Border Environment Cooperation Commission

Paving and Air Quality Project for the State of Baja California

General Criteria

1.1 Project Type

The State Public Works Agency (Secretaría de Asentamientos Humanos y Obras Públicas del Estado de Baja California, SAHOPE) proposes the street paving project in the Cities of Ensenada, Mexicali, Rosarito, Tecate, and Tijuana in order to reduce dust particles in the atmosphere with a diameter less than 10 microns (PM_{10}).

1.2 Project Location

The project will take place in the 5 most important cities in the State of Baja California: Ensenada, Mexicali, Rosarito, Tecate, and Tijuana. The 5 cities considered for this project fall within the 100 km border region. Figure 1 presents the location of the 5 cities.

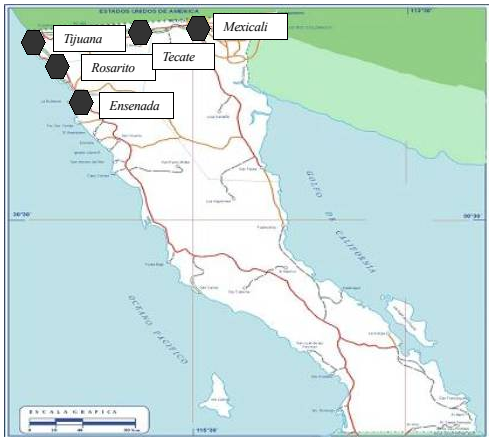


Figure 1 State of Baja California

1.3 Project Description and Work Tasks

Project Description

The project consists of paving approximately 1,780,000 m2 (222 km assuming a street with a width of 8 m) during the first year. The complete project considers paving 14,900,000 m2 (1,860 km) in the 5 cities. Appendix 1 presents a more detailed description of the streets proposed for paving.

Description of the Community

The 5 cities benefited as part of this project are: Ensenada, Mexicali, Rosarito, Tecate, and Tijuana. Table 1 presents Census 2000 population.

Table 1. Population

City	Population
Ensenada	370,730
Mexicali	764,602
Rosarito	63,420
Tecate	77,795
Tijuana	1,210,820

The communities have a paved street coverage according to the data presented in Table 2. The purpose of this program is to achieve 80 to 85 percent of the total streets paved in 5 years.

Table 2. Paved Street Coverage

City	Paved Coverage
Ensenada	38
Mexicali	44
Rosarito	55

Tecate	*35*
Tijuana	*55*

1.4 Conformance with International Treaties and Agreements

There are no international treaties or agreements related to this project. However, due to the fact that the border Cities have shared air basins, this project will have positive impacts in both sides of the border.

Human Health and Environment

2.1 Human Health and Environmental Need

PM_{10} can be defined as solid or liquid particles, such as dust, ash, metallic particles, cement, or pollen that are dispersed in the atmosphere and have a diameter equal or less than 10 microns. Some elements can be associated with these particles, such as lead, arsenic, beryllium, cadmium, mercury, sulfates, nitrates and aromatic hydrocarbons.

The determining factor in the impact on human health is the particle size, due to the capabilities to penetrate and remain in the respiratory system. The majority of the particles whose diameter is less than 5 microns are deposited in the superior respiratory parts, in the traquea and the bronchia.

The impacts on human health related to long exposures to fine particles include:

a. *Irritation of the eyes and nose*
b. *Increase in the incidences of respiratory diseases*
c. *Asthma*
d. *Reduction in lung efficiency*
e. *Increase in respiratory symptoms*

Once these particles are deposited in the respiratory system, its irritating capabilities is due to its chemical composition and its toxicity, and its capabilities to absorb and adsorb other compounds in its surface.

In 1996, the U.S. Environmental Protection Agency (EPA) published the document "Air Quality Criteria for Particulate Matter. This document has an evaluation of particulate matter in human health. Part of the conclusions of the document express the fact that most of the health problems suggest exposure to particulate matter in the air in the short- and long-term.

