

Widening and Expansion Projects

In 2007, 28 major projects in total were accomplished while 24 were under construction and 2 were suspended for bidding. The details are outlined below:

1) Yuanlin-Kaohsiung Section Widening Project (Freeway No.1).

The project beginning

The project beginning from Yuanlin interchange in the north (station 211k+767) to Wujia system interchange (station 370k+200) in the south with a total length of 158.43km. This section, except Dingjin system interchange to Kaohsiung interchange (Jiouru Rd.), need to add with 1 lane on both sides. Dingjin to Kaohsiung interchange section need to add with 2 lanes on both sides. The whole line was expected to be completed and opened for 3-lane traffic before the Chinese New Year holiday of 2008.

The total budget of this widening project is 39.9625 billion NTD, including 13 interchanges, 5 toll stations and 1 service area. Divided into 38 bids, the project began on February 9th, 1998 and expected to be completed by December, 2008. The progress of bids is outlined as below:

(1) 27 projects have been completed and are in used, completion schedule of each project is as below :

Item	Project No.	Project Title	Completion (yy/mm/dd)
1	516	East-West Expressway Taisi-Gukeng line	2002/7/20
2	526	East-West Expressway Dongshih-Chiayi line	2002/4/3
3	556	East-West Expressway Tainan-Guanmiao line	2004/5/16
4	611 & 621 & 631	East-West Expressway Kaohsiung-Chaozhou line	2004/5/26
5	541T	Sinying toll station (expansion project)	2005/9/24
6	521T	Dounan toll station (expansion project)	2005/10/7
7	511T	Yuanlin toll station (expansion project)	2005/12/25
8	565	Rende service area (expansion project)	2006/4/16
9	543T	Sinshih toll station (expansion project)	2006/5/25
10	512	Jhong-sha bridge (expansion project)	2006/8/3
11	511 & 552	Tainan urban area	2007/1/18
12	543	Sinying - Guanmiao section	2007/2/5
13	P521F	Yuanlin - Dalin section (emergent project)	2007/2/10
14	P521J	Yuanlin - Dalin section (emergent project)	2007/3/30
15	542B	Cengwun Creek bridge (expansion project)	2007/3/20
16	P521G	Yuanlin - Dalin section (emergent project)	2007/3/26

17	P5312	Dalin-Sinying section (emergent project)	2007/3/28
18	P5313	Dalin-Sinying section (emergent project)	2007/3/28
19	P521H	Yuanlin - Dalin section (emergent project)	2007/3/30
20	P5311	Dalin - Sinying section (emergent project)	2007/3/30
21	P521I	Yuanlin - Dalin section (emergent project)	2007/3/31
22	571	Guanmiao - Kaohsiung section	2007/4/4
23	532	Bajhang creek bridge (expansion project)	2007/4/7
24	542A	Jishuei creek bridge (expansion project)	2007/4/14
25	561、561T、561C	Guanmiao - Kaohsiung section (combined project)	2007/5/13
26	511	Yuanlin - Dalin section	2007/9/7
27	5411	Dalin-Sinying section	2007/9/20



Project No. 561



Project No. 541—completed the widening on Jan 31, 2007



Project No. 571



Project No. 571

(2) Projects under construction: 9 projects in total. Actual progress of each project as of the end of December 2007 is outlined as below.

Item	Project No.	Project Title	Accumulated Actual Progress
1	521 Project follow up A	Yuanlin - Dalin section	68.42%
2	521 Project follow up B	Yuanlin - Dalin section	60.35%
3	521 Project follow up C	Yuanlin - Dalin section	74.97%
4	531 Project follow up A	Dalin - Sinying section	55.43%
5	531 Project follow up B	Dalin - Sinying section	64.61%
6	531 Project follow up C	Dalin - Sinying section	60.06%
7	5315 Project	Dalin - Sinying section	Yet to begin
8	5316 Project	Dalin - Sinying section	3.75%
9	Yuanlin-Kaohsiung section traffic control system project	Yuanlin - Kaohsiung section	54.45%

(3) Suspended : 2 projects in total

Item	Project No.	Project Title	Suspended contract

1	521	Yuanlin - Dalin section	2007/5/9
2	531	Dalin-Sinying section	2007/5/18

..... [↑ TOP](#)

2) Freeway No.1, Keelung End Improvement Works (Project No. 151, continued construction project)

Situated at the beginning of the Freeway (station 0K) budget cost 95.18 million NTD, the project began on September 11th, 2005 and was completed on October 27th, 2007. The completion of the project allows 2 lanes traffic to enter and exit the Freeway, reducing traffic congestion entering Keelung via northbound Daye tunnel significantly.



