



6 Traffic Management

Traffic management is carried out aiming at safe and smooth traffic on freeways. The statistics of daily average traffic flows passing by toll stations in 2011 suggest a total number of 1,589,000 at an annual growth of 4.47%. When it comes to vehicle types, small vehicles take 84% at the highest rate and, to secure safe and smooth traffic, a number of traffic measures, both in software and in hardware, were imposed in 2011. The statistics and the improvement programs are as follows:

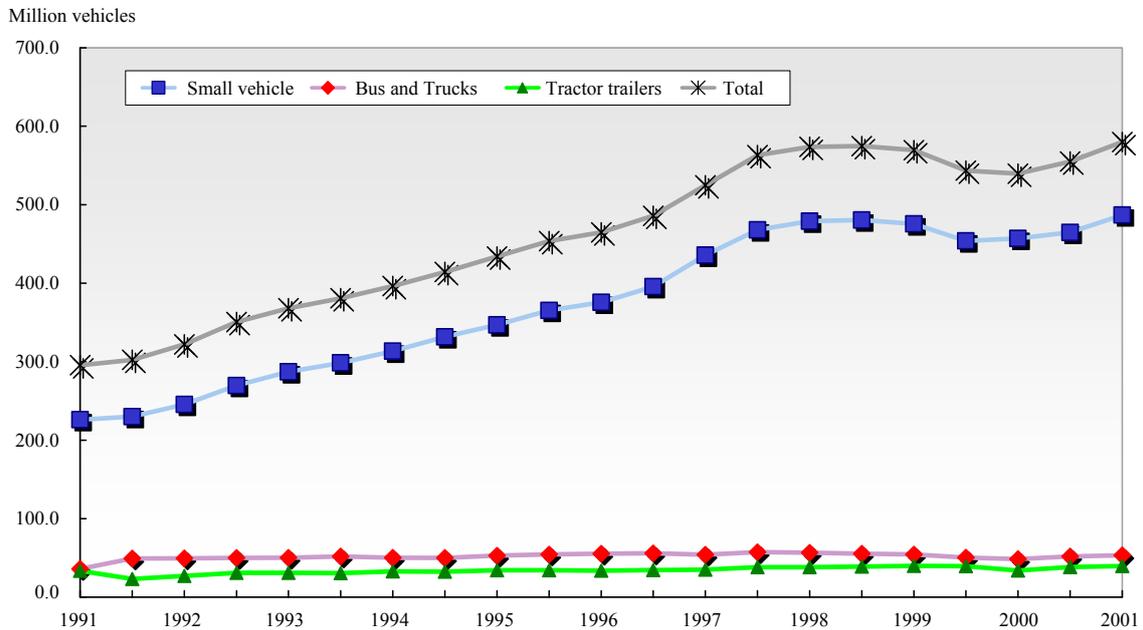
1. Traffic volumes registered in past years

(1). Toll-station traffic volumes in 2010~2011

Year	Small Vehicle	Bus and Heavy Truck	Tractor Trailer	Total	Yearly Growth Rate	Million Vehicles KM
2010	464,818,752	51,797,383	38,444,179	555,060,314	2.87%	27,580.5
2011	486,997,937	53,375,268	39,520,406	579,893,611	4.47%	28,526.2
Total	951,816,689	105,172,651	77,964,585	1,134,953,925	3.67%	56,106.7



(2).Chart of traffic volume growths in past years



(3).Million Vehicles KM

As the freeway operations turn further computerized and the infrastructure becomes increasingly satisfactory, effective 2011, the Million Vehicles KM estimated based on traffic flows in roll stations will be computed on section traffic flow data provided by on-board sensors. The Million Vehicles KM data are given as follows:

