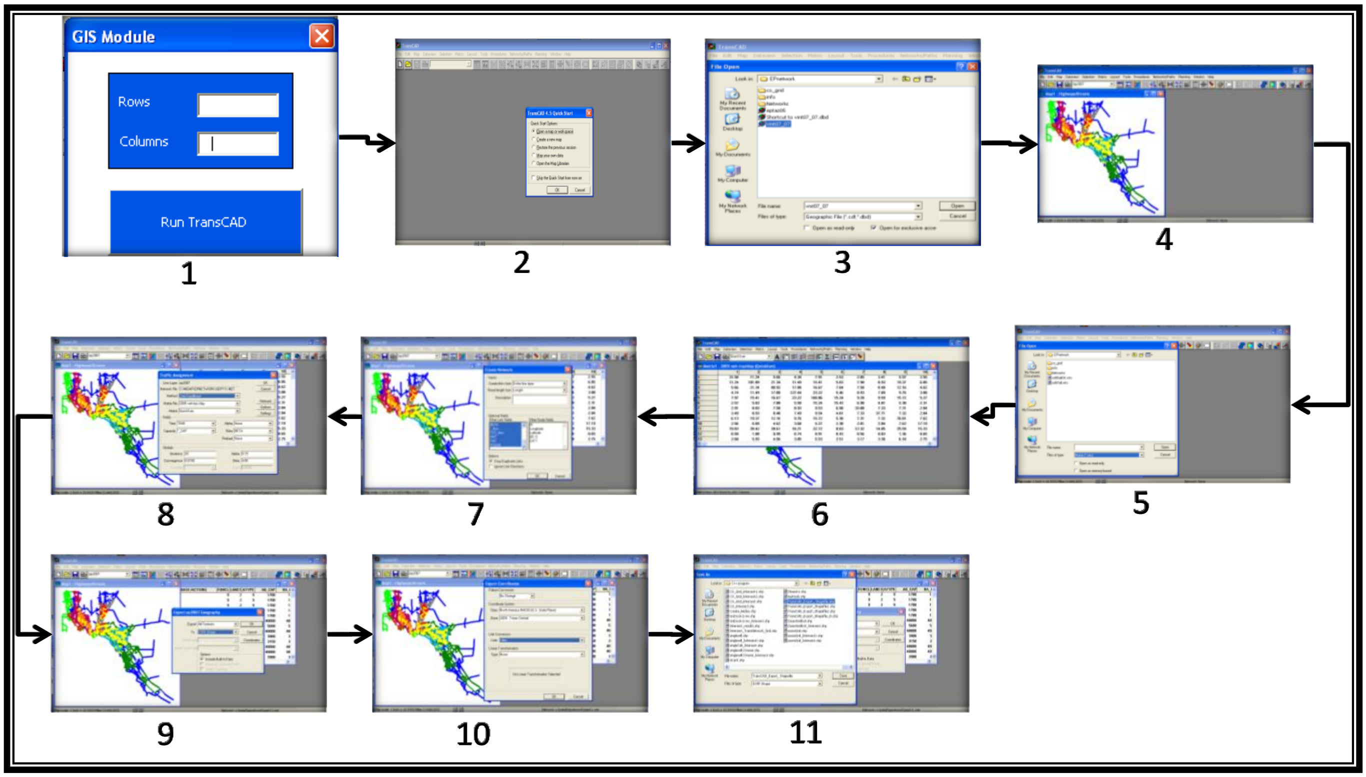

Figure D.6: Process to execute the transportation module successfully.

The process shown in Figure D.6 starts by clicking the Run TransCAD button in the GIS database module main interface (Number 1 in Figure D.6). Number 2 in Figure D.6 represents the first window encountered when TransCAD executes. From this screen is necessary to create or open a geographic file (the transportation network); this is done by clicking File- - -open- - - then the name of the geographic file (Number 3 in Figure D.6). Number 4 in Figure D.6 shows the geographic file for the city of El Paso, Texas, for year 2007. Once the geographic file is opened, the next step is to open the OD matrix file (Number 5 in Figure D.6). The OD matrix is opened by clicking on File---open—Name of the file. As in the previous step, the user needs to

browse for the file in the computer. Number 6 in Figure D.6 show the OD matrix of the city of El Paso, Texas. The following step in the process is to create or open the network (to check the transportation network connectivity). If the user wants to create the network, the process is performed by clicking on Networks/paths in TransCAD menu and select create. After selecting create in the Networks/paths menu, the user needs to select the optional fields in the screen to make sure the network is created considering all the fields in the transportation network (Number 7 in Figure D.6). Following, the steps just described, the user needs to execute the traffic assignment algorithm to estimate the vehicle flow on the transportation network; to perform this operation the user needs to click on Planning at TransCAD menu and select traffic assignment. The user then, select the traffic assignment to be used (In this research the traffic assignment used was User equilibrium) and all other parameters are entered as shown in Number 8 of Figure D.6. After the execution of traffic assignment the user needs to export the transportation network file to ESRI ArcMap format; this is done by clicking on Tools----Export. Once in the Export screen the user needs to define the desired target file format, i.e., ESRI Shape file and click coordinates (see Number 9). Clicking on coordinates is important because the shape file needs to be exported with the correct coordinate system (North America NAD83 U.S. State Plane and Zone Texas Central for the city of El Paso, Texas) and units (i.e., miles for the city of El Paso, Texas) as indicated in Number 10 of Figure D.6. The last step in Figure D.6 is saving the exported Shape File in the correct folder of the computer; this is extremely important because locating the file correctly enables the framework to open it with the aid of the Add TransCAD Network Layer button. Number 11 in Figure D.6 shows the folder and name of the File that needs to be used to save the exported file. The path to the folder is C:\MEIAF\C++ program and the file name is TransCAD_Export_ Shapefile.shp.