Project No. 151

..... [↑ TOP](#)

3) Freeway No. 1 Wugu Interchange Improvement Works (Project No. 204)

Situated in the Wugu interchange on Freeway No. 1 (station 33k+500), the project's budget was 966.1 million NTD, began on July 13th 2006, and is expected to be completed by October 19th, 2009. The completion of the project can relieve congestion on Wugu interchange and Sinwu access road, reducing traffic jam at the Taishan toll station and Viaduct Sijhih-Wugu, greatly improve the service quality of Freeway No. 1.



Project No. 204



Project No. 204



Project No. 204



4) East-West Expressway (Wanli-Rueibin Line) Dahua System Interchange Project

Located at station 5K+850 on Freeway No. 1, the project budget is estimated to be 1.8386 billion NTD. The project began on November 16th, 2007 and expected to be completed by November 14th, 2010. On the completion of this project, the new line can become an additional alternate pathway for smooth traffic connection from the Freeway No. 1 to west bank wharves, Port of Keelung so as to provide the Keelung region with a more complete traffic network, reduce congestion from Keelung end on Freeway No.1, and the traffic loading on the Badu interchange and Provincial Highway No. 2D.



Dahua System Interchange Project



5) Additional Interchange Project for Freeway No.1 Connecting to the Lujhu Science Park.

Located between Lujhu and Gangshan interchange (Freeway No.1, station 342k+500), with a project budget of 1.283 billion NTD. The project began on December 26th, 2006 and expected to be completed by December 24th, 2008. The completion of this interchange shall relieve the traffic loading of Provincial Highway No. 1, the main transfer system of Lujhu Science Park. It will also be a major node for future freeway and expressway networks to promote transportation and communications between Tainan Science Park, Lujhu Science Park, Kaohsiung Multi-functional Economic and Trade Park, and Kaohsiung processing export area; and finally, form a hi-tech corridor to Southern Taiwan.



Additional Interchange Project for Freeway No.1 Connecting to the Lujhu Science Park.



Additional Interchange Project for Freeway No.1 Connecting to the Lujhu Science Park.

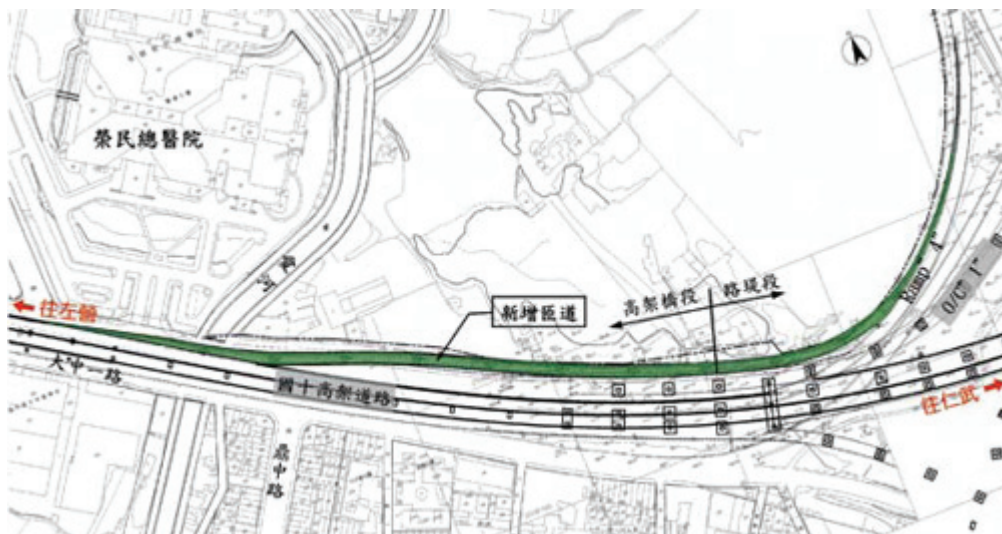


Additional Interchange Project for Freeway No.1 Connecting to the Lujhu Science Park.