The Mexican Official Norm NOM-025-SSA1-1993 determines the maximum limits of PM_{10} concentrations in the air. The limits are 50 $\mu g/m^3$ as an annual average for chronic exposure, and 150 $\mu g/m^3$ in a 24-hour period once a year for acute exposure. It is important to mention that the U.S. standard for PM_{10} particles are the same as the Mexican standards.

The following section presents the date from the monitoring stations obtained in Tijuana and Mexicali. Ensenada and Rosarito do not have monitoring stations, and Tecate has a monitoring station that is part of the results presented for Tijuana.

Mexicali

Since 1996, the City of Mexicali operates several monitoring stations for air quality. The reports from the monitoring stations indicate that PM_{10} is the major contributor to air quality problems in the City. There is an emissions inventory (data since 1996) [www.ine.gob.mx/dgicurg/calaire/difusion.html] that indicates that 63 percent of the PM_{10} volumes (53,689 tons/year) is originated due to cars traveling through unpaved streets. According to 1997 data, the Official Norm for air quality was exceeded 91 days of the year.

The following table presents annual average data for PM_{10} in various locations in the Mexicali area:

	Annual average of PM_{10} ($\mu g/m^3$)			
Station	1998	1999	2000	2001
Tecnológico	48	58	62	52
UABC	81	87	96	79
CBTIS 21	49	54	54	45
COBACH-BC	128	151	169	136
CONALEP	67	85	71	67
Col. Progreso	148	194	265	217

It is clear from the data presented that the PM_{10} concentrations exceed the official norms for chronic exposure.

According to the Municipal Development Council of Mexicali (Consejo de Urbanización Municipal de Mexicali) the following surfaces have been paved in the past years:

Year	Area (m^2)
1997	87,365
1998	80,177
1999	70,147
2000	65,596
2001	73,833
2002	78,375

This information has been analyzed according to the method described in the following section, in order to evaluate the reductions in PM_{10} particles due to street paving:

Year	Reduction of PM_{10} (Tons/year)
1997	645
1998	592
1999	518
2000	484
2001	545
2002	579

The average reduction of PM_{10} particles per year is 560 tons. Considering a generation of 53,689 tons per year of PM_{10} particles, the average efforts for street paving reduces PM_{10} particles by 1 percent. Therefore it is necessary to increase the rate of street paving to protect human health by reducing the particulate matter in the atmosphere.

Tijuana

The City of Tijuana has a total of 6 monitoring stations that measure concentrations of O_3, NO_2, SO_2, and CO, as well as temperature, relative humidity, wind direction and velocity, and suspended particles and PM_{10}. Two additional stations in Tijuana measure suspended particles and PM_{10}.

The following table presents the annual average data obtained throughout the City of Tijuana:

	Annual average PM_{10} ($\mu g/m^3$)			
Station	1998	1999	2000	2001

Tecnológico	*48*	*55*	*51*	*45*
Centro de Salud	*49*	*58*	*51*	*51*
La Mesa	*65*	*66*	*59*	*65*
Playas de TJ	*38*	*42*	*38*	*36*
Rosarito	*-*	*-*	*61*	*51*

The data obtained in the Tijuana monitoring stations shows that in most cases, the PM_{10} concentrations exceed those allowed in the Mexican official norms for chronic exposure.

According to the emissions inventory for Tijuana, 76 percent of the 23,563 tons/year of PM_{10} generated in the area originate from vehicle circulation over unpaved streets.

An important factor in the City of Tijuana is the excessive rate of urban growth. It is impossible for the City to keep up with the growth and provide adequate services. This project is justified in order to eliminate part of the backlog of street paving in the area generated by excessive growth in the City. Street paving in the region can seriously improve air quality and human health.

One last observation relates to the fact that the monitoring stations are located within the urban centers and do not reflect the PM_{10} concentrations in the areas mentioned of excessive growth, where most of the unpaved streets are found.