Date	National Freeway No. 1	National Freeway No. 2	National Freeway No. 3	National Freeway No. 4	National Freeway No. 5	National Freeway No. 6	National Freeway No. 8	National Freeway No. 10	Total
Jan. 2011	1,330.5	57.2	783.3	21.0	69.5	28.3	14.7	50.0	2,354.6
Feb. 2011	1,310.8	51.7	906.4	19.5	71.8	32.8	14.2	51.3	2,458.3
Mar. 2011	1,315.9	53.5	770.6	20.6	65.2	27.7	14.2	50.5	2,318.3
Apr. 2011	1,316.7	47.0	817.0	20.8	71.7	29.6	13.9	49.5	2,366.2
May 2011	1,310.3	55.3	780.6	20.9	68.8	28.8	13.7	48.9	2,327.4
Jun. 2011	1,301.1	48.4	788.7	20.3	70.5	28.4	13.9	47.6	2,318.7
Jul. 2011	1,375.3	49.0	871.7	21.3	81.0	32.6	15.8	49.5	2,496.1
Aug. 2011	1,320.6	48.8	831.9	20.8	75.8	32.0	14.0	47.8	2,391.8
Sep. 2011	1,308.1	50.3	830.4	20.9	72.8	30.0	14.4	48.2	2,375.0
Oct. 2011	1,344.8	48.8	849.4	21.5	71.4	32.2	14.5	49.9	2,432.7
Nov. 2011	1,291.4	48.4	777.4	21.1	65.9	29.2	13.9	47.4	2,294.6
Dec. 2011	1,345.0	49.3	809.0	22.6	69.1	32.2	14.6	50.7	2,392.5
2011 Total	15,870.4	607.8	9,816.2	251.4	853.5	363.9	171.7	591.3	28,526.2



2. Traffic accidents analysis

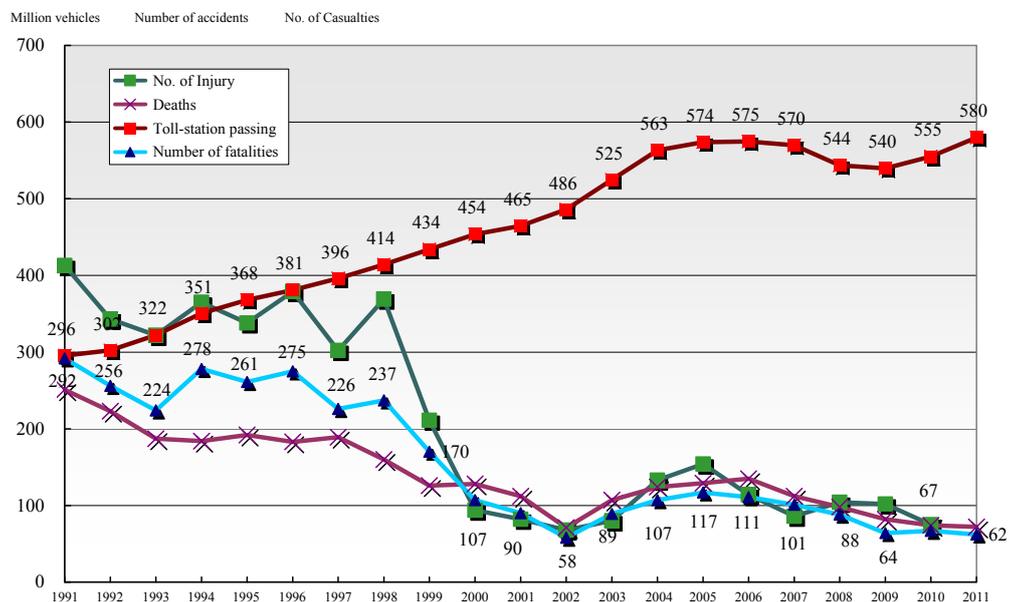
In 2011, there were 62 A1 traffic accidents in all freeways in Taiwan that left 72 people dead and 47 injured. The accident rate went at 0.0022 time Vehicles KM while the fatality rate was 0.0026 person Million Vehicles KM and injury rate 0.0017 person/Million Vehicles KM.

Traffic accident data analyses suggest, compared to 2010, the accident rate, fatality rate and injury rate in 2011 dropped by 9.4%, 4.7% and 38.6% respectively. When it comes to causes to accidents, careless driving (including illegal change of lane and unaware of movement of vehicle ahead) tops the data in 2011, at 18 cases (29%), followed by flat tire or fallen wheels or zero safety measures in case of mechanic failure at 6 cases each (9.7%). In terms of type of vehicles involved, trucks and trailers tend to be involved in a vehicle accident at a relatively higher percentage.

