# Border Environment Cooperation Commission

## Air Quality and Street Paving Project in Nuevo Laredo, Tamaulipas

### 1. General Criteria

<table>
<thead>
<tr>
<th>1.a Project Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Name:</strong></td>
<td>Street Paving and Organized Community Program (Programa de Pavimentación y Sociedad Organizada, PASO) in Nuevo Laredo, Tamaulipas</td>
</tr>
<tr>
<td><strong>Project Sector:</strong></td>
<td>Air Quality</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.b Project Category</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Category:</strong></td>
<td>Community environmental infrastructure project – Community-wide impact</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.c Project Location and Community Profile</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communities:</strong></td>
<td>Nuevo Laredo</td>
</tr>
<tr>
<td><strong>Location:</strong></td>
<td>Located in the northeastern part of the State of Tamaulipas.</td>
</tr>
<tr>
<td><strong>Location within the border:</strong></td>
<td>Within the 100 km border area</td>
</tr>
</tbody>
</table>

Figure 1 shows the location of Nuevo Laredo, in the northeastern part of the State of Tamaulipas.

![Figure 1. Location of the City of Nuevo Laredo in the State of Tamaulipas](image)
<table>
<thead>
<tr>
<th>Demographics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Current population:</td>
<td>373,419 (estimated CONAPO 2008)</td>
</tr>
<tr>
<td>Growth rate:</td>
<td>2.48%</td>
</tr>
<tr>
<td>Reference:</td>
<td>INEGI Year: 2005/CONAPO</td>
</tr>
<tr>
<td>Economically active population:</td>
<td>116,674</td>
</tr>
<tr>
<td>Reference:</td>
<td>National Municipal Information System (<em>Sistema Nacional de Información Municipal, SNIM</em>)</td>
</tr>
<tr>
<td>Median per capita income:</td>
<td>$4,706 USD/year</td>
</tr>
<tr>
<td>Reference:</td>
<td>BECC estimations based on statistics by INEGI and the National Commission on Minimum Wages</td>
</tr>
<tr>
<td>Primary economic activities:</td>
<td>Manufacturing industry, trade, transportation, and communications</td>
</tr>
<tr>
<td>Marginalization Rate:</td>
<td>1.63312, very low (CONAPO)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Services</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Water System:</td>
<td></td>
</tr>
<tr>
<td>Water coverage:</td>
<td>98%</td>
</tr>
<tr>
<td>Water supply source:</td>
<td>Rio Grande</td>
</tr>
<tr>
<td>Connections:</td>
<td>68,369</td>
</tr>
<tr>
<td>Wastewater Collection System:</td>
<td></td>
</tr>
<tr>
<td>Wastewater coverage:</td>
<td>80%</td>
</tr>
<tr>
<td>Domestic hookups:</td>
<td>55,811</td>
</tr>
<tr>
<td>Wastewater Treatment:</td>
<td></td>
</tr>
<tr>
<td>Wastewater treatment coverage:</td>
<td>40%</td>
</tr>
<tr>
<td>Solid Waste:</td>
<td></td>
</tr>
<tr>
<td>Solid waste collection coverage:</td>
<td>90%</td>
</tr>
<tr>
<td>Street Paving:</td>
<td></td>
</tr>
<tr>
<td>Street paving coverage:</td>
<td>58%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.d Legal Authority</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project applicant:</td>
<td>City of Nuevo Laredo, through the Secretariat of Public Works, Urban Development, Environment, and Municipal Services (SOPDUMASM, in Spanish)</td>
</tr>
<tr>
<td>Legal representative:</td>
<td>Mario Alberto Salinas-Falcón</td>
</tr>
<tr>
<td>Date of instrument:</td>
<td>State of Tamaulipas Official Daily No. 1, January 1st, 2008</td>
</tr>
</tbody>
</table>
Compliance with Agreements:
- 1983 La Paz Agreement, or Border Environment Agreement
- 1990 Integrated Border Environmental Plan (IBEP)
- Border 2012 Program

1.e. Project Summary

Project Description and Scope:
The project consists of paving roadways in Nuevo Laredo, Tamaulipas, using hydraulic or asphalt pavement.