Following the execution of the Transportation module, the user only need to add the transportation network file to ArcMap work space; this is done by simply clicking on the Add TransCAD Network Layer button of the main interface of the GIS database module. Figure D.7 shows this operation.

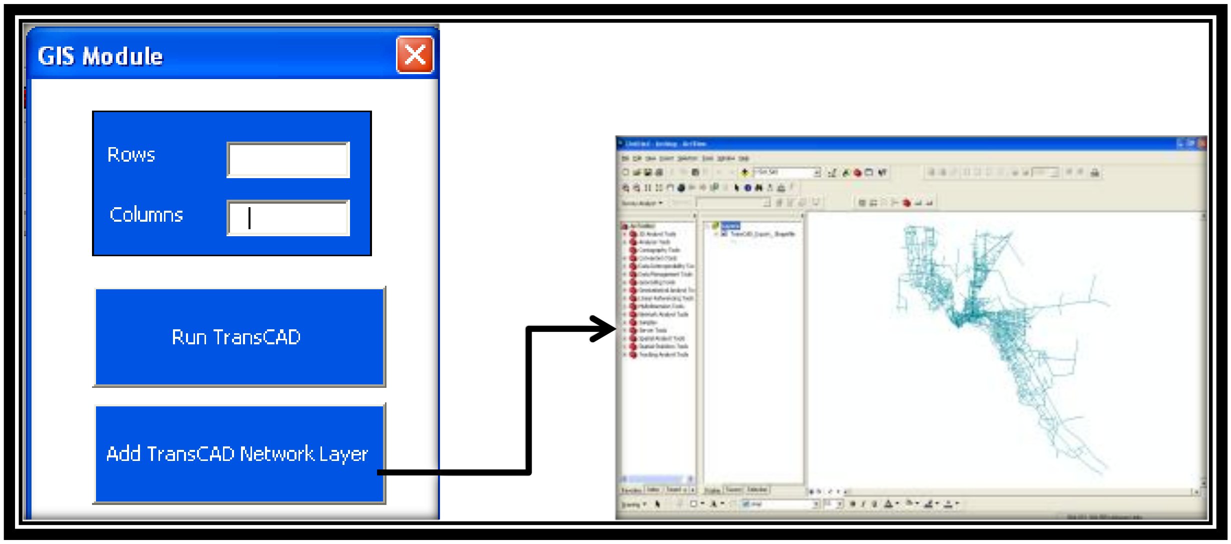

Figure D.7: Adding the Transportation network in ESRI format to ArcMap work space.

D.3 Grid definition and ASCII file processes

The GIS database module, as previously mentioned, is in charge of defining the grid. To do this the GIS database module performs the process indicated by Figure D.8.

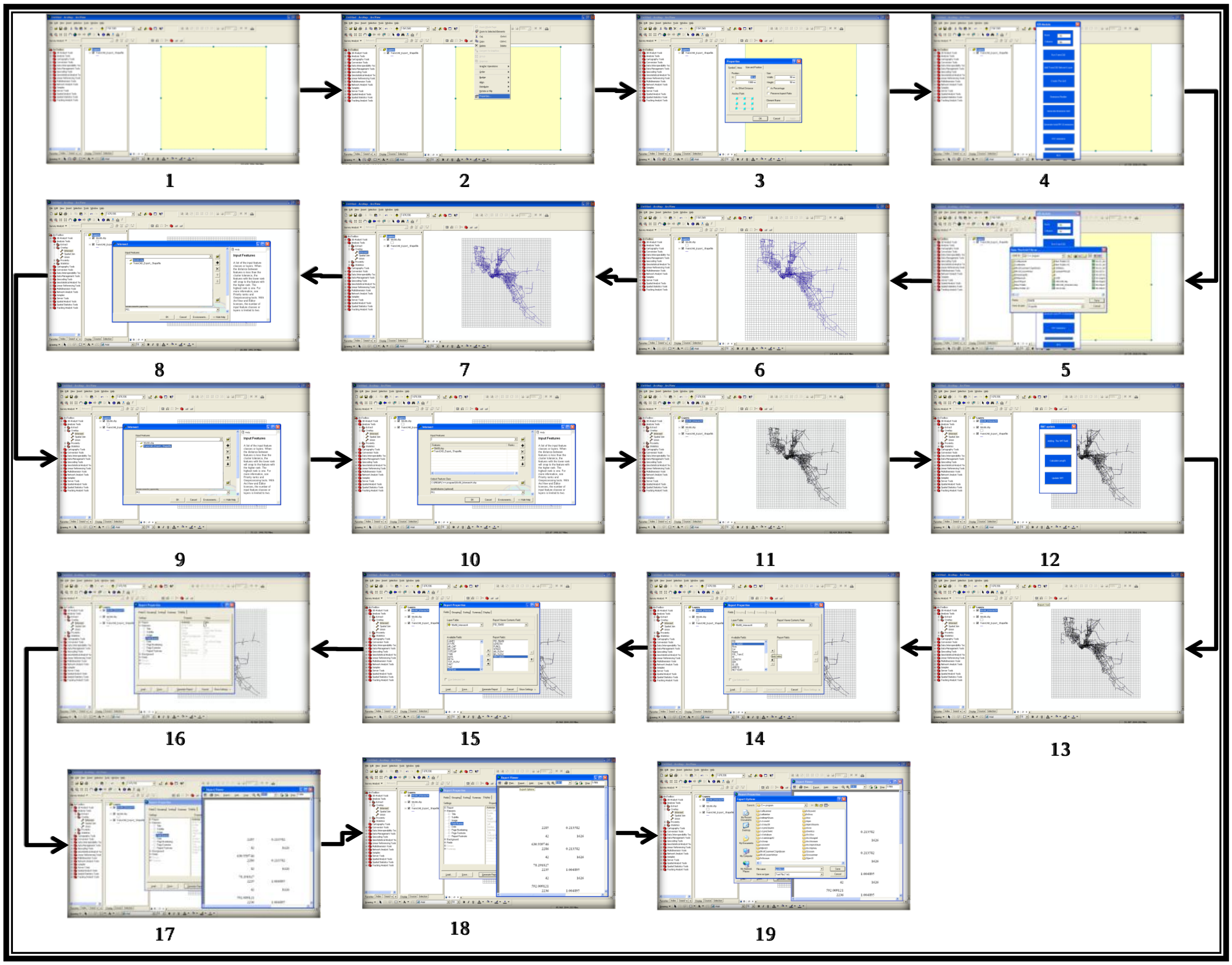

Figure D.8: Grid definition Emission module input file process.