Methodology to estimate the PM_{10} reduction by street paving

The model suggested by the U.S. EPA "AP-42 Compilation of Air Emission Factors" was used in order to determine the dust emissions from vehicle circulation on unpaved streets. The model also provides results for dust emissions resulting from vehicle circulation on paved streets. Then the difference was obtained from circulation over unpaved streets and paved streets to determine the benefit of paving streets.

The model used to determine PM_{10} particles generated in unpaved streets is the following:

$$E = \frac{k\,(s/12)^{a}\,(W/3)^{b}}{(M/0.2)^{c}}$$

where:

E = *Emissions of particulate matter in pounds (lb) per vehicle miles transited (VMT)*

S = *Clay contents in the surface material (%)*

W = *Average weight of vehicles circulating through the street (ton)*

M = *Moisture content of the surface material (%)*

In addition, **k**, **a**, **b**, *and* **c** *are constants obtained from direct measurements and relative to the particulate matter that is being estimated. For PM_{10} the following apply:*

Constant	PM_{10}
k (lb./VMT)	*2.6*
a	*0.8*
b	*0.4*
c	*0.3*

On a different note, the model used to estimate particulate matter generated on paved streets is the following:

$$E = k\,(sL/2)^{0.65}\,(W/3)^{1.5}$$

Where,

E = *Emissions of particulate matter in the units of* **k** *(lb/VMT)*

k = *Multiplying factor based on the size of the particulate estimated*

W = *Average weight of vehicles circulating through the street (ton)*

sL = Load of particulate matter over the street (g/m^2)

The multiplying factor for "k" relative to PM_{10} and in units of g/VKT (grams per vehicle kilometer transited) is 4.6.

These factors, in units of weight over total kilometers transited, were multiplied for every year and the number of paved kilometers to obtain the reduction in the contribution of PM_{10} emission:

$$\mathbf{D} = [E_{streets\ without\ paving} - E_{paved\ streets}] \times Km_{paved} \times Transit_{vehicles/year}$$

Where D is the reduction in the PM_{10} emissions due to traffic over unpaved streets in tons per year.

Model for PM_{10} pollution reduction in Mexicali

In the case of Mexicali, the following values were used: clay percentage [11%], humidity contents

[1.3%], average vehicle weight [1.9 tons].

The information was obtained from the Municipal Development Council. The streets that are proposed for paving are mostly residential streets with an width varying from 6 to 10 meters and a traffic volume of 200 to 800 vehicles per day. For purpose of the model, an average street width of 8 meters will be considered, as well as 500 vehicles per street per day.

The projections for the purpose of this study are consistent with the timeline of this project: from 2003 to 2007. The following table presents the results of the modeling:

		Vehicle traffic			PM10 emissions (Tons/year)		
Year	Km	Day	Year	VKT/year	Not paved	Paved	Reduction
1997	10.92	500	182,500	1,993,014	646.79	1.61	645.18
1998	10.02	500	182,500	1,829,038	593.58	1.48	592.10
1999	8.77	500	182,500	1,600,228	519.32	1.30	518.03
2000	8.20	500	182,500	1,496,409	485.63	1.21	484.42
2001	9.23	500	182,500	1,684,315	546.61	1.36	545.25
2002	9.80	500	182,500	1,787,930	580.24	1.45	578.79
2003	71.51	500	182,500	13,049,708	4,235.02	10.57	4,224.45
2004	73.40	500	182,500	13,395,956	4,347.39	10.85	4,336.54
2005	76.05	500	182,500	13,878,532	4,504.00	11.24	4,492.76
2006	79.76	500	182,500	14,557,090	4,724.21	11.79	4,712.42
2007	77.48	500	182,500	14,139,347	4,588.64	11.45	4,577.19

The emissions factor for traffic over unpaved streets is E = 324.53 g/ VKT, which is to say that for every kilometer transited, a total of 324.53 grams of PM_{10} are released to the atmosphere. The value from the emissions inventory for Mexicali is 306.53 g/VKT, which is very similar to the one obtained as part of this model.