Components:
Paving
The scope of the project is as follows:
- Paving 900,000 m² of roadways, equivalent to increasing street paving coverage from 58% to 80% in the seat of the municipality.
- The project will pave 3 sectors in the city's southwest area.
- The proposed paving layout will be: 68% hydraulic concrete and 32% asphalt pavement.
- The project will be executed over a period of sixteen months, with construction tasks beginning in January 2009.

The road paving study identified 3 sectors that include 13 subdivisions. Overall, the study shows a high proportion of paved streets in the city's central areas. The sectors with more significant street paving issues are located in the city's west and south areas; the south area has approximately 50 percent unpaved roadways, primarily in the fast-growing outskirts of the city.

Population Benefited:
120,000 residents

Project Cost:
US $61.58 million

Project Map:
The following figures show the main sectors of the city that have been included in the street paving program.
Figure 1. Location of Sector 1 in Nuevo Laredo, State of Tamaulipas

Figure 2. Location of Sector 2 in Nuevo Laredo, State of Tamaulipas
Project Justification:

- The project is needed to reduce the concentration of PM$_{10}$ particles in the Nuevo Laredo airshed.

- The proposed tasks will immediately reduce the amount of suspended particles released by vehicular traffic traveling on unpaved surfaces and disturbed by the gusty winds that frequently batter the city. These improvements, without a doubt, will help reduce respiratory system illnesses and allergies, which are rather common in the region.

- During the rainy season, the lack of pavement results in rain water pools forming on the surface of local roadways, which also become sources of skin infections, primarily due to direct human contact with contaminated water.

- The project will also have a secondary effect by reducing the time required for travel by the average...
vehicle in the urban area, which will reduce the emission of combustion particles.

Project Need or Consequences of the No Action Alternative:

- The City of Nuevo Laredo, Tamaulipas, faces a severe air pollution problem caused by suspended particles associated to the use of vehicles on unpaved roadways, a condition that is exacerbated by the action of prevailing winds.

- The no-action alternative means that the problem associated with dispersion of PM$_{10}$ into the atmosphere will be aggravated, a situation that may pose respiratory health problems to area residents. This is due to the fact that sustained exposure to particulate matter that originates from vehicular fuel combustion and vehicular traffic circulating on unpaved roadways may cause eye and nose irritation and an increase in respiratory problems. Street paving is the only proven and viable alternative to reduce particulate matter produced by vehicle traffic.

Prioritization Process Category: N/A

Pending Issues:

None.

Criterion Summary:

The project consists of paving roadways in Nuevo Laredo, Tamaulipas using hydraulic or asphalt pavement, thus increasing street paving coverage from 58% to 80%. The project is defined as an air quality improvement effort. The project is located within the 100 km border area.
## 2. Human Health and Environment

### 2.a Compliance with Applicable Environmental and Cultural Resource Laws and Regulations

<table>
<thead>
<tr>
<th>Environmental and Public Health needs addressed by the proposed project:</th>
<th>The effects on human health directly related to prolonged exposure to fine particulate matter (particles with a diameter of 10µm or less) are eyes and nose irritation, an increase in respiratory illnesses, aggravation of asthma, a decrease in lung performance, and an increase of symptoms related to respiratory problems. The effects on human health are determined by the size of the particles, according to their degree of penetration and their permanence in the respiratory system. Most of the particles with a diameter larger than 5 µm are deposited in the upper airways (nose), windpipe and bronchial tubes. Particles with a smaller diameter have a higher probability of being deposited in the bronchi and pulmonary alveoli; therefore, smaller particles are more harmful to human health.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The project meets the following applicable environmental laws and regulations:</td>
<td>Beneficial environmental impacts that will result from the project's implementation include a reduction in the concentration of PM$<em>{10}$ particles in the Nuevo Laredo airshed. Failure to implement the project will continue aggravating the problem of PM$</em>{10}$ particles being dispersed into the atmosphere.</td>
</tr>
<tr>
<td></td>
<td>Official Mexican Norm NOM-025-SSA1-1993 establishes the maximum limits of PM$_{10}$ concentration in the environment, necessary to protect public health. These limits are 50 µg/m$^3$ as the annual average for chronic exposure, and 150 µg/m$^3$ over 24 hours once a year, in case of acute exposure.</td>
</tr>
<tr>
<td></td>
<td>Since these projects will be carried out within existing urban areas and roadways, a consultation with the National Anthropology and History Institute (INAH, in Spanish) is not required. Disturbances of any cultural or historical resources are not anticipated; however, should any cultural resources be found, construction tasks will be deferred until an assessment is performed by the INAH.</td>
</tr>
</tbody>
</table>
### 2.b Human Health and Environmental Impacts