The first 11 steps in Figure D.8 define the grid definition process, and the 8 steps remaining are aimed to generate the ASCII file that the Emission module needs to perform. Step 1 in Figure D.8 is to create a rectangular area over the desired portion of the transportation network; this is done by using the New Rectangle option from the drawing menu in ArcMap. The rectangle drawn over the transportation network can cover any defined area. However, in order to a have a grid with even cell dimensions, the user needs to dimension the rectangle with

an even aspect ratio, e.g., 50 miles in height and 50 miles in width (Step 2 and Step 3 in Figure D.8). In addition to the height and width of the rectangle, the user needs to define the lower left side corner coordinates; this is important because the coordinates defines the emission grid construction. To define the rectangle's height, width, and lower left coordinates the user needs to right click on the rectangle and then select properties, next on the screen that appears the user is allowed to define the three parameters just mentioned.   Figure D.9 shows a closer view to Step 1, Step 2 and Step 3 of Figure D.8.

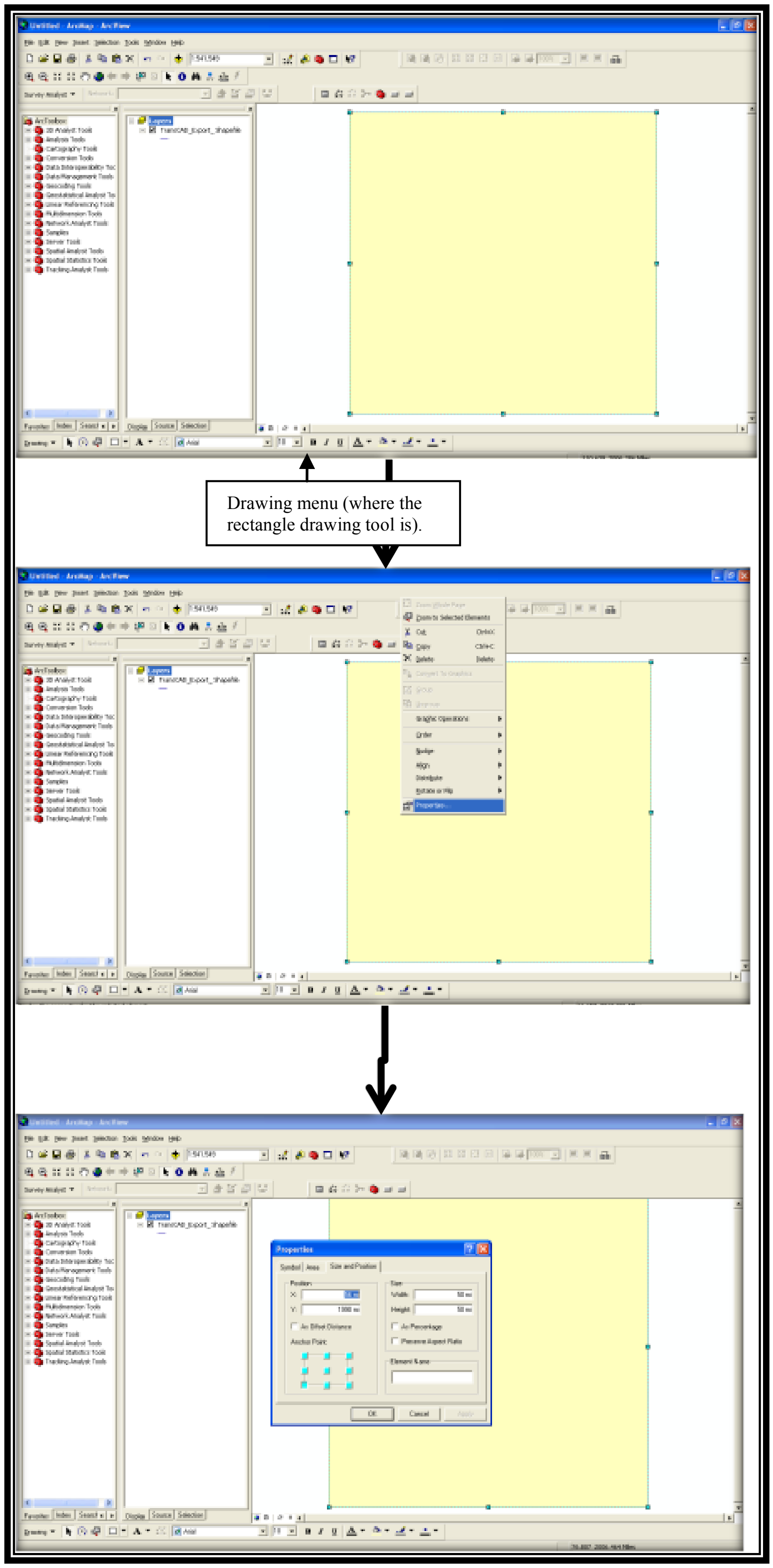

Figure D.9: Rectangular area definition.

Once the rectangular area is set, the following step is to define the grid over the area covered by the rectangle. This is done by performing the following actions: First, click the main GIS database interface button; this brings the GIS database interface to the screen. Second, enter the number of rows and columns in the spaces designed for this in the interface (Step 4 in Figure D.8). Third, saving the grid file in the following path C:\MEIAF\C++ program, the name of the file is free to be defined by the user (Step 5 in Figure D.8). In order to be able to build the grid over the transportation network it is necessary that the rectangle drawn is selected throughout the whole process, the rectangle is selected by just giving one click over it. After saving the grid file in the defined folder, the user can delete the rectangle by just hitting the delete function of the computer. Deleting the rectangle from top of the transportation network reveals the grid design located on top of the transportation network.