The emissions factor for traffic over paved streets is estimated at E = 0.81 g/VKT, which represents 0.81 grams of PM_{10} released for every kilometer transited. The previous table presents the reduction of PM_{10} obtained by street paving.

Model for PM_{10} pollution reduction in Tijuana

The same values were considered for the Tijuana model as for the Mexicali model. Even though the particular values might change from community to community, for purposes of the model, the reductions in PM_{10} particles due to paving should not change significantly.

The same values were used for Tijuana for the model: 8 meter average street width and 500 vehicles per day per street.

The projected surface paved for Tijuana is as follows:

SURFACE PAVED		
Year	m^2	km
2003	1,204,043	150.51
2004	1,185,831	148.23
2005	1,167,093	145.89
2006	1,266,730	158.34
2007	1,709,278	213.66

Applying the methodology described previously and the constants assumed for the model, we have the following results:

		Vehicle traffic			PM10 emissions (ton/year)		
Year	Km	Day	Year	VKT/year	Not paved	Paved	Reduction
2003	150.51	500	182,50	27,467,23	8,913.9	22.25	8,891.6
2004	148.23	500	182,50	27,051,77	8,779.1	21.91	8,757.2
2005	145.89	500	182,50	26,624,30	8,640.3	21.57	8,618.8
2006	158.34	500	182,50	28,897,27	9,378.0	23.41	9,354.6
2007	213.66	500	182,50	38,992,90	12,654.3	31.58	12,622.7

Just as in the case of Mexicali, the emissions factor for traffic over unpaved streets is E = 324.53 g/ VKT, which is to say that for every kilometer transited, a total of 324.53 grams of PM_{10} are released to the atmosphere, and the emissions factor for traffic over paved streets is estimated at E = 0.81 g/VKT, which represents 0.81 grams of PM_{10} released for every kilometer transited

2.2 Environmental Assessment

SAHOPE has prepared an environmental document, in the form of an Informe Preventivo in order to comply with the State environmental requirements. The determination of impact by the State of Baja California is expected on late-February, 2003.

2.3 Compliance with Applicable Environmental and Cultural Resource Laws and Regulations

Environmental Laws and Regulations

The purpose of this project is to improve air quality and comply with the Mexican Official Norm NOM-025-SSA1-1993, which determines the maximum limits for PM_{10} concentration in the atmosphere.

Technical Feasibility

Both asphalt and hydraulic pavement are being considered for this project. The following section describes the justification for choosing each particular type of pavement.

3.1 Appropriate Technology

It is important to mention that in the Imperial Basin (Mexicali area) asphalt pavement will be used. In the San Diego Basin (Ensenada, Rosarito, Tecate, and Tijuana) hydraulic pavement will be used.

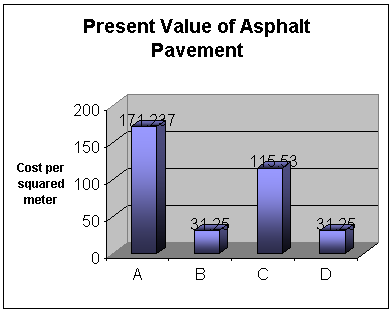
The use of asphalt pavement in Mexicali will allow lower maintenance costs, due to the fact that it doesn't crack as often due to its flexible properties. This is important in excessively hot places, such as Mexicali.

Also, due to the fact that the Mexicali area does not experience frequent rain events, the asphalt pavement lasts longer. In addition, asphalt pavement is recommended in areas with high clay and heterogeneous soils due to the fact that it is better fit for soil displacements.

Asphalt pavement does not have joints, which prevents dust deposits, thus providing a better design to reduce particle emissions.