#### Human Health Impacts

**Direct and indirect benefits to human health:**

- The project will reduce air pollution.
- The project will help reduce respiratory illnesses.

**Health statistics:**

In 1996, the US Environmental Protection Agency (EPA) published a document titled *“Air Quality Criteria for Particulate Matter”* (AQC PM) that discusses, among other aspects related to air pollution caused by suspended particles, various studies regarding the effects of said pollutants on human health. This document concludes that the vast majority of available epidemiological evidence suggests an increment in human mortality caused by short and long term exposure to particulate matter (PM) in the environment.

The document published by the EPA recognizes that the complexity of synergetic effects (association with other pollutants, particle size, source of the particulate matter, age and susceptibility of the exposed population, etc.) results in significant variations between the different studies on human exposure to atmospheric pollutants, including particulate matter. However, it concludes that said studies provide enough reasons to worry about the detectable effects on human health caused by the exposure to PM$_{10}$ in the environment, even at levels below those established by the official norms.

#### Environmental Impacts

**Direct and Indirect Benefits:**

**Environmental Impacts:**

The proposed tasks will immediately reduce the amount of suspended particles released by vehicular traffic traveling on unpaved surfaces and disturbed by the gusty winds that frequently batter the city. These improvements, without a doubt, will help reduce respiratory system illnesses and allergies, which are rather common in the region.

The project will also have a secondary effect by reducing the time required for travel by the average vehicle in the urban area, which will reduce the emission of combustion particles.

The project's most significant negative impacts will occur during the development of paving tasks, due to the use of heavy machinery, which may cause considerable dispersion of PM$_{10}$ particles in the atmosphere. This
impact will be temporary. Once the streets are paved a reduction of airborne PM$_{10}$ particles will be achieved.

It is important to mention that the area affected by the project is located within the urban zone and therefore, no significant biotic impacts are anticipated, as there are no sensible habitats or ecosystems within the project area.

**Mitigation Measures:**

During the implementation of the project, measures will be taken to mitigate these temporary effects by introducing the preventive actions described in the table below:

<table>
<thead>
<tr>
<th>Site Preparation of the Areas to be Paved</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission of dust and gases caused by excavation and cleaning, terrain preparation, excavation and formation of sub-grade, earthworks, hauling of excavation material and hydraulic base, formation of hydraulic base, and hydraulic asphalt/concrete layer.</td>
<td>1.1 Minimize the emission of dust generated by vehicular traffic by irrigating the area where work will be performed.</td>
</tr>
<tr>
<td></td>
<td>1.2 To comply with regulations regarding atmospheric emissions caused by motor vehicles, all vehicles used in the project will adhere to a scheduled maintenance program.</td>
</tr>
<tr>
<td></td>
<td>Vehicles transporting scrap materials produced during the construction should be covered by a canvas in order to avoid dispersing particles during the trajectory.</td>
</tr>
<tr>
<td></td>
<td>Norm NOM-041-ECOL-1993 establishes the maximum level of exhaust emissions allowed for vehicles using gasoline.</td>
</tr>
<tr>
<td></td>
<td>Norm NOM-042-ECOL-1993 establishes the maximum permissible level of unused hydrocarbons, carbon monoxide and nitrogen oxide in new motor vehicles, as well as evaporated hydrocarbons.</td>
</tr>
<tr>
<td></td>
<td>Norm NOM-044-ECOL-1993 establishes the maximum permissible levels of hydrocarbons, carbon monoxide, and nitrogen oxide, suspended particles, and smoke opacity from diesel engines.</td>
</tr>
<tr>
<td></td>
<td>Norm NOM-045-ECOL-1993 establishes the maximum permissible levels of smoke opacity from the exhausts of motor vehicles using diesel as fuel.</td>
</tr>
</tbody>
</table>
Noise emission caused by the circulation of motor vehicles and the use of heavy machinery during excavation and cleaning, terrain preparation, excavation and formation of subgrade, earthworks, hauling of excavation materials and hydraulic base, formation of hydraulic base, and hydraulic asphalt/concrete layer.