6) Elevated Ramp Works of Freeway No.1 Dingjin Sytem Interchange Additional Southbound Right Turn Lane Connecting to Freeway No.10

Situated on Freeway No.1 Dingjin System Interchange (station 362K+227), the project budget is 140.063 million NTD. Beginning works on September 28th, 2007, the expected completion date is set at February 27th, 2009. The completion of the project will allow road users to access Zuoying station of High Speed Rail via Freeway No.1 southern exit, relieving congestions near Dajhong 1st Road and the Kaohsiung Veterans General Hospital.



Elevated Ramp Works of Freeway No.1 Dingjin Sytem Interchange Additional Southbound Right Turn Lane Connecting to Freeway No.10



Elevated Ramp Works of Freeway No.1 Dingjin Sytem Interchange Additional Southbound Right Turn Lane Connecting to Freeway No.10



Elevated Ramp Works of Freeway No.1 Dingjin Sytem Interchange Additional Southbound Right Turn Lane Connecting to Freeway No.10



7) Integrated Freeway & Expressway Traffic Network Management System Project

The budget of the project is 5 billion NT Dollars (Planning and design: 173 million NTD, engineering construction: 4.827 billion NTD)

The project includes Freeway No. 1, 2, 3, 4, 5, 6, 8, 10 and 12 East - West expressways.

The project combines computer control and communication, centralised traffic information to aid traffic control and strategies. The projects are divided into 5 bids, and expected to be completed by December 2010. The project will improve the general operation efficiency of urban area transportation system to provide road users with improved road service quality and safety, reduce travel time; and finally, improve government image and economic competitiveness.

(1) Project Plan :

- a. Expressway Traffic Control System: The lines are graded according to the traffic network managements and is built into the 12 East-West Expressway Traffic Control System.
- b. Increased freeway role: The Expressway Traffic Control System is incorporated into the management of the Bureau to cooperate with new management and control strategies of road network in Taiwan. This requires additional hardware and software.
- c. Promotion of the Traffic Information Management, Coordination and Command Center: In view of Taiwan's future incorporated traffic network management, the third step is the planning and set-up of this integrated traffic management system.

(2) Progress : Currently there are three projects that are under construction :

Northern Freeway Traffic Control System began on February 28th, 2007 and expected to be completed by February 25th, 2009. Central Traffic Control System began on July 20th, 2007 and expected to be completed by July 18th, 2009. Southern Traffic Control System began on December 20th, 2007 and expected to be completed by December 18th, 2009.

Currently the 5 East-West Expressway Traffic Control System under the Bureau has finalized the detailed design documents by the end of December 2007. Design of the project will be finished by the middle of 2008, and will be expected to be divided into 2 bids.



Traffic Control System



8.) Freeway Bridges Seismic Assessment and Retrofit Projects

Taiwan locates in the circum Pacific seismic zone, and thus experiences frequent earthquakes. The September 21st, 1999 Chi-chi earthquake reminded us of the importance of bridge seismic structural resistance, therefore the Ministry of Transportation and Communications consulted the National Center for Research on Earthquake Engineering of its research and recommendations to update the Seismic Specification of Highway Bridge in the year 2000. The specification greatly raised the seismic design force of bridges.

The Freeways are the Nation's artery to the Transportation from the North to South of Taiwan. To be prepared for damages caused by seismic activities, including economic and social impacts, the Bureau urgently need to understand the risk to freeway bridges during earthquakes and initiate an emergency response plan for all possible results. According to the Bureau's Freeway Bridges Seismic Assessment and Retrofit Project Plan, the plan is divided into 3 phases according to the Freeways, Sections and Engineering Offices assigned.

(1) Phase 1 : Bridges Seismic Assessment and Retrofit Project of Freeway No. 1 excluding Yuanlin-Kaohsiung widening project sections (as they already incorporate a seismic assessment and retrofit program and the funding is already included with in the widening project). The completion of this project will at least achieve 1 Freeway (the Sun

Yet-Sen Freeway) that can survive severe earthquakes, and play as life saving line.

