

PICO Y PLACA

I. INTRODUCTION

“Pico y Placa” (Peak and License Plate) was designed with the purpose of making Bogotá a friendlier, less contaminated and stressful city. Vehicle congestion is one of the main problems the city faces. Bogotá currently has a population of 6.4 million inhabitants and 832,000 private automobiles, which move approximately 1.2 million people.

The short-term objective of this program is to create awareness of the positive effects on traffic with the reduction of the number of private vehicles on the roadways. This means lowering the duration of trips for the great majority and the various problems due to the amount of vehicles during peak hours. In the long run the objective is to reduce car-dependency.

II. REASONS BEHIND “PICO Y PLACA”

The reasons that made the operation of Pico & Placa necessary during the current administration include:

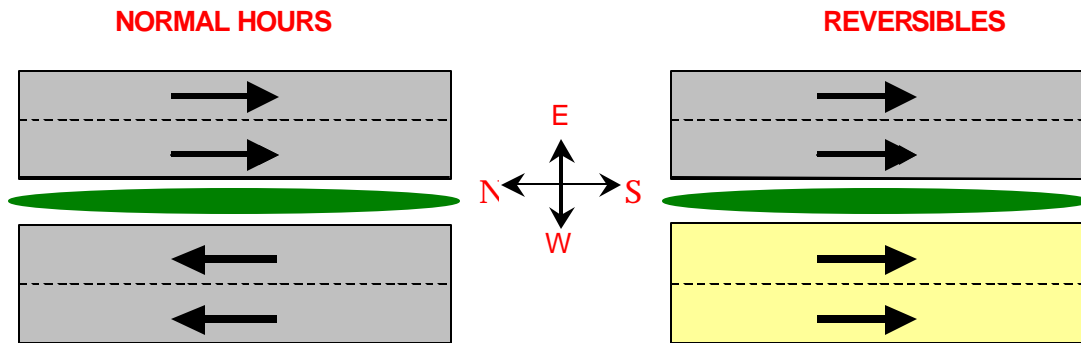
- Approximately 140 cars per 1,000 habitants, relatively low compared to some European cities where the average is 469 cars per 1,000 habitants and North American cities where the average is of 650 cars per 1,000 habitants.
- 22,000 buses and 55,000 taxis transport 82% of the citizens.
- 95% of the streets are used by private cars and the express ways are exclusively for automobiles.
- An annual inflow of approximately 70,000 new cars.
- The number of daily trips made is over 8 million.
- Average distance between home and work is 8 km.
- Average velocity is 19 kilometers per hour.
- Average Bus velocity during peak hours is 10 km/hr.
- The average duration of daily trips in public transportation is 2 hours and 20 minutes.
- 30% of the trips are made in the expanded downtown area, creating congested corridors.
- 70% of the trips made in private cars cover a distance of less than 3 km.
- At 2,600 meters of altitude there is 27% less available oxygen than at sea level, which means that contaminating agents are the largest component of breathable air. Approximately 60% of the contamination in Bogotá is caused by automotive vehicles, of which 50% alone is attributed to private cars.
- Bogotá, with 200 people per hectare, presents a high population density, which makes the use of private vehicles as a means of transportation less feasible since there are fewer square meters available for roadways.

Due the aforementioned reasons, measures of great impact and easy analysis had to be adopted. The only viable alternative in the short term was the drastic reduction of the number of circulating vehicles. It would imply less congestion, greater average velocities and shorter periods of travel.

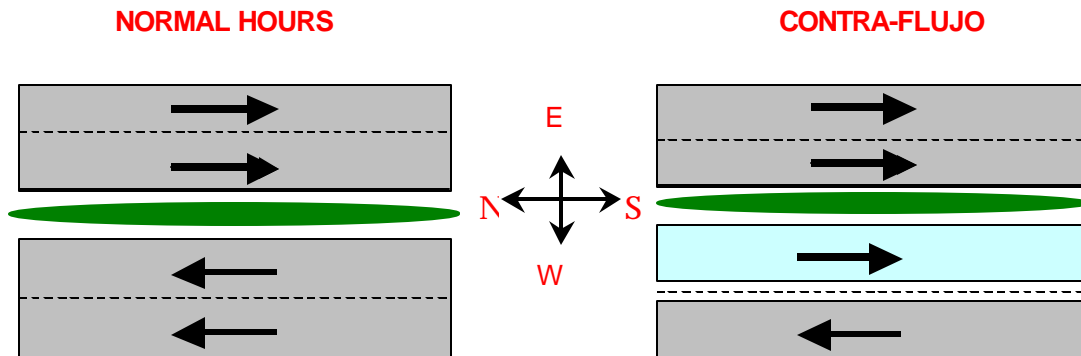
III. HISTORICAL CONTEXT

Bogotá City Hall, through the years, has implemented different programs in order to organize traffic in the city. These programs eventually created the appropriate atmosphere among the citizens that allowed “Pico y Placa” to be established.

The first measure adopted is referred to as “Reversibles” (Reversible), which is still applied today. It contemplates that all the lanes of two of the most important streets of the city are directed due north during the afternoon (12:00 m – 1:30 p.m.) and evening (5:30 – 8:00 p.m.), when most of the citizens are heading from their offices to their homes. Most offices are located in the southern and downtown areas of the city, while most houses are in the north.