1.3 All vehicles operating must close their exhausts and operate at a low speed around the work area.


1.4 All machinery and equipment must comply with the following norm:

NOM-080-STPS-1993, which establishes the maximum levels of noise exposure for project workers.

1.5 Avoid having more than two teams working simultaneously, which could generate noise levels higher than the above mentioned norm.

1.6 Work during the day to avoid causing noise while neighbors are at rest.

1.7 Provide audio protection and persuade personnel exposed to noise to use protective equipment.

2.- Water

Site Preparation and Construction Mitigation Measures

For excavation cleaning and wastewater. During construction, water will be necessary for dust control irrigation, preparation of concrete, compacting beddings, as well as potable water for human consumption and water for lavatories.

2.1 Wastewater collected in portable containers will be disposed of by an authorized company. These waters will be disposed of in approved areas and under the conditions established by the authorities in compliance with environmental laws in effect.

2.2 The use of water should be optimized during the duration of the project.

2.3 Potable water will be obtained in containers from local suppliers.

2.4 Only raw water will be used for the different activities related to the project.

2.5 The water required during the construction stage should be obtained from a water tap provided by the Water and Wastewater Utility (COMAPA, in Spanish) or from any other source authorized by the National Water Commission (CNA, in Spanish).
<table>
<thead>
<tr>
<th>Construction stage</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>During excavations.</td>
<td>3.1 Stone materials required for construction should be obtained, preferably, from authorized source providers. If the above is not possible, all necessary mitigation measures must be considered in order to minimize impacts in the area.</td>
</tr>
<tr>
<td></td>
<td>3.2 Excavations will only be performed in areas previously defined by the project.</td>
</tr>
<tr>
<td></td>
<td>3.3 In-fill activities will be performed, preferably, with the material from the excavations whenever appropriate. The excess material should be sent to a location authorized by the Municipality.</td>
</tr>
<tr>
<td></td>
<td>3.4 If it is necessary to extract any material for filling or any other activity from an area outside of the project, this location will be restored when the project is concluded to avoid erosion and changes to drainage patterns, as well as to restore the cover of native plant species.</td>
</tr>
<tr>
<td>Handling of wastes generated during construction could affect the ground soil.</td>
<td>3.5 All non-recyclable solid wastes must be disposed of according to applicable procedures and in facilities designated by the authorities for this purpose.</td>
</tr>
<tr>
<td></td>
<td>3.6 The work area will be cleaned periodically to avoid pollution and to control the dispersion of waste around the area.</td>
</tr>
<tr>
<td></td>
<td>3.7 Bedding and compacting materials should be free of hazardous and non-hazardous wastes.</td>
</tr>
<tr>
<td></td>
<td>3.8 In order to avoid ground contamination generated by vehicles, machinery and equipment maintenance and oil change, these activities will be carried out in maintenance shops or in authorized facilities.</td>
</tr>
</tbody>
</table>

**Impacts:**

The environmental impact resulting from the project will be positive overall, inasmuch as:

Street paving coverage will be increased, reducing thus environmental contamination and improving the quality of life of local residents by reducing the emission of airborne...
PM$_{10}$ particles.

**Transboundary Impacts:**

Negative transboundary impacts are not anticipated by the implementation this project. In fact, it is anticipated that the project will have a beneficial impact, as a result of the unforeseen improvement in air quality in the Nuevo Laredo, Tamaulipas – Laredo, Texas air basin.