(2) Phase 2 : Freeway No. 2, 3, 5, (North opened to traffics sections) Bridges Seismic Assessment and Retrofit Projects

(3) Phase 3 : Freeway No. 3, 8, 10, (South opened to traffics sections) Bridges Seismic Assessment and Retrofit Projects

This plan has a total budget of 40 billion NTD. Phase 1 costs 10 billion and expects completion in 5 years (2009). Phase 2 and 3 are planned for 13 years and expects completion by 2016. Currently Freeway No.1 bridges are undergoing retrofit works and will achieve the following 4 objectives.

- (1) To mitigate hazards for severe earthquake events;
- (2) To establish a complete and efficient earthquake emergency rescue life line system;
- (3) Provide a safe and stable infrastructure for the development of the economy of a 21st century nation;
- (4) The final goal is to incorporate a “no damage after a mid earthquake, repairable damage after design earthquakes and no collapse after maximum credible earthquakes” design philosophy to attain a national hazards mitigation preparedness and reaction plan. National



9) Kaoping Great Lake Gravel Transportation Road Works

The project plans to construct a road for the gravel trucks from the Ligang Township of PingTong County. This project is to facilitate the reduction of gravel truck entering the Freeway as a result of the Kaoping Great Lake Project. The project will reduce the impact of the gravel trucks have on Ligang Township traffic and environments.



The Project is 3.5 Kilometres long, accessing roads with 2 lanes each for both directions. On the east it connects to Provincial highway No. 3 and on the west it connects to Freeway No. 10 Cishan Branch at station 25K+250. Total project costs 1.2 billion NTD.



10) Taipei County “the Teh No.2 Taipei County Highway” Connecting to Tucheng Interchange Improvement Works

The project aims to improve the traffic of Zhongyang Road in Taicheng City (Provincial highway No.3), which connects to the Tucheng interchange. This project plans to widening of the access roads Tucheng interchange, taking into account of the connection between the entrance and exit ramps at southbound Tucheng interchange and the “No. 2 Special Road” which shall not impact the interchange operation, to reduce traffic jam as well as to reduce effects on traffic from this project.

The project budget is estimated at 1.51 billion NTD. The objective in 2007 includes processing of urban plan change as well as obtaining of land. The project can be contracted once this is completed.



11) Widening Project on Freeway No.2

The project plans to expand the South Taoyuan interchange to Yingge system interchange to 6 lanes, with other sections widened to 8 lanes. The Dajhu interchange has been completed in 2006 and others are still under construction with a expected completion by 2012. The total budget costs 13.4 billion NTD.

After completing of the widening project, the transportation service of Freeway No.2 will be improve and relief the demands on transports in the Airport and Taoyuan region.

12) Feasibility Studies of Freeway No.1 Wugu-Yangmei Widening Projects

The widening project ranges from Wugu interchange to the south of Yangmei toll station with a total length of 42 kilometers, including 6 interchange, 2 service stations and 1 rest area. The project's budget is estimated at 65.6 billion NTD with a construction duration of 68 months. The widening project will increase traffic capacity of Freeway No.1 and relief the transport demand of Taoyuan section.



13) Feasibility Studies of Freeway No.3 Yingge – Longtan Widening Projects

The project ranges from Yingge System interchange to Longtan interchange (station 54k-335- 68k+285), total length is 14 kilometers, currently including Yingge System, Dasi and Longtan interchanges. Under consideration that it will connect to the East-West expressway (Provential Highway No. 66), the project's widening approach could be level or elevated.

The completion of the project will improve Freeway No.3 Yingge to Longtan's traffic capacity, and relief transport jam and demand in this section.

The feasibility studies are sent to the ministry of Transport and Communications by June 2007 and are under review, pending Executive Yuan's approval.

14) Gukeng interchange on Freeway No. 3.

Currently residents of the Gukeng region have to travel through County Road No. 149A or 158A and then access Provincial Highway No.78 via interchange at Provincial Highway No.3, then access Freeway No. 3 via the Gukeng interchange. The Yuanlin County government has proposed a interchange on the 149A or 158A County Road where it intersects Freeway No.3.