(1). Accident statistics 2010~2011

Year	Million Vehicles Kilometer (MVK)	No. of Accidents (Events)	Accident rate (Event/MVK)	Fatality (Person)	Fatality Rate (Person/MVK)	Injury (Person)	Injury rate (Person/MVK)
2010	27422.5	67	0.0024	74	0.0027	75	0.0027
2011	28,526.2	62	0.0022	72	0.0026	47	0.0017
Total (Average)	56,106.7	129	0.0023	146	0.0027	122	0.0022

(2). Traffic volume growth and number of accidents in past years





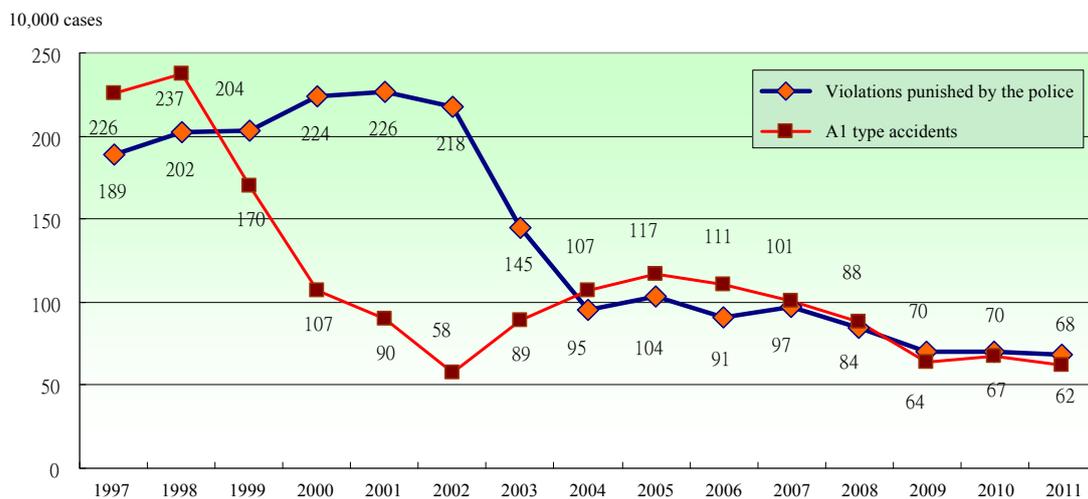
(3).Accident causes analysis 2010~2011

Year	Tail Gating	Defective Tire or wheel off	Speeding	Improper driving	Improper loading	Intoxicated driving	Fatigue	Pedestrian, Passenger, faults	Failure to take safe measures after vehicle failure.	Others	Total
2010	8	9	2	9	0	10	1	5	2	21	67
2011	4	6	4	18	1	5	1	1	6	16	62
Total	12	15	6	27	1	15	2	6	8	46	129

(4).Vehicle types involved in accident 2010~2011

Year	Passenger Car (Vehicle)	Light Truck (Vehicle)	Heavy Truck (Vehicle)	Tractor Trailer (Vehicle)	Bus (Vehicle)	Others (Vehicle)	Sam (Vehicle)
2010	25	14	3	17	1	7	67
2011	30	5	7	12	1	7	62
Total	55	19	10	29	2	14	129

(5).Analytical charts of traffic accidents and punished violations in past years





3. Traffic relieving measure in Long holidays

(1). Relieving measure for traffic in long holidays 2011

For the Chinese Lunar New Year holidays 2011 that began on Wednesday February 2 and ended on Monday February 7, this office implement measures of temporarily suspending toll collection, ramp metering, high-occupancy-vehicle (HOV) control, ramp closure and opening of road shoulders for traffic as relieving measure. Thanks to successful campaigning, enforcement and engineering works, the Taipei-Kaohsiung travel time during those days was kept for less than 6 hours, below the anticipated target.

The same measures were implemented in Peace Memorial Day, Tomb-Sweeping Festival, Dragon Boat Festival, Moon Festival and Double Tenth National Day. The traffic relieving measure are given as follows:

Traffic relieving measure	Chinese Lunar New Year Holidays	Peace Memorial Day	Tomb Sweeping Festival	Dragon Boat Festival	Moon Festival	Double Tenth National Day
Toll-free period	◎	◎	◎	◎	◎	◎
Ramp Metering Control at Entry	◎	◎	◎	◎	◎	◎
High Occupancy Vehicle Exelusive use	◎	—	—	—	—	—
Entrance-ramp Closure	◎	—	◎	—	—	—
Opening of Road Shoulder	◎	◎	◎	◎	◎	◎

Remarks: ◎ represents a measure implemented.

