

# Resurface the Roads to Beautify the City

“A marathon runner can run along the roads of Japan worry-free,” said the mayor of Tokyo at a marathon event attended by Hao Lung-bin, the mayor of Taipei City. Impressed by such confidence, Mayor Hau Lung-bin decided to resurface the roads of Taipei in keeping with the standards of an international city: “If Tokyo can do it, so can Taipei City.” Thus, a committee for the “Road-smoothing Project” was formed in May 2008 to start working on revising the specification for construction, establishing standard operation procedures, improving construction management, and practicing excavation control so that the quality of the roads in Taipei City would be thoroughly improved and residents could enjoy walking on smooth roads with smoothly constructed manhole covers.

## Renewing All Roads in the City within Six Years

The total area of the roads in Taipei City is about 20 million square meters. The Road-smoothing Project plans to resurface all major roads in the city within six years (from 2009 to 2014). All related departments of the Taipei City Government will spare no effort to work together to meet their individual responsibilities. The New Construction Office of the Public Works Department, Taipei City Government will be in charge this project which roads are more than 8 meters wide, in coordination with the Hydraulic Engineering Office, the Parks and Street Lights Office, the Sewage Systems Office, and the Department of Rapid Transit Systems. District offices will be in charge of the maintenance of roads less than 8 meters wide. With the combined effort of all departments of the Taipei City Government and the cooperation of the public, more than 100 roads have already been resurfaced as of December 2010, and high-quality roads have become the norm and a good standard. According to a poll administered by the Department of Civil Service Ethics, the percentage of citizens who are not happy with road conditions is 20.83%, much lower than the rate before the project started, which was 81.16%. This shows a dramatic rise in the public's satisfaction.

Mayor Hau Lung-bin spoke from his personal experience. Zhongxiao East Road is a major artery in the transportation hub of Taipei City. In order to resurface the road certainly, the duration of construction took seven months which made the public inconvenient. One citizen even complained to him about it. But now that the project has been completed, many bikers and citizens praise him about it and feel satisfied about the quality of the resurfaced road. Mayor Hau feels gratified. As a matter of fact, many citizens now complain the project cannot be completed fast enough. Mayor Hau Lung-bin explained that the Road-smoothing Project is a grand scale and cannot be rushed. He asks the public to be patient, promising that the Taipei City Government's project which will “improve” all road surfaces and give the city “a brand new face” by 2014.





## A New Construction Culture with Skillful Road Maintenance

One may wonder, isn't road maintenance a regular task of the government? What's so special about the "Road-smoothing Project"? Mayor Hau Lung-bin explained that, the "Road-smoothing Project" is different from other types of road construction, mainly because of changes in construction culture. In the past, road construction focused on maintenance and dealt with problems on an ad hoc basis. So it treated the symptoms, but not the cause. By contrast, the "Road-smoothing Project" treats every road as if it is a new road which needs to be scraped and repaved from the road-bed to the road-surface and is maintained until the temperature of the surface is less than 50°C (this takes about three to six hours, depending on the weather) before it is open to traffic. This will avoid premature erosion of the road and keep the surface smooth for a long period of time.

Those who care about the way they look know that even a beautiful face needs to be taken good care of to maintain its youthfulness and beauty. Likewise, only regular maintenance can keep a road smooth. The Taipei City Government has now adopted two approaches to road maintenance: general maintenance and sub-grade improvement.

### 1. General Maintenance (fixing potholes on the road)

Roads in poor condition but not listed for road-bed improvement in a given year will be given general maintenance. With daily patrols of road conditions, responsible crews will repair potholes and other types of damage on the road surface before resurfacing.

### 2. Sub-grade Improvement (roads resurfaced under the Road-smoothing Project)-the construction take place in three stages:

- Stage One: Sub-grade Improvement and Manhole Cover Decrement (about 2 to 4 weeks)



The standard working method for road-bed improvement consists in mixing aggregate material with cement-grade gravel. At the end of this stage, potholes appear to be filled in, but in fact the basic constitution of the road has been improved. Before the road renewal work enters the next stage, manhole covers on roads more than 8 meters wide are leveled down so that the roads have a flat surface.