Present value

The use of asphalt pavement is better once cost considerations are taken into account. A present value analysis determines that asphalt pavement is better suited for the Mexicali area.



A: Cost of asphalt pavement
B: Sealing after 7 years.
C: Recarpet at 12 years.
D: Sealing at 19 years.

Analyzing the costs of asphalt pavement and its maintenance cost after 20 years and taking into account a 4 percent inflation factor, the present value is as follows (per m^2):

Cost of asphalt pavement: $171.237

Cost of sealing after 7 years: $31.25 and a present value of $41.22

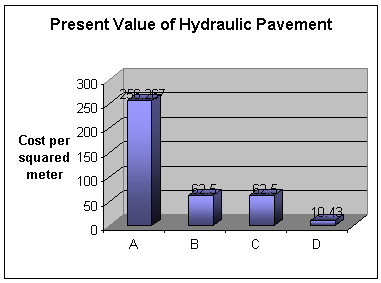
Cost of recarpeting after 12 years: $115.53 and a present value of $184.96

Cost of sealing after 19 years: $31.25 and a present value of $65.83.

Adding these costs brings the cost of installing the asphalt pavement and maintaining it at: $463.24 per m^2.

The following is a present worth analysis of hydraulic pavement:

A: Cost of hydraulic pavement
B: Sealing after 8 years.
C: Sealing after 16 years.
D: Replacement of damaged hydraulic concrete after 20 years.



The following present value analysis assumes a 4 percent inflation rate (per m^2):

Cost of hydraulic pavement: $256.27

Cost of sealing after 8 years: $62.5 and a present value of $85.53

Cost of sealing after 16 years: $62.5 and a present value of $117.06

Cost of replacing damaged hydraulic pavement after 20 years: $10.43 and a present value of $22.85

Once these costs are added, the present value of installing and maintaining hydraulic pavement is $481.70 per squared meter.

In comparison, we can see that the cost of hydraulic pavement is lower than the cost of asphalt pavement, but once the maintenance costs are added, we can see that the asphalt pavement present value is lower than hydraulic pavement.

Installed capacity

Tijuana-Rosarito

The Cities of Tijuana and Rosarito have 6 firms that fabricate hydraulic concrete for paving. These firms have a production capacity of 8,400 m^3/day and produce 2,184,000 m^3 per year. Also, these firms have 5 factories of asphalt concrete and a capacity to produce 2,140 m^3/day and 556,400 m^3 annually.

Ensenada

The City of Ensenada has 5 firms that produce hydraulic concrete with a total capacity of 1,080 m^3/day and an annual production of 280,800 m^3. In addition, they have 2 factories producing asphalt concrete with a daily capacity of 480 m^3, and an annual capacity of 124,800 m^3.

Tecate

The City of Tecate has 1 firm that produces hydraulic concrete with a daily capacity of 400 m^3 and an annual capacity of 104,000 m^3. There are no firms producing asphalt concrete.

Mexicali

The City of Mexicali has 5 firms producing hydraulic concrete with a daily capacity of 4,520 m^3/day and an annual capacity of 1,175,200 m^3. It also has 6 firms producing asphalt cement with a daily capacity of 2,450 m^3/day and an annual production of 637,000 m^3.

The following table presents the required volumes of hydraulic concrete:

Municipality	Volume required m^3/year	m^3 / day	m^3 / year	Utilization percentage
TIJUANA ROSARITO	*329,000*	*8,400*	*2,184,000*	*55*
ENSENADA	*74,769*	*1,080*	*280,800*	*60*
TECATE	*24,500*	*400*	*104,000*	*50*
MEXICALI	*- -*	*4,520*	*1,175,200*	*60*
TOTAL	*428,269*		*3,744,000*	

The following table presents the required volumes of asphalt concrete:

Municipality	Volume required m^3/year	m^3 / day	m^3 / year	Utilization percentage
TIJUANA - ROSARITO	*109,571*	*2,140*	*556,400*	*40*
ENSENADA	*- -*	*480*	*124,800*	*15*
TECATE	*- -*	*- -*	*- -*	*- -*
MEXICALI	*30,250*	*2,450*	*637,000*	*40*
TOTAL	*139,821*		*1,318,200*	

3.2 Operation and Maintenance Plan

The operation and maintenance of the paved streets will be responsibility of the municipalities where the project is executed.