**Formal Environmental Authorization**

**Environmental Authorization:**

- Pursuant to the provisions of the General Law on Ecological Equilibrium and Environmental Protection regarding Environmental Impact Assessments, which is generally observed throughout the national territory and is regulated by the Executive Power through the Secretariat of the Environment and Natural Resources (SEMARNAT), the proposed project is not required to obtain previous authorization from SEMARNAT with regard to its environmental impact, according to the provisions of Chapter II, Article 5, Sections A through V.

- The Sustainable Development Code for the State of Tamaulipas Chapter IV, Article 57, does not establish as an assumption that roadway paving projects are required to obtain environmental impact clearance.

- The Directorate of Urban Development and Environment, through the Office of the Environment and Climate Change, issues Official Communication DDUMA-SMA/1029/08 stating that the type of tasks proposed by this project do not require the development and submission of an Environmental Impact Study.

**Pending Issues**

None.

**Criterion Summary:**

The project addresses a major human health and environmental issue by reducing the amount of suspended particles released by vehicular traffic traveling on unpaved surfaces, a condition that has an impact on the increased rate of respiratory illnesses among the population. The corresponding environmental authorization has been obtained.
3. Technical Feasibility

3.a Technical Aspects

<table>
<thead>
<tr>
<th>Project Development Criteria</th>
<th>Design Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The project was designed following standard engineering practices and complies with the applicable Municipal Code. There are standard street paving designs available that will be used as the basis for developing the final</td>
</tr>
</tbody>
</table>
designs for selected streets. Both asphalt and hydraulic concrete will be used for the project.

**Project Components:**

**Asphalt Pavement**

The pavement will consist of a subgrade layer compacted at 95% (Proctor Test) of its maximum dry density (MDD), finished to the established design elevation. Over this layer, a 20-cm thick granular base compacted at 100% (Proctor) of its MDD will be installed; the above will be covered by a prime coat layer with a type MC-70 asphalt emulsion at a rate of 1.3 L/m². Before placing the flexible pavement layer over the compacted base layer, a tack coating of asphaltic emulsion MC-800 will be sprayed at a rate of 0.5 L/m² with a minimal penetration of 5 mm. Next an asphalt concrete layer with a minimum thickness of 5 cm will be placed. The mix used for this layer will be plant produced and have a minimum compaction of 100% with a minimum stability of 800 Kg. and a flow not larger than 4 mm. (Marshall Test). The asphalt mix must meet the volumetric rate established by the Secretariat of Communication and Transportation, and contain the least amount of impurities in order to satisfy spatial specifications. The project also includes construction of curbs and gutters type “S”. The curb will be constructed of hydraulic concrete with a minimum compressive strength of 180 Kg/cm² and placed over the compacted base before the asphalt layer is applied, as shown in the following figure:

**Hydraulic Pavement**
The cutting or opening will be done with a motor grader depending on the stage of construction. A width of 80 cm. will be considered in intersections for access. The excess of unusable material produced by the cut will be removed from the work area and hauled to a waste site designated by SOPDUMASM and outside of the work area.

The base will be constructed with selected bank material typically used for lining, as established by SOPDUMASM regulations. The material will be piled up, mixed, homogenized, laid out, shaped, compacted, and brought to optimal humidity. The Soil Mechanics Laboratory will review the thickness and compaction rate to ensure a 100 MDD consolidation.

The supply and placement of black polyethylene rubber on the previously swept hydraulic pavement includes overlaps, folds, cuts, tools and labor. Pre-mixed concrete will have a normal resistance of MR=36 kg/cm², F’c = 300 Kg/cm², 19mm maximum aggregate size (MAS) and 15cm R.N. The concrete will be poured in transverse slabs with a surface no larger than 22 m² in order to avoid fractures caused by temperature; caulking will be applied to the joints, including vibrating and curing with a material designed for this purpose. The project includes the construction of curbs similar to those described above, as shown in the following figure:

Other Design Criteria: For pavement, irrigation saturation of the hydraulic base
will be performed, as well as the tack coating for the asphalt layer, followed by the installation of the hydraulic concrete. The project also includes trace and leveling of curbs and the manufacturing of hydraulic concrete curbs.