Following the grid definition process the next step needed is to intersect the transportation network layer with the grid layer. This operation is performed by using the already built-in Intersect function of ArcMap (Steps 6 to 11 in Figure D.8). Figure D.10 shows a closer view of the intersection process.

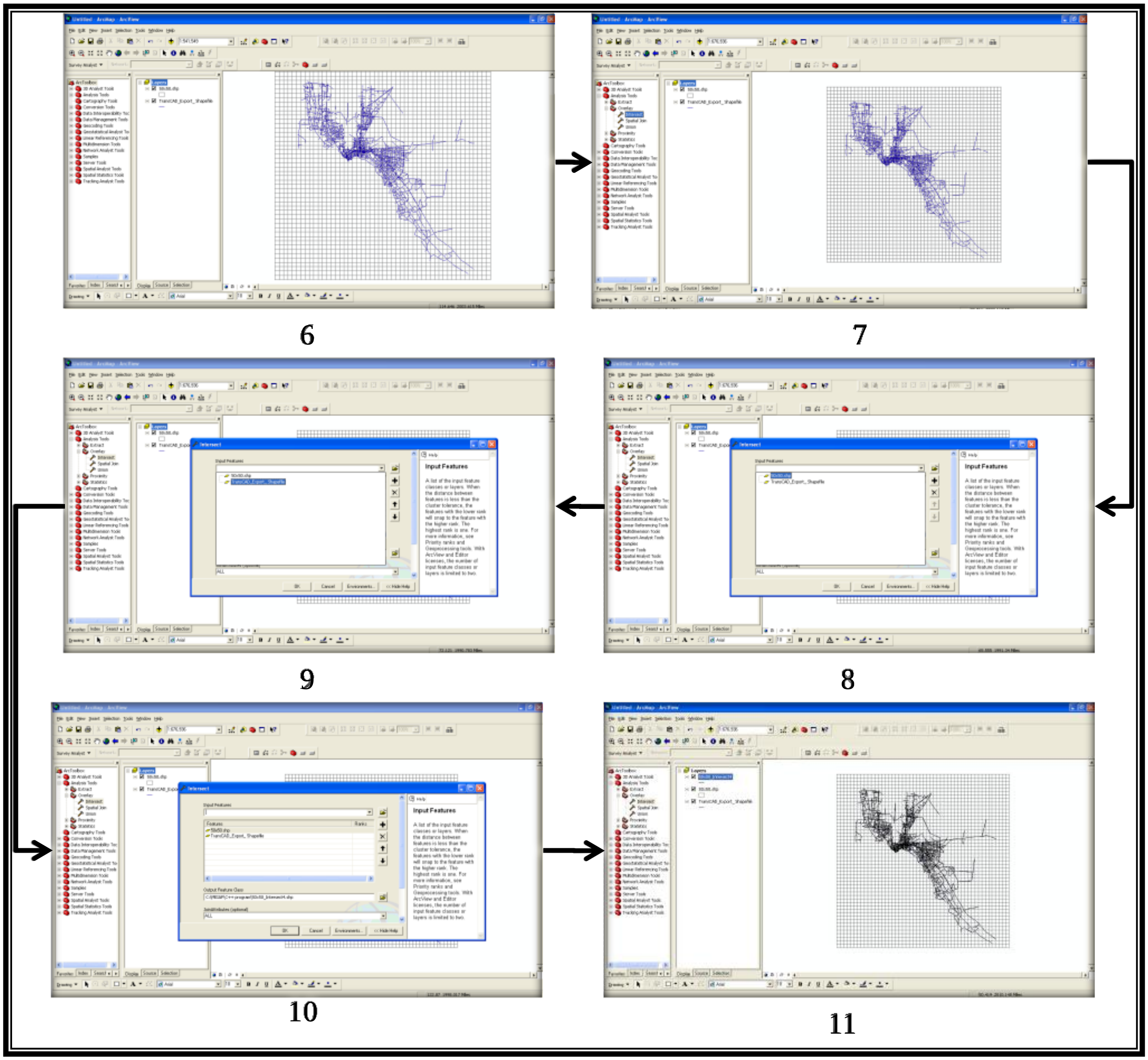

Figure D.10: Intersection process.

Number 6 in Figure D.10 shows the starting screen of the intersection process, in this screen two layers are necessary. The first layer that is needed is the one that represents the transportation network and the second layer needed represents the grid. Number 7 in Figure D.10 shows the location of the toolbox and the intersection tool on ArcMap. Number 8 in Figure D.10

shows the screen that appears once the intersection tool starts, it is important that the grid layer and transportation network layer are selected as the input features. First, the grid layer file and then the transportation network file as shown in Number 8 and 9 in Figure D.10. After the two layers are selected then clicking on the ok button is remaining (Number 10 in Figure D.10). Number 11 in Figure D.10 shows the output of the intersection process, this is a layer named similarly to the grid file but with the extension _Intersect. It is very important that the intersect layer is on top of all layers in the layer listing because this key to the following operations.

After intersection process is performed the following process that is needed it to generate the input file necessary for the other modules to execute. Steps 12 to 19 in Figure D. 8 represent the process performed to generate the ASCII input file that is used by the Emission module and Post-processor module. Figure D. 11 shows the process necessary to generate the ASCII (Steps 12 to 19 in Figure D.8).