3.3 Compliance with Applicable Design Regulations and Standards

There is final design for the street paving. As it was indicated both hydraulic and asphalt pavement will be used, depending on the City. There is final design for each type of paving material.

Financial Feasibility

4.1 Financial Feasibility

The cost of the first phase of the project is estimated at $494,000,000 pesos ($47 million dollars assuming an exchange rate of 10.5 pesos to the dollar.) The cost of the overall project in 5 years is $4,634,000,000 pesos. The NADB performed a loan analysis for the project. In addition to the NADB loan, the Federal and State Governments will provide funding for the project, as well as each Municipality. The NADB loan will be used to pay for the citizens' contribution to the project. The repayment period for the citizens will be 12, 24, 36, or 48 months. The following tables presents the funds identified for the first phase of the project, as well as the contribution by the citizens.

Project Costs (Phase 1, in million pesos)

Concept	Amount	Percentage
Cost of project	**439.1**	**100%**
State Government	**123.7**	**28%**
Municipalities	**123.7**	**28%**
Total from Governments	**247.4**	**56%**
Down payment – Citizens	**22**	**5%**
Loan – NADB	**197.6**	**45%**
Total Funding	**466.9**	**106%***

***Includes cost for supervision and contingencies.**

Project cost and contributions by citizens (in pesos)

Paving cost per citizen (average): $12,000		
Contributions		
Government	*$7,200*	*60 %*
Citizens – Cost of project	*$4,800*	*40 %*
Total	*$12,000*	*100 %*
Charged to citizens		
Project cost	*$4,800*	
Administrative cost @ 10%	*$480*	
Total	*$5,280*	

Payments by Citizens (in pesos)

Paving cost per citizen (average): $12,000		
Charged to citizens		**$5,280**
Down payment (10%)		**$528**
Payment in installments		**$4,752**
Total paid		**$5,280**
Repayment period	**Monthly installment**	**Total payments**
12 months	**$442**	**$5,310**
24 months	**$244**	**$5,861**
36 months	**$179**	**$6,445**
48 months	**$147**	**$7,063**
Interest rate		**12 % (annual)**
Operation cost of project		**5.7 % (annual)**
Interest rate charged to citizen		**17.7 % (annual)** **1.48 % (monthly)**

4.2 Fee/Rate Model

There will be no rates established for this project besides the cost to repay the loan.

4.3 Project Management

The State Development Authority (SDA) will administer this project. The Development Authority is a decentralized public agency with the authority to perform public works, as well as its administration. The SDA has jurisdiction throughout the State of Baja California and is based in the capital, Mexicali. Its boards are formed by a representative from the State Governor, who acts as its president and also the following members:

1. *The Governor's Secretary*
2. *The State Finance Secretary*
3. *The State Development Secretary*
4. *A representative from the State Real Estate Agency*
5. *A representative from the State Development Agency for Rural Areas*
6. *A representative from the State Institute of Housing*
7. *A representative from the State Chamber of Commerce and Tourism*
8. *A representative of the State Chamber of Industry*
9. *A representative of the Private Sector*
10. *A representative from the State College of Engineers and Architects*
11. *A representative from the State Banks*
12. *A representative from the providers of public works in the State*
13. *A representative of the Real Estate agencies in the State*
14. *A representative of the workers unions*
15. *A representative of the larger farmers' unions*

Also, the Mayors of the Cities and the Directors of the local utilities are members of the SDA. The SDA also has a General Manager appointed by the State Governor.