The project will include terrain plotting and leveling, excavation or cutting, hauling of material, formation and compaction of earth-fills, treatment of the subgrade layer, and development of the hydraulic base layer. As for the pavement, the project includes the hydraulic base prime coating, and the tack coating for the asphalt layer, followed by the installation of the asphalt concrete layer. The project also includes curb plotting and leveling, and the construction of hydraulic concrete curbs.

The geometric design of roadways will incorporate the installation of a minimum 2% transverse slope (crown) towards the center of the street that will convey runoffs to the shoulders, Manholes will be built above the runoff level to prevent water from infiltrating the sewage system. Manholes that are not located at the pavement crown will need to be elevated at the runoff level and sealed to prevent infiltration of rainwater. The design will incorporate slope and surface runoff control measures.

**Appropriate Technology**

**Assessment of Alternatives:**

Roadways to be paved were selected according to the following criteria:

- Roadways with heavy traffic
- Roadways that provide access to school areas
- Roadways that provide access to low income subdivisions (*colonias*)

Asphalt or hydraulic concrete were considered as options for roadway paving. Hydraulic concrete was considered for main intersections with heavy traffic in order to reduce maintenance and extend the surface life cycle, while asphalt pavement was considered for secondary streets with less traffic. Additionally, flexible pavement (asphalt) or rigid pavement (hydraulic concrete) was selected on the basis of the city's geotechnical zoning established in the roadway study developed by the City.
The project applicant has established coordination with the Municipal Water and Wastewater Commission (COMAPA) to ensure that water and wastewater collection services have been introduced in streets selected for paving. A design plan that outlines the proposed construction schedule is available.

### Property and Right-of-Way Requirements

**Requirements:**

Inasmuch as the proposed street paving project will be developed within the urban area and existing rights-of-way, no additional land or rights-of-way need to be purchased by the City, which has municipal jurisdiction over the project. Additionally, no land use changes will be made in the areas required for the project.

During the project's implementation, the City of Nuevo Laredo, through its Department of Public Works, will oversee the execution of the proposed construction tasks.

### Project Tasks and Timelines

#### Project Timeline:

The city anticipates completing the construction of the proposed project in sixteen months, with tasks beginning in January 2009.

Figure 4 shows the project's proposed task schedule.

<table>
<thead>
<tr>
<th>TASK</th>
<th>AMOUNT</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>STREET PAVING</td>
<td>615,825,656</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) - PAVING SECTOR I</td>
<td>311,624,694</td>
<td>JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC JUN JUL AUG SEPT OCT NOV DEC</td>
<td></td>
</tr>
<tr>
<td>2) - PAVING SECTOR II</td>
<td>195,907,327</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) - PAVING SECTOR III</td>
<td>108,293,676</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 615,825,656
### 3.b Management and Operations

#### Project Management

**Resources:**

According to the Internal Code of Municipal Public Administration and other applicable agreements and provisions, the City of Nuevo Laredo is empowered to provide maintenance to existing roadways by patching up potholes and carrying out other engineering tasks as required for the proper operation of the traffic infrastructure. The City of Nuevo Laredo will be the agency responsible for implementing preventive and corrective maintenance and absorbing operation and maintenance costs, which will be part of its operating budget.

#### Operation and Maintenance

**Organization:**

The Nuevo Laredo Department of Public Works has a Director, Assistant Director, Unit Managers, Treasurer, and trained personnel to operate and maintain the system. Additionally, the city has available specialized personnel to provide technical support.

**Operation Plan:**

The Services and Public Works Law requires the Department of Public Works to have an Operations Manual to provide maintenance to existing and future paved streets. A specific Operation and Maintenance Plan will be developed prior to the completion of paving tasks. The existing manual is currently under review and any identified deficiencies will be included in the project for improvement and revision.