The second measure was called “Contra-flujo” (Counter-flow), which is not applied today due to large number of accidents it brought on and its replacement with “Pico y Placa”. This measure consisted in turning one of the lanes of the major avenues in the city due south in the peak morning hours (6:30 a.m. – 9:00 a.m.), in the afternoon heading north (12:00 m – 1:30 p.m.) and north in the peak evening hours (5:30 p.m. – 8:00 p.m.).



IV. INTERNATIONAL EXPERIENCES

There are many examples of international experiences of vehicle circulation restriction, with various degrees of efficacy. The most important cases of cities that have adopted a permanent measure are Sao Paulo, Mexico City, Santiago de Chile, Manila, Singapore and Athens. For most of these cases the restriction is established for a whole day, for certain vehicle models or for certain zones. It is important to mention that in all of these cases, as well as in those cities where restrictions are applied only during certain days according to pollution problems derived from climatic effects (France, Germany and Italy, for example), the measure responds in essence to environmental and air pollution problems.¹

V. STUDIES

Before the adoption of the program, there were some measurements done on the principal corridors that would allow a comparison and establish a before and after control and evaluation on indicators such as: volume, velocity, traffic light cycles, times between two points, private transportation and public transportation. The data presented in the study for the Master Plan of Urban Transportation for Bogotá carried out by JICA (Japan International Cooperation Agency), was also taken into account.

The analysis for the reduction in the number of vehicles implies that if there were fewer vehicles on the roads then the travel velocity would increase, therefore less congestion would be generated.

It was decided to assume a normal distribution (by last digit of the license plate number) of the total number of vehicles on any given day, as well as of the last digit of the license plate number of the vehicles that transit during certain hours of the day. Any deviation would be small and not very significant, taking into account license plate numbers handed out in Bogotá and those corresponding to vehicles from the adjacent towns.

VI. APPLICATION

Once the way of applying the restriction was defined, that is, by the last digit of the license plate number, there were other factors to take into consideration:

1. Where?

The organization and distribution of the city made it necessary to implement the measure for the whole urban perimeter, this would prove to be the only way to effectively reduce the number of vehicles on the roads.

2. When?

The peak hours would be the most effective hours in which to apply the measure. The definition of a peak hour is that one in which the highest number of simultaneous trips is done. In Bogotá's case (according to JICA) these hours are:

- a) From 6:00 – 8:00 a.m., towards work
- b) From 7:00 – 8:00 a.m., towards schools and universities
- c) From 6:00 – 8:00 p.m., towards home

¹ Comment by Eric Britton: Our friends in Bogotá are extremely generous in their comments on these international experiences. I have been looking at them for well more than a decade and what I can say is that almost all of them are just dreadful. That indeed is the beauty of their accomplishment: they have taken a brain dead concept, worked with it and turned it into something that does an outstanding job.

However, a decision had to be made as to how to soften the curve of the peak hours so as not to create vehicle congestion during non-peak hours. The hours finally adopted were from 7:00 – 9:00 a.m. and from 5:30 – 7:30 p.m. People could use the public transportation system as the means of moving from one place to another during these hours without causing alterations to their daily schedules.

3. How Often?

The decision was to restrict four digits a day, which would imply a theoretical reduction of 40% and effective of approximately 30%, and it was decided that public transportation should not be included in the application of the measure. It was adopted as follows:

- Monday 1,2,3 and 4 are restricted
- Tuesday 5,6,7 and 8 are restricted
- Wednesday 9,0,1 and 2 are restricted
- Thursday 3,4,5 and 6 are restricted
- Friday 7,8,9 and 0 are restricted

4. Inclusions and exceptions

The measure excludes the following vehicles:

- a) Emergency vehicles, such as ambulances, fire trucks, police cars, etc.
- b) Diplomatic vehicles, due to their special jurisdiction
- c) Presidential caravan
- d) Operative vehicles of public utilities companies
- e) School and company buses (as long as they carry more than 10 passengers)

This means that 99.9% of private and official vehicles and 90% of the total amount of vehicles must follow the restriction.

VII. SANCTIONS

The vehicle, which even though under restriction, circulates during prohibited hours, will be liable to a fine of approximately US\$ 20. However, the vehicle cannot be detained, it can be fined continuously until the moment when the restriction is lifted.

VIII. BENEFITS

The objective of “Pico y Placa”, to reduce the number of vehicles travelling during work days, through a simple method that restricts circulation of private vehicles during peak hours twice a week, has proven successful. Some of the goals reached by this measure include the reorganization of vehicle transit, rationalization of the usage of public space, reduction of private automobile usage, generation of consciousness and discipline among our citizens.

Thanks to the flexibility allowed by the program, Bogotá has not had to face an increase in the number of vehicles circulating. Contrary to the situation which has arisen in other cities that have applied similar programs, where people buy another car to compensate for the days when their original one is under restriction, the citizens of Bogotá have applied other

solutions, either accommodating their schedules or using alternative means of transportation.

The principal benefits obtained with this measure have been:

- Increase of travel velocity by 58%
- Reduction of accidents by 28%
- Lowering of traffic congestion
- Reduction of duration of time for the trip of about an hour, which is equivalent to 25 days of 10 hours in favor of the driver
- Lowering of air pollution by 10%
- More than US \$50 yearly savings on gasoline per vehicle
- Increase in the utilization of alternative means of transportation (public transportation, bicycles, roller blades, walking, among others).