Characteristics of the SDA

These are some of the functions and responsibilities of the SDA:

1. *Carry out technical studies related to infrastructure projects as considered by SAHOPE*
2. *Execute projects approved by SAHOPE*
3. *Prepare bid documents according to the Public Works law*
4. *Receive and sign loan documents*
5. *Follow up on construction contracts*
6. *Establish equity taxes on property affected by public works*

7. *Charge for the cost of the public works.*

Community Participation

Public Participation Process: *A State Follow-up Commission was established for the project. This Commission will support the public participation process and will work with the municipalities to ensure a successful process. This Commission was formed on November 21, 2002 and is formed by the State Planning and Development Committees (COPLADE), as well as community representatives and the Municipal Steering Committee Presidents.*

Steering Committee*: Steering Committees were formed in each municipality. These were formed in November and December of 2002 according to the following list:*

a. *Rosarito, BC: formed on November 3, 2002. President: Mr. Miguel Angel Cubillas*
b. *Ensenada, BC: formed on December 10, 2002. President: Mr. Hector Covarrubias*
c. *Tecate, BC: formed on December 6, 2002. President: Mr. Jose Palafox*
d. *Mexicali, BC: formed on December 7, 2002. President: Mr. Andres Ramon Diaz Velazquez*
e. *Tijuana, BC: formed on December 9, 2002. President: Mr. Jorge Alberto Gutierrez Topete*

Public Participation Plan: *The State Follow-up Commission prepared a Public Participation Plan on September 12, 2002. The Plan was approved by the BECC on December 16, 2002.*

Public Information*: Information on the project has been distributed via pamphlets. Also, radio and television stations were used to promote the project.*

Public Meetings*: The public meetings were advertised with 30 days notice, according to the BECC Criteria. The Municipal Steering Committees held their public meetings with attendance over 800 persons per meeting. The meeting dates for the first public meeting were as follows:*

a. *Ensenada and Rosarito: January 14, 2003*
b. *Tijuana: January 15, 2003*
c. *Mexicali: January 16, 2003*
d. *Tecate: January 17, 2003*

There was an active participation by the attendees, with special interest in the cost to the citizens and the starting date for the paving activities.

The second round of public meetings took place according to the following dates:

i. *Mexicali: January 28, 2003*
ii. *Ensenada: January 29, 2003*
iii. *Tecate: January 29, 2003*
iv. *Tijuana: January 30, 2003*
v. *Rosarito: January 30, 2003*

Sustainable Development

The project was developed within the context of sustainable development. Sustainable development integrates environmental, social and economic needs of a community through the protection of natural resources and its sustainable use.

Definition and Principles

The project followed the definition principles of sustainable development:

Principle 1 of the Sustainable Development Criteria indicates that a project must produce a benefit for human health. The project fulfills this principle as detailed below.

The project will improve air quality in the municipalities of Ensenada, Mexicali, Rosarito, Tecate, and Tijuana.

Principle 2 states that a project must be implemented in a way that provides equitable development both in present and in future. The project fulfills the principle as discussed below.

The project will reduce particulate matter in the atmosphere and will improve vehicle traffic and will allow for economic development.

Principle 3 indicates that a project must have an integrated component of environmental protection. The project contemplates the following.

The reduction PM_{10} particles in the area.

Principle 4 states that residents must participate in the development and implementation of the project.

Several public meetings have taken place. The citizens that will benefit from the project will be supported by a NADB loan.

Institutional and Human Capacity Building

The project will be operated by the State Development Authority. A foundation will be established in order to receive all the funding from the participating agencies.

Conformance with Applicable Local and Regional Conservation and Development Plans

The project complies with the Urban Development Plans for each of the municipalities.

Community Development

The project will promote community development by paving streets and reducing the incidence of respiratory diseases.

List of relevant documents:

- *Task Summary*
- *Certification Document*
- *Model Final Design*
- *Comprehensive Public Participation Program for the Air Quality and Street Paving Project.*