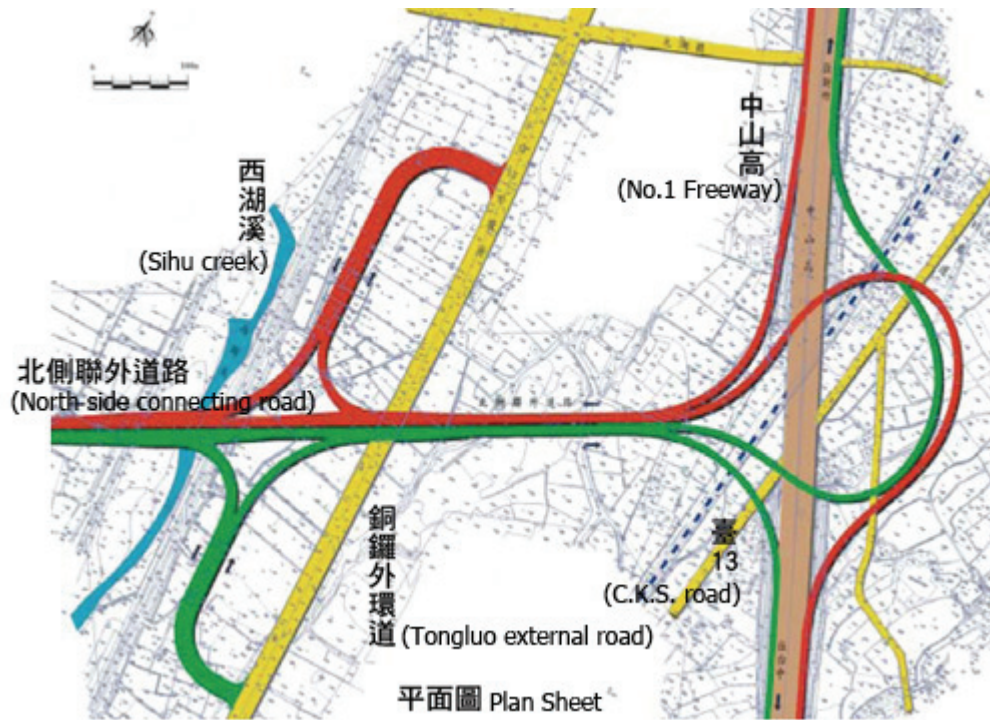
The project was reviewed and recorded in November 6th, 2007 and is approved to continue in December 2007.



◁ Top

15) Tongluo interchange on Freeway No. 1.

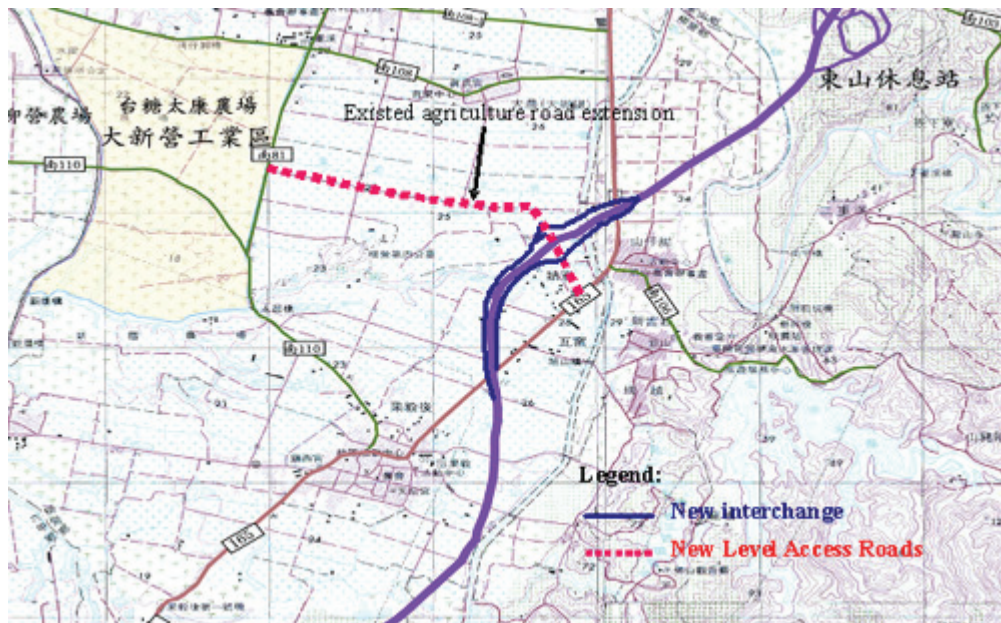
The proposed interchange is situated on Freeway No.1 station 140k, where located at the south of Miaoli interchange by 8 km (station 132.8k) and the north of Sanyi Interchange by 10 km (station 150.2k). The completion of this project will provide access to Freeway No. 1 from Tongluo region to provide a convenient transport pathway for the region as well as a more complete traffic network. The project is in the planning stage with an estimated budget of 1.1 billion NT and estimated construction period of 2.5 years.