· Stage Two: Scraping and Repaving the Road (about 12 to 16 hours)

To increase the durability of the road surface and for easier adjustment of the vertical and horizontal slope of the road, the thickness of roads more than 8 meters wide will be increased to 10 centimeters from the original 5 centimeters during the scraping and repaving process. The temperature of the surface is maintained until it falls below 50°C (this takes about three to six hours, depending on the weather) to ensure the quality of the pavement.

· Stage Three: Leveling Manhole Covers to Prevent Mishaps and Maintaining A Smooth Road Surface (about 2 weeks)

Before paving the road, manholes should be put underground. Once the road is paved, the utilities can apply to the New Construction Office of the Department of Public Works, Taipei City Government to ensure the manhole covers are level with the road surface and for further maintenance and use of the pipelines.

It is worth mentioning that to carry out the “Project of Road-smoothing” effectively, the Taipei City Government has outlined practical strategies, summarized as follows:

### 1. Standardizing Construction Rules and Procedures

On January 1, 2010, the newest specification on asphalt concrete and construction standards was issued by the Taipei City Government. There are ten sections of specifications concerning asphalt concrete, and accordingly the index of oil, sieve analysis, thickness, compactness, flatness, approval standard, and frequency of testing of asphalt concrete were raised to a higher level.

The Taipei City Government also divided road maintenance into four parts: (1) road paving, (2) pothole mending, (3) squarish paving, and (4) restoring pipeline excavation. It also set up standardized working procedures as the basis for training, the work process, and quality control for future projects.

### 2. Resurfacing Roads and Decreasing the Number of Underground Manholes

In 2009 and 2010, 100 roads were resurfaced under the auspices of this Project; in addition, 56 roads more than 8 meters wide and 125 lanes less than 8 meters wide were also resurfaced. The total area of resurfaced roads reached 3,500,000 square meters. The number of manholes on the resurfaced roads was reduced by 19,000

### 3. Management of Road-excavation

Once a road is resurfaced, according to the “Road-smoothing Project”, the same road should not be dug at least three years in principle. Anyone who digs a resurfaced road with or without applying for excavation permission will be required to repair the road an entire block, with the paving standard equal to the standard of the road-smoothing project. Necessary repairs will be undertaken by the Taipei City Government at the responsible party’s expense.

In addition, effective June 25, 2008, the Taipei City Government began enforcement of “zoning control” in road excavation. In all administrative districts of Taipei City, road work can only be undertaken in designated months. This serves to decrease the frequency of excavation, allowing road inspectors to examine working conditions efficiently.

To prevent and severely punish illegal excavation, the punishment criteria for illegal excavation was revised by the Taipei City Government. Fines for illegal excavation and mal-repair of roads have been increased significantly to prevent serious cases of illegal excavation. Regulations concerning awards for those who report cases of illegal excavation have also been revised to encourage citizens to report any illegal excavating to put an end to illegal building and excavations.



### 4. Educational Training Sessions and Inspections

To enhance the skills of construction workers, the Taipei City Government holds educational training sessions for construction staff members of the city government and authorized contractors. It also makes inspections of the construction sites of other institutions. Fifteen such sessions and inspections were held between November 27, 2008 and December 31, 2010 to effectively enhance the working methods and skills of the workers in these fields.

#### **Improving Traffic Conditions through “Road-smoothing”**

Since the Road-smoothing Project is expected to take six years to complete, the public will no doubt meet inconveniences on the road. These inconveniences, however, are of a temporary nature, while having safe roads is a long-term concern. Once the project is finished, not only will the life of roads be extended, but the surface quality of the roads will last longer as well. The smooth resurfaced roads will make driving more comfortable and safe, especially for light vehicles such as motorcycles and compact cars.

For a long time, rough roads and protruding manhole covers were like invisible killers that caused numerous accidents as motorcyclists would lose control of their bikes and suffer serious injuries. The Road-smoothing Project has greatly improved traffic conditions. Many citizens have expressed their views that the “Road-smoothing Project” is no longer an empty slogan. They feel more confident of the quality of roads, where they feel a sense of relief and safety.

Written by Hsu Li-chin