(2). Traffic relieving measure for National Freeway No. 5

For 4 days (from the second to the fifth day of the first month of the lunar year) in the Chinese Lunar New Year 2011, the Major Raffle for Travelers Taking the Bei-Yi (Tai No. 9) Highway, Interactive Cellular Phone SMS to providing read-time traffic information among other campaigns and measures were implemented. The Major Raffle for Travelers Taking the Bei-Yi (Tai No. 9) Highway was launched encouraging travelers coming from Yilan to Taipei by taking the Tai No. 9, 1 set of iPad, 5 NT\$2,000 shopping coupons and 40 NT\$500 shopping coupons were offered as rewards. Using real-time Messages provides to the service of 24-hour real-time messages with traffic information to travelers



about congestion at the entrance to the Hsuehshan Tunnel and by the traffic congestions in the freeway interchanges in Yilan. Mobile CMS deals with the installation of mobile CMS in the neighborhood of the Toucheng, Yilan, Luodong and Suao Interchanges providing real-time traffic information of the National Freeway No. 5 as reference to travelers opting for detours.



Raffle participant receiving the ticket



Participant checking details of the rewarding rules



Raffle-tickets recycling station



Public draw scene



The process of Interactive Cellular Phone SMS to Providing real-time traffic information



Mobile CMS in front of the Yilan Interchange



Mobile CMS in front of the Luodong Interchange

4. Alleviating sections of traffic congestions on national freeways

(1). Adding auxiliary lanes

The work in question relates to the adding of 1 auxiliary lane by adjusting the width of the traffic lanes and the road shoulder as well as regulating the two-way traffic sections between the Taichung System and Fengyuan on the



National Freeway No. 1. When completed on November 3 2011, preliminary evaluations indicated that both average travel speed and order in rush hours in the section did improve significantly.



Before construction



After construction

Taichung System Southbound Entrance, the National Freeway No. 1



Before construction



After construction

Taichung System Northbound Exit, the National Freeway No. 1

(2).Opening Road Shoulders to Traffic

To solve the issue of frequent traffic congestions in several sections, road shoulders on the National Freeway No. 1 are opened this year for small vehicles in the following areas, namely Badu—Dahua System southbound, Neihu—Yuanshan southbound, Toufen Interchange southbound exit, Badu—Keelung northbound, Dahua System—Badu northbound, Xizhi Toll Station—Wudu northbound, Yuanshan—Neihu northbound, Hsinchu—Zhubei northbound and



the northbound sections at 203k+600 ~ 201k+680. The northbound sections in Hsinchu—Zhubei and 203k+600 ~ 201k+680, on National Freeway No. 1 are opened by reducing the width of the inner road shoulders and the traffic lanes to make the external road shoulders be of 3m as specified.

Route	Section	Time	Date Effective
National Freeway No. 1	Badu—Dahua System (Southbound)	7:00~9:00 Weekdays	Aug. 2 2011
		7:00~9:00, 16:00~19:00 Holidays	
	Neihu Chenggong Road Entrance—Yuanshan (Southbound)	7:00~9:00, 16:00~19:00 Daily	Oct. 18 2011
	Toufen Interchange Exit (Southbound)	17:00~19:00 Daily	Sept. 1 2011
	Badu—Keelung (northbound)	16:00~19:00 Daily	Aug. 2 2011
	Dahua System—Badu (northbound)	16:00~19:00 Daily	Aug. 2 2011
	Xizhi Toll Station—Wudu (northbound)	16:00~19:00 Daily	Aug. 2 2011
	Yuanshan Binjiang Street Exit—Neihu Chenggong Road Exit (northbound)	7:00~9:00, 16:00~19:00 Daily	Oct. 18 2011
	Hsinchu A—Zhubei (northbound)	16:00~19:00 Daily	Dec. 23 2011
Puyan System—Changhua (northbound)	14:00~19:00 Holidays	May 28 2011	



Keelung – Xizhi Toll Station, the National Freeway No. 1



Neihu – Yuanshan, the National Freeway No. 1



Before improvement



After improvement

Puyan System – Changhua, the National Freeway No. 1

(3). One-lane exit ramps changed to two-lane ramps

To eliminate the traffic congestion at exits backed up to the main line, this office ordered to have the one-traffic-lane be made for two-lane traffic at the exits of Xizhi Overhead Tiding northbound in the National Freeway No. 1 (Oct. 19 2011), the Yuanshan Binjiang St. northbound in the National Freeway No. 1 (Nov. 22 2011) and the Zhubei southbound in the National Freeway No. 1 (Aug. 10 2011), where the one-lane ramps are made for two-lane traffic. The improvement did increase capacity for more vehicles and, at the same time, decrease the weaving created by the vehicles traveling in different directions.