↑ TOP

16) Liouying interchange on Freeway No. 3.

The proposed interchange is situated in Tainan Liouying (Freeway No.3 station 321k-324k) and County Road No. 165 intersection. The completion will connect to the Sinying Industrial Park to provide a more complete traffic network. The project is now in the planning stage with an estimated budget of 800 million NT and estimated construction period of 42 months.



↑ TOP

17) Feasibility Studies on Freeway No.3 Sijih/ Nangang Four Interchanges Integration Works

Currently there are no Northbound on/ off ramp to the Nangang interchange, residents

of Sijhih Hengke road and Nangang Yanjiouyuan road region have voiced their need for north bound access.

On Freeway No. 3 station 13k to 16k, there are 4 interchanges which are the Sijhih, Sintai 5th Road, Nangang and Nangang System interchange, contained in this short section of 4 kilometers. Still, there are many doubts about the necessity of added ramps. The study aims at understanding the feasibility in regards of traffic operations in the region, reduction in congestion, and the difficulty for local residents to access the freeway. The report has been sent to Ministry of Transport and Communications on December 2007 for approving.



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18) Redesign of the Nantou, Gukeng Petrol Stations

A. Nantou Rest Area Petro Station Renovation plan was completed by December 16th, 2007 and is currently searching for contractors and expected completion by the end of 2009.

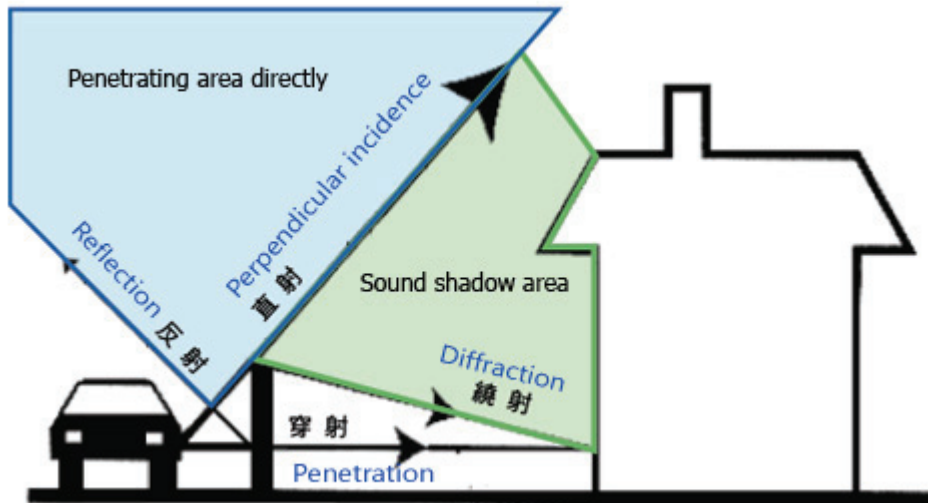
B. Gukeng Rest Area Petro Station renovation plan was completed by January 2008 and is currently searching for contractors and expected completion by the end of 2009.

The completion will provide convenient service to road users.

.....  **TOP**

19) Noise Prevention Facilities

Due to the high traffic flow of Freeways and the need by nearby residents for improvement to noise pollution. Improved road pavement, traffic control, noise barriers, barrier buildings and grass areas can all be used to control noise pollution. In urban areas there is a problem due to the high cost of land and usually the best solution is to use noise barriers. it is not only economical, but also has a smaller impact upon the environment.