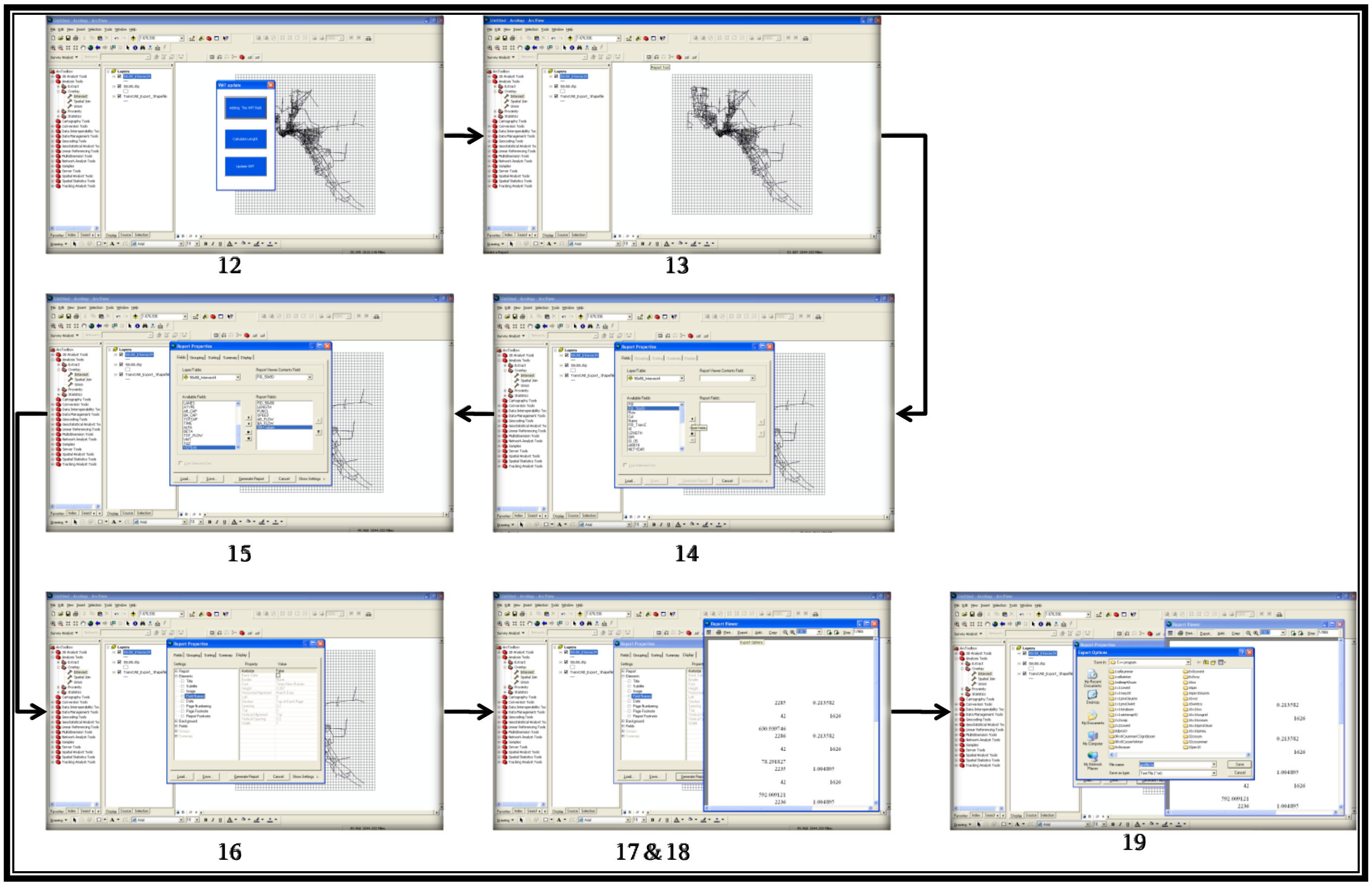

Figure D. 11: ASCII file generation process.

Step 12 represents the execution of the secondary interface of the GIS database module the interface shown has three buttons. The first button, adds VMT values field to the Attribute table of the intersected layer, this added field is aimed to receive the updated VMT after the intersection process. The second button, executes the calculations of the length of the roads after the intersection process cut them. The third button, executes the calculation of the updated VMT for all the roads in the grid. The sequence in which the buttons need to be clicked is defined by the descending order. Step 13 shows the ArcMap screen after the execution of Step 12, apparently nothing happened. However, the Attribute table of the intersect layer has the updated information of the layer i.e., VMT. The generation of the ASCII file is performed with the aid of

one function already built in ArcMap (Report tool). In order to execute this tool the user needs to click on the first icon left to right of the toolbox shown in Figure D.3; this icon executes the Report tool of ArcMap. The Report tool in ArcMap opens a window that enables the user to select the items to report and allows the user to select the format to report it (Step 14 and Step 15 in Figure D.11). The framework requires the selection of seven items: FID_NAME, LENGTH, FUNCL, SPEED, AB_FLOW, BA_FLOW, and VMT values. The first starts with FID and ends with the name given to the intersected layer file. This variable represents the cell identification for all roads in the transportation network. The second variable represents the length of the roads. The third variable represents the type of road. The fifth variable represents the speed of every road in the grid. The sixth and seventh variables represent the vehicle flow, and the last variable represents the updated VMT values. Once the variables are selected the user needs to browse the Display tab located in the same window and uncheck the Fields option (Step 16 in Figure D.11). This is necessary because this step removes the heading from the report. Step 17 and Step 18 on Figure D.11 is to click on Generate report button and then click Export in the Report Viewer screen, respectively. Step 19 is to save the exported file in the correct forma and with the following file name: gridfile.txt. The file needs to be saved in the following path C:\MEIAF\C++ program so that the access of other modules is enabled.

D.4 Execution of the Emission Module

The Emission module is by clicking on the Emission Module button of the GIS database module main interface. This module uses the ASCII file generated by the GIS database module and Data input data module to execute the Post-processing module and MOBILE6.2. Figure D.12 shows a screen shot of the Input data module.