Before improvement



After improvement

Xiwu Overhead Tiding Northbound Exit, the National Freeway No. 1



Before improvement



After improvement

Yuanshan Binjiang Street Northbound Exit, the National Freeway No. 1



Before improvement



After improvement

Zhubei Southbound Exit, the National Freeway No. 1

5. Transportation works

(1). Internally illuminated box signs for the Zhutian System Interchange on the trial basis

The internally-illuminated-light-box signs installed on a trial basis at the Zhutian System Interchange are to highlight the sign in night hours. The Energy-saving-internally-illuminated traffic sign installed by this office at the Zhutian System northbound exit in January 2011 on a trial basis does show remarkable improvement of sign identification in night hours.



Comparison of conventional signs to internally illuminated signs

(2).Information available ahead of exits on adjoining expressways

To deal with the increasing number of provincial expressways, where travelers demand guide signs, expressway numbers are made available ahead of exits. As of late 2011, the service was available at Badu Interchange, the National Freeway No. 1, the Daxi Interchange and the Hemei Interchange, the National Freeway No. 3.



Badu Interchange northbound 2K+300, the National Freeway No. 1



Hemei Interchange, the National Freeway No. 3



(3).Traffic congestions improved at the Dingjin System

In order to enlighten the traffic congestion in the neighboring roads of the Dingjin System Interchange, this year, this office implemented successfully the ramp-metering control system on a trial basis at the southbound of the National Freeway No. 1 turning right into the overhead ramp, National Freeway No. 10 along with the extension of the traffic posts at the Ziyou Road exit adjoining the National Freeway No. 10 westbound and the adjustment of the form of the National Freeway No. 10 eastbound and westbound, where the southbound ramps join as improvement of the line. The improvement remarkably alleviated the back-up in the southbound of the National Freeway No. 10 turning east.



Adjustment of the line shape of the converges at the southbound exchanges in National Freeway No. 10 East, west heading for National Freeway No. 1



Traveling by National Freeway No. 10 heading West and leaving Ziyou Road by extending the traffic pole by 50 meters.



Trial ramp metering for those traveling by National Freeway No. 10 heading South and turning right to the elevated ramp by National Freeway No. 10



Extending the dual-white-solid line at National Freeway No. 1 northbound exit ramp by 240 meters.

(4).Wall color painting and markers substituted for marking in the Hsuehshan Tunnel, the National Freeway No. 5

In 2011, wall color painting and markers substituted for marking were provided in the northbound sections 20.5k~22.5k in the Hsuehshan Tunnel to



brighten the tunnel and make travelers feel more comfortable. At the same time reflecting markers are provided as substitute in the northbound section at 24.5k~22.5k to increase net width of the traffic lanes and alleviate travel stress and eventually accelerate travel speed.



Wall color painting in the Hsuehshan Tunnel



Alternate markers available in the Hsuehshan Tunnel on a trial basis

6.Promotion of using public transportation

From July 30 2011, a new regulation is implemented at the location of the instrumental of ramp metering controls and the use of the traffic lanes at northbound ramps at Toucheng, Yilan, Luodong and Suao Interchanges, the National Freeway No. 5, where buses are allowed to pass without having to follow the instrumental control (by not stopping at red light). The improvement makes travel time of buses be reduced by 30 minutes in average, quite a remarkable outcome.



Buses heading north from Luodong entering into the exclusive lane



Buses heading north from Toucheng entering into the exclusive lane



7. Traffic Safety Promotions

(1). Publicity Promotion for Safe Travel on Freeways

For the sake of safe and effective travel on freeways, this office launched a print promotion in 2011 that carries 4 themes, namely Towing Service on Freeways, Safe Travel Instructions on Freeways in Sections Under Construction, Inside Lanes for Passing Vehicles Only and Buck-up for Passengers in Both Front and Rear Seats.



Campaign poster for Safe Travel on Freeways

(2). Safe Travel on Freeways – Production and Playing Promotion Footages

In order to remind travelers of safety by providing sound concept of safe travel and taking first-aid measures as well as Towing services available in case of vehicle failure, which are all meant to protect the interests of travelers, this office launched a promotion footage produced by a contractor that carries the themes of Safe Travel Reminder and Tow-away Services Available. On the other hand, a 20-second audio tape was made carrying the theme of Towing Services Available for airing at hours of public interest in radio stations.