**Permits, licenses, and other regulatory requirements:**

The project was designed following standard engineering practices and complies with the applicable Municipal Code. There are standard street paving designs available that will be used as the basis for developing the final designs for selected streets. As previously mentioned, both asphalt and hydraulic concrete will be used for the project.

The project applicant has the following documentation available:


**Reviewing Agencies:**

- BECC
- Environmental Agency for the Sustainable
Development of Tamaulipas
- City of Nuevo Laredo 2008-2010
- NADB

Pending Issues:
None.

Criterion Summary:
A review of alternatives was developed to determine which roadways would be paved. Hydraulic concrete was considered for main intersections with heavy traffic in order to reduce maintenance and extend the surface life cycle, while asphalt pavement was considered for secondary streets with less traffic.

The project was designed following standard engineering practices.

The project applicant has established coordination with the Municipal Water and Wastewater Commission (COMAPA) to ensure that water and wastewater collection services have been introduced in streets selected for paving.

4. Financial feasibility

4.a Verification of Financial Feasibility

Financial Conditions

Information Presented: Municipality’s Financial Statements.

Summary of Financial Analysis: Municipality has enough revenues to service the proposed debt.

Project total costs, financial structure and other capital investment plans

Concept:
Construction costs, management, supervision and contingency costs: $615 million pesos

Final Cost: $615 million pesos

Funding Scheme:

<table>
<thead>
<tr>
<th>Source</th>
<th>Type</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuevo Laredo</td>
<td>Equity</td>
<td>$135,000,000</td>
<td>22</td>
</tr>
<tr>
<td>NADB</td>
<td>Loan</td>
<td>$480,000,000</td>
<td>78</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>$615,000,000</strong></td>
<td>100</td>
</tr>
</tbody>
</table>
Dedicated Revenue Source:
Revenue Source: Municipality’s Federal Tax Revenues.

4.b Legal Considerations:
Project Administration: The project will be managed by the Municipality of Nuevo Laredo, who has adequate staff to manage the proposed infrastructure and address any potential emergency related to the implementation of the project.

Financing Status: Loan contract to be signed once project is certified.

Pending Issues:
None.

5. Public Participation

5.a Community Environmental Infrastructure Projects – Community-wide impact

Steering Committee
Date of establishment: The Steering Committee was formally installed on October 6, 2008 at a meeting held in the Nuevo Laredo City Hall.

Steering Committee members: At this meeting, a Board of Directors was elected, comprised of the following individuals:

Chairman: Tomás R. Valdez- Dávila
Secretary: Jorge A. Viñals Ortiz de la Peña
Alternates:
  • Arturo Sandoval Zepeda
  • Sergio Liñán Montes
  • Ramiro Ernesto Delgado Garza

Date of approval of Public Participation Plan: The Comprehensive Community Participation Plan developed by the Steering Committee was approved by the BECC on October 7, 2008.
Public access to project information: The project's technical and financial information was made available to the public for review. Project information was available at the following locations:

- Annex to the Mayor's Office
  Héroe de Nacataz 3200, sector centro, C.P. 88000
  Nuevo Laredo, Tamaulipas
  867-711-35-39

- Old Customs House
  Arteaga, 3600 altos, sector Centro,
  Nuevo Laredo, Tamaulipas
  867-712-30-20

Additionally, the project's technical and financial information was made available on the following website: [www.nuevolaredo.gob.mx](http://www.nuevolaredo.gob.mx)

Additional outreach activities:

- Local organizations that represent community interests contacted to present them the project and request their support. The list of organizations contacted is as follows:
  - Colegio de Ingenieros Civiles de Nuevo Laredo
  - Colegio de Arquitectos de Nuevo Laredo
  - Cámara Mexicana de la Industria de la Construcción de Nuevo Laredo
  - Consejo Sociedad Gobierno
  - Asociación de Constructores de Nuevo Laredo

- A project factsheet developed and distributed for the project.

- Project surveys to document the community's concerns or support for the project were administered.

First Public Meeting: Advance notice to announce the First Public Meeting was published on "El Mañana de Nuevo Laredo" and "Diario de Nuevo Laredo," two local newspapers, on October 8, 2008, 30 days prior to the meeting. The meeting was held at 10:00 a.m. on November 14, 2008, at the Annex to the Mayor's Office, located at Héroe de Nacataz 3200, Zona Centro.