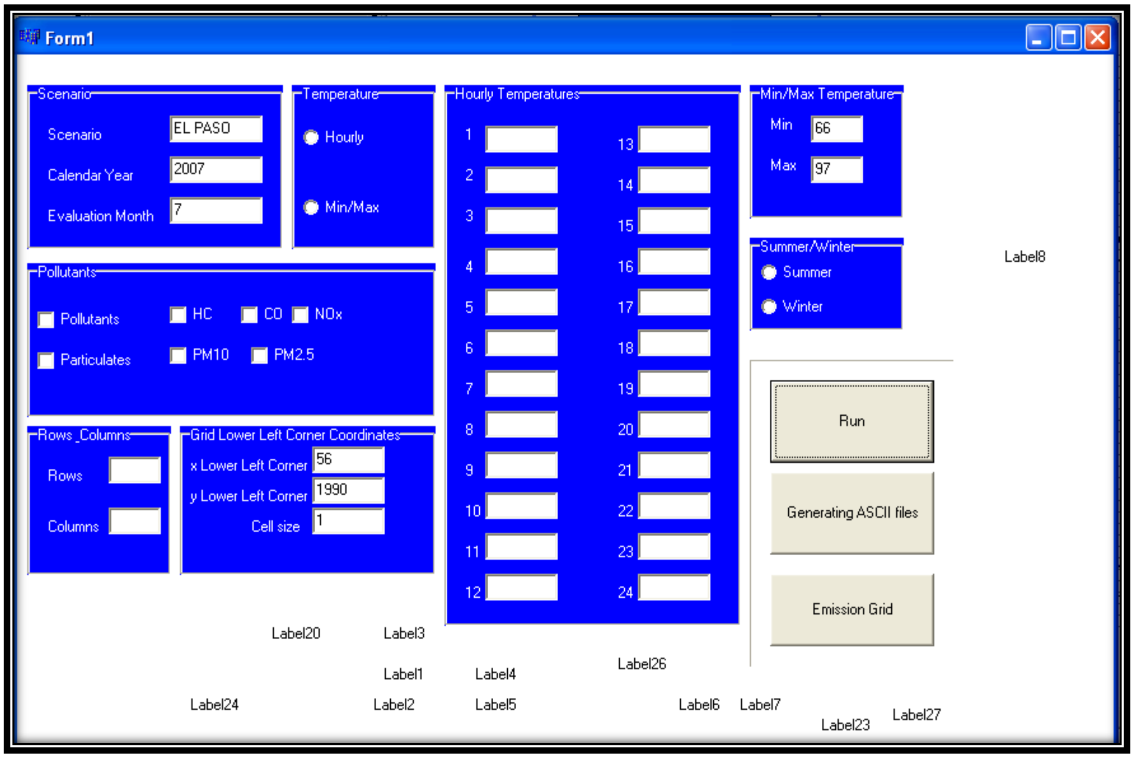

Figure D.12: Data input data module.

The parameters entered in the Data input module are as described in Section 7.2 of Chapter 7. The run button in the Data input module shown in Figure D.12 executes the Post-processor fist and then executes MOBILE6.2. The Generating ASCII files button in the same figure generates a series of ASCII files that contains the information processed by the Post-processor and Mobile6.2. The Emission Grid button generates the ASCII files that contain the emission grid information. The sequence in which this buttons needs to be clicked starts with the Run button first, the Generating ASCII files second, and the Emission Grid third.

D.5 Execution of the Graphical Representation Module

The graphical representation module is the last of the modules to be executed as other calculations need to be performed. The graphical representation module consists of a set of

interfaces that enables the user to generate the emission grids of the pollutants discussed in Chapter 7. Figure D. 13 shows the process that needs to be followed to execute the CO, PM-10 or PM-2.5, and the resuspended dust PM emission grids.