Safe Travel on Freeways 2011-- Safe Travel Reminder and Towing Services Available.

(3). Rest area for professional drivers in Service Areas and relevant facilities

Due to the elevated traffic accident rate on freeways produced by fatigue and to keep drivers from developing fatigue (or in bad shape), rest areas for professional drivers in the Service Areas of Hukou southbound, Taian southbound and Xinying northbound, the National Freeway No. 1 is provided available with relevant facilities. In each of the service area, there are 3~4 rest rooms available with free showers, simple bedding and air conditioning. In addition to the Taian Service Area that was open on October 15 2011, the others are scheduled to be open effective January 2012 respectively. This is a cozy service, where professional drivers may recover from fatigue and eventually assure safe travel on freeways.



A view of the rest room for professional drivers



(4).Safety Merit Gold Awarding Ceremony 2011

The Safety Merit Gold Awarding Ceremony 2011 was held on Tuesday, November 29 in the Conference Hall on the 5th Floor, the International Convention Center, MOTC and this office was ordered to be the organizer. To assure success of the event, a private planer company was contracted along with a special team that provided assistance, all to make all participants share the moment of warmness and glory.



Premier Wu awarding the medal to the first-place winner in the event

In the beginning of the ceremony, Premier Wu and Minister MAO Chikuo, MOTC, appraised the winners in their welcome speeches to the public. Later on, the winner groups and individuals received their awards. This office took the champion in Group 1 and first place in the individual accident-preventing measures race.



Premier Wu awarding the medal to the winner of the individual accident-preventing measure race.



Thanks to the careful preparation and the assistance rendered by all agencies and the teamwork of the responsible team, each and every winner received the award. The ceremony involved entertaining shows and prize draws that were conducted smoothly. The host had every detail proceeded in good timing and the performing artists and the public enjoyed the event in fair interaction and a large number of gifts were available for the prize-draw. The event completed successfully and was appraised by the public.



The Director-General in photo with colleagues

(5).Preparation for the 11th Asia-Pacific ITS Forum and Exhibition 2011

The 11th Asia-Pacific ITS Forum and Exhibition 2011 was held between Wednesday June 8 and Friday June 10 2011 in the Hi-Lai Hotel Arena in Kaohsiung, where this office took care of the preparation and the affairs involved in the technical visits of the event.

The Exhibition introduces the traffic control system and the complete roadmap, which make the visitors learn the details involved in the building of the traffic control system for freeways and expressways and the technology involved in the real time traffic information, a tour to the ETC system in



the Xinshi Toll Station and the Traffic Control Center, the Southern Region Engineering Office was made available by this office.



Booth of this office



Visiting the Southern Region Engineering Office

(6).The 1968 Customer Service Center open to the public

In order to provide faster and real-time service to the public, this office has the 1968 Customer Service Center open on January 1 2012 with the assistance of Chunghwa Telecom. Users can check national freeway traffic information by pressing 1 and first-aid services by pressing 2, you may talk to the service personnel by pressing 9.

Along with this customer service line, we offer a Freeway 1968 App Software for smart phone users. The public may dial 1968 Freeway Customer Service more simply to check traffic updates by the 1968 App.



1968 Customer Service Center



App Software

(7).Real-time weather information

Since September 30, 2011, we began to offer the weather information of the northern region by CMS. It was a trial service. The source of weather information is provided by Central Weather Bureau, CWB, and covers temperatures and weather conditions, mainly such as, mainly 28~35°C, sunny afternoon and sudden rainfalls in Taipei City. The trial service was assessed successful and will soon be implemented islandwide.



Real-time weather information available on CMS



(8).Bilingual travel information

Starting from November 2011, we have chosen 6 section to display the travel time information in English to Taipei, Taoyuan Airport and Hsinchu. The service lets the foregin visitor also get the traffic information of freeway.



Travel time information in English language available through mobile CMS

(9).Popular TANFB stand packed by Police Radio Station Listeners

In order to upgrade the campaign of the 1957 Caring-the Weak Line of the Ministry of the Interior, the Police Radio Station hosted the We Are Family event for its listeners at the stadium of the Nanman Junior High