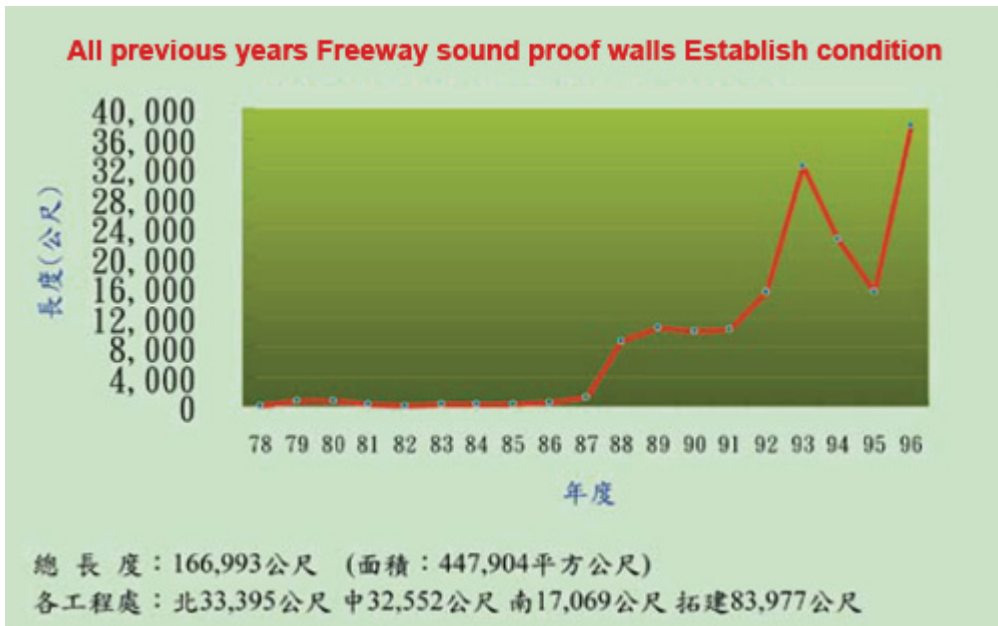
Noise in the Sound shadow area of Noise barriers can be reduced by 8—15dB(A)

The Bureau had already done an overall evaluation of noise prevention measures during working on freeway widening. It has also requested having the color and material used for the widening construction accord with the environment and extended strict control on design consultant's design works in the hope of giving the noise barriers with brisk colors and consistent look and reducing noises.

Additionally, in conjunction with the environmental landscape, anti-noise plant vegetation has been reinforced within the right of way, so as to embellish the landscape and purify air. Furthermore, on the request of the residents living near traffic sections for noise improvement, the environmental protection agency will monitor the noise and if it is beyond the environmental quality standard for noise, the Bureau's regional district engineering offices will list annual budget to install noise barrier facilities, so as to improve the environmental quality along the freeway.



Utilising noise barrier and surrounding landscapes to enhance road scenery.



↑ TOP

20) Project of Freeway No. 1 Yuanlin-Kaohsiung Section Traffic Control System

(1) Overview

The widening project of Yuanlin-Kaohsiung section in National Freeway No. 1 is scheduled to be completed at the end of 2007. In order to incorporate with the traffic control system to be launched after the widening of this road section, the establishment of the traffic control system has been engaged with the following objectives:

- a. In compliance with the road section's traffic management requirements
- b. To meet the needs of future national traffic information management, coordinate and command center information required to be provided;
- c. To integrate the existing traffic and control systems managed by southern district traffic control center.

(2) Construction scope

The construction scope is as follows. It consists of the interface with relevant systems and integrated constructions.

The scope:

Station 208k +600 ~ station 251k+800 in Yuanlin-Dalin section of Freeway No. 1.

Station 251k +800 ~ station 372k+960 in Dalin-Kaohsiung section of Freeway No. 1.

(3) Schedule

The construction began on May 9, 2006. It will be carried out in two phases:

The 1st phase covers the above mentioned scope. It is expected to be completed on December 31, 2008.

The 2nd phase will be incorporated into the Freeway and Expressway Southern Region Traffic Control System Improvement Project, Beginning date is yet to be determined.

Work period is for 1 year.

↑ TOP

21) Freeway Central Region Traffic Control System

The Central Region Traffic Control System began work on August 15th, 2006. Trial period is from September 15th, 2006 to March 14th, 2007. Initial inspection was performed on April 12th - 14th, 2007 and re-inspection was performed on October 18th for the improvements of defects in initial inspection. As of the end of December 2007, the improvements were still ongoing.