At this meeting the public was informed about the technical, financial, and environmental aspects of the project. Approximately 200 Nuevo Laredo residents attended the meeting. An exit survey was administered.
to determine if the community fully understands and supports the project. Although the analysis of the surveys is in process, it was noticed the community support to the project during the meeting, because of the broad assistance of the residents of Nuevo Laredo and the good comments during the meeting.

<table>
<thead>
<tr>
<th>Second Public Meeting:</th>
<th>N/A</th>
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**Final Public Participation Report**

**Final Report:**

The Steering Committee and the applicant will prepare the Final Public Participation Report to demonstrate that the proposed objectives were fully met to BECC's satisfaction.

**Post-Certification Public Participation Activities**

**Post-Certification Activities:**

The project applicant, in coordination with the Steering Committee, will provide a general description of public participation activities that may be carried out after the project's certification to support its implementation and long-term feasibility.

**Pending Issues:**

Final Public Participation Report.

**Criterion Summary:**

A large attendance of Nuevo Laredo residents attended the meeting, and it was noticed the community support to the project. An exit survey was administered to determine if the community supports the project.
6. Sustainable Development

6.a Human and Institutional Capacity Building

<table>
<thead>
<tr>
<th>Project Operation and Maintenance:</th>
<th>The project applicant will be the agency responsible for operating and maintaining the system through:</th>
</tr>
</thead>
</table>

The applicant has the basic institutional and human capacity to operate and maintain the project through the use of:
- Trained personnel
- Training program
- Operations Manual for roadway maintenance

| Human and Institutional Capacity Building: | Actions considered by the project will strengthen the City of Nuevo Laredo by increasing its capacity to provide street paving services and coverage. Additionally, the NADB loan will not have a negative impact on the city's financial situation; on the contrary, it has the potential of improving its debt capacity, a significant consideration that will help maintain the city's current credit rating to address future |
infrastructure needs in Nuevo Laredo.

### 6.b Conformance to applicable Local, State, and Regional Regulations and Conservation and Development Plans

<table>
<thead>
<tr>
<th>Local and Regional Plans addressed by the project:</th>
<th>The proposed project conforms to applicable plans and actions described in the following documents:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 2008-2010 Municipal Development Plan</td>
<td>- 2008-2010 Municipal Development Plan</td>
</tr>
<tr>
<td>- The project adheres to the U.S.-Mexico Border 2012 Environmental Program by meeting Goal 1 – Reduce air emissions as much as possible, towards the attainment of each country's national ambient air quality standards, and reduce exposure to contaminants in the border region.</td>
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</tr>
</tbody>
</table>

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<tr>
<th>Laws and Regulations addressed by the project:</th>
<th>The project meets applicable municipal regulations pursuant to roadway paving within the city.</th>
</tr>
</thead>
</table>

### 6.c Natural Resource Conservation

- The final design includes the implementation of green building practices as part of the technical construction specifications.

- The purpose of the project is to improve the quality of air in the Nuevo Laredo air basin, and benefit the health of residents of the border region without deteriorating the environment. The project does not interfere in any way with the conservation of natural resources in the area, as it will be carried out in an urban area and over existing roadways, and will not require any changes regarding land use patterns.

- The project contributes to reduce environmental deterioration by expanding the existing roadway system from 58% to 80%.

### 6.d Community Development

The project will promote community development by reducing the incidence of respiratory illnesses in the region. Direct benefits to the community are foreseen, and include an improved quality of life of the population by reducing pollution levels; reducing travel times; promoting quick access to emergency, security and other
public services; fostering economic development, and increasing the value of properties located adjacent to the project site.

Pending Issues:

None

Criterion Summary:

The project complies with all sustainable development principles.
Available Project Documentation (only in Spanish):

- Preliminary Design of Roadway Paving project, developed by the Department of Public Works, 2008.


- Public Participation Plan and Final Public Participation Report (pending).