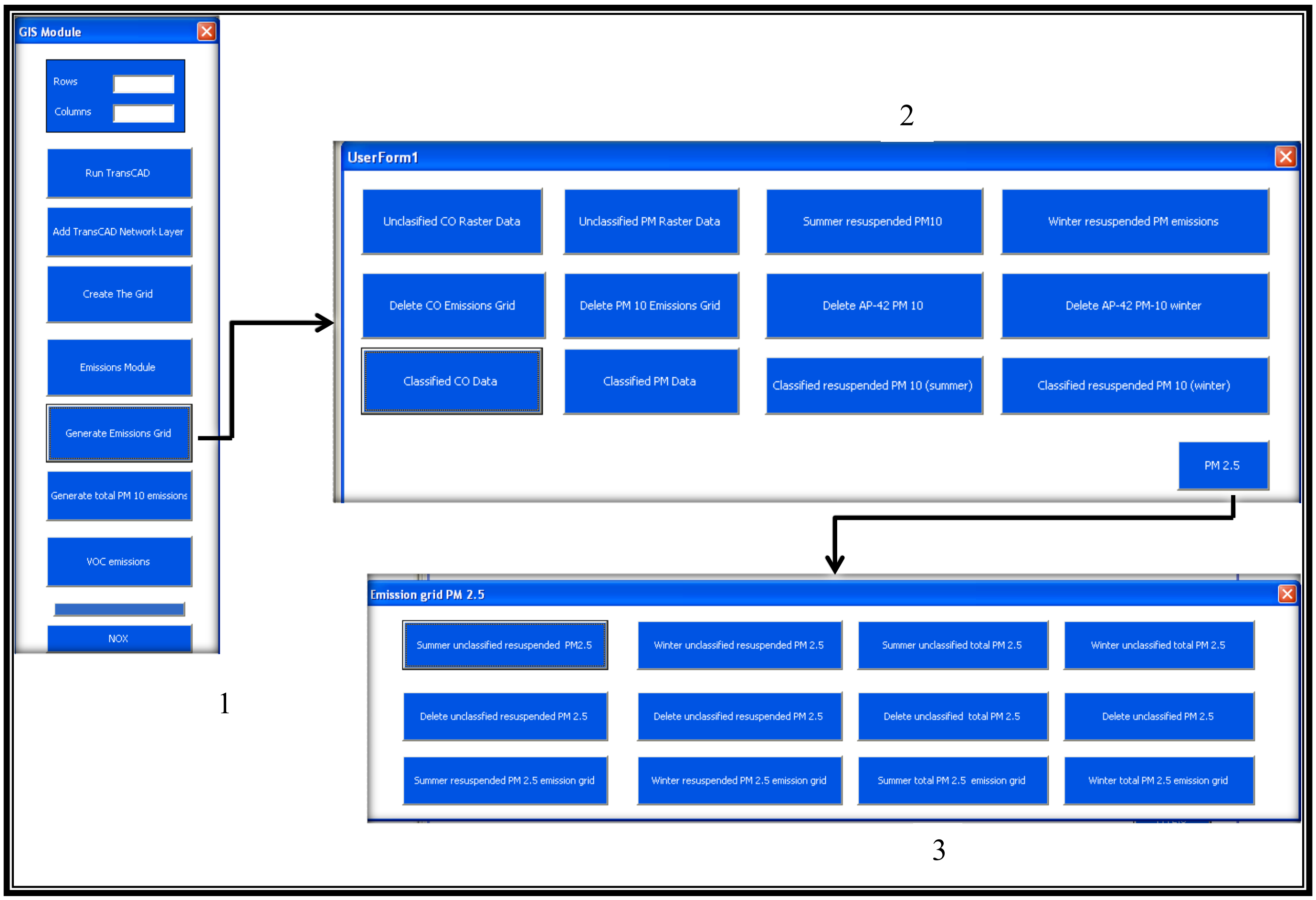

Figure D. 13: Process to execute the CO, PM-10 or PM-2.5, and the resuspended PM emission grids.

Number 1 in Figure D.13 indicates the button that needs to be clicked by the user to open the Graphical representation module. However, this button only opens the interface that enables the generation of the CO, PM-10 or PM-2.5, and the resuspended dust PM emission grids. Number 2 shows the interface that is used to generate each of the emission grids of the pollutants just mentioned. Number 3 in Figure D.13 shows the interface used by the Graphical

representation module to generate the PM2.5 emission grids, this interface depends on the one showed in Number 2 of Figure D.13 to execute. Figure D.14 shows a closer view of the Graphical representation module interface used to generate the CO, PM-10 or PM-2.5, and the resuspended dust PM emission grids.

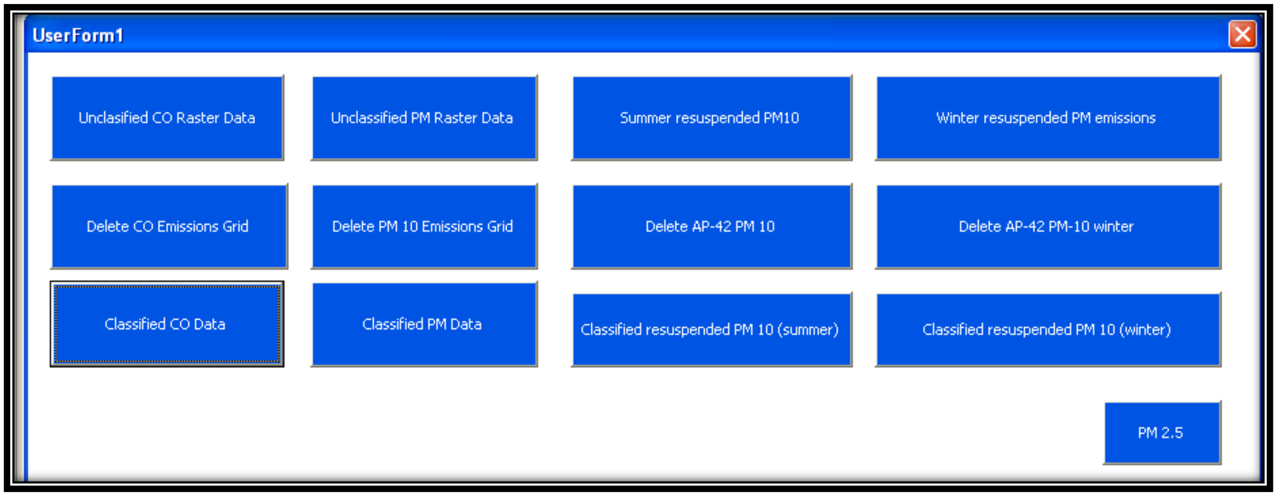

Figure D.14: Graphical representation module to generate CO and PM10 emission grids.

The process that needs to take place when running the Graphical representation module is the following: First, if no emission grids have been built by this module in the past the user can directly click on the Unclassified CO Raster Data button, this button generates the raw emission grid in black and white colors with a Stretched classification method in ArcMap. If the user has built previous emission grids it is necessary to first delete this emission grids form the storing folder by clicking on Delete CO Emission Grid. This is required as the format of the emission grid is a raster format and cannot be overwritten. The third step necessary is to click on Classified interval button, this button open an interface that is used to generate the number of intervals (shown in Figure D.15). In order to obtain the PM2.5 emission grid, it is necessary to be sure that the PM2.5 section of the Data Input module was checked. MOBILE6.2 only allows the

estimation of either PM10 or PM2.5 per run and so the PM size needs to be specified at the beginning. If PM2.5 was entered then clicking on the PM2.5 button opens an interface similar to the one used for PM10 (Figure D.14) and following the steps just described results in the PM2.5 emission grids. Clicking on Generate PM10 emissions, VOC emissions or NOX buttons of Number 1 in Figure D.13 leads to similar interfaces as the one shown in Figure D.14 and following the steps described in this paragraph leads to building the emission grids for the remaining pollutants. The only difference in the interfaces is the name of the pollutant being used. Figure D.15 presents the sequence of operations that needs to be followed to develop the CO emission grid, the remaining emission grids follow the same sequence.

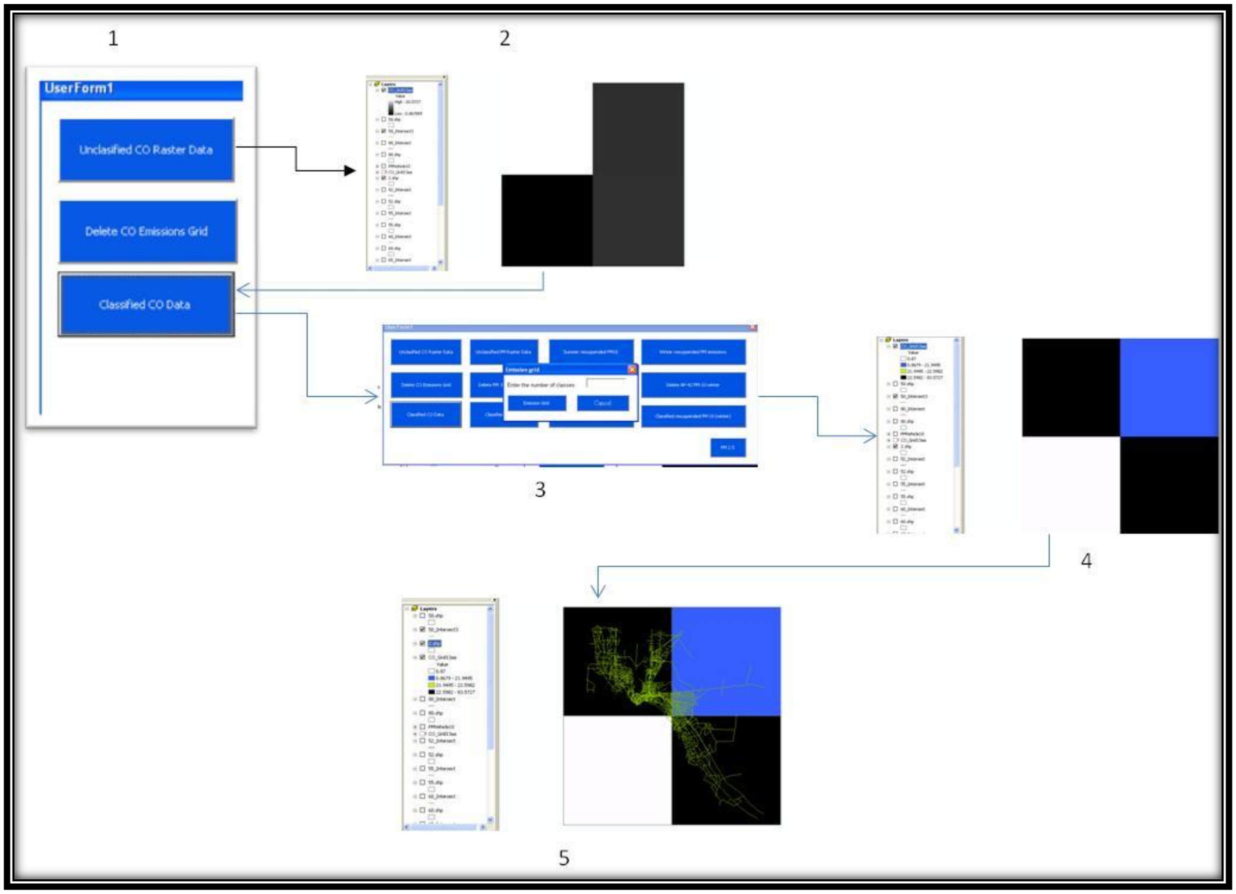

Figure D.15 Sequence of operations for the CO emission grid.

In Figure D.15 the first step is to add the unclassified emission grid, this emission grid is composed of the raw data and only has two colors white for the values closest to the highest and black for the lower values. This emission grid is necessary as the following emission grid uses it as input. The second step in Figure D.15 is to click on Classified CO data in the emission grid interface. This opens another interface called Emission Grid that enables the user to enter the number of classes in the interval (Step 3). Once the number of classes is defined, the emission grid is created with the colors and number of classes (Step 4). The last operation that is performed is to arrange the order in which the layer are positioned, the emission grid originally located first (layer 0) is moved to the third position after the Intersect layer (the intersected transportation network) and the grid (e.g., 2x2, 4x4, 5x5). This enables the user to see the transportation network and the grid above the emission grid (Step 5).

Curriculum Vita

Studied in Ciudad Juarez Chihuahua where he attended the Autonomous University of Ciudad Juarez at the Engineering Institute, from 1996 to 2000 he obtained his bachelor's degree on Manufacture Engineering. At graduate he worked for Kingler International Technologies as supervisor engineer at the same time he was teaching, at the Autonomous University of Ciudad Juarez, assisted drawing with AutoCAD. On 2001 he obtained a scholarship from Chihuahua Government to pursue a master degree, he enrolled at the University of Texas at El Paso, in 2003 obtained the master's degree on Industrial Engineering, with the thesis dissertation "Reach Capabilities in Older Mexican American Adults". When he graduate he was called from the Engineering Institute Director of the Autonomous University of Ciudad Juarez to collaborate with him as Physics Engineer coordinator from august 2003 to august 2004 later he was Basic Science Department Chair from 2004 to 2005; and he still is full time professor.

January 2006 entered the Civil Engineering doctorate program at the University of Texas at El Paso, while his doctorate studies he was teacher assistant for engineering economy and mechanics I subjects as well research assistant with the projects "Permit fee economic assessment for super heavy trucks. New York State, Department of Transportation" and "MOBILE6 modeling of vehicular emissions for two border crossings"

Dr. Mares presented his research on the Annual Meeting 2009 of The Institute of Transportation Engineers (ITE) in San Antonio, TX.

Jose Maria Mares Vazquez, Ciudad Juarez, Chihuahua, Mexico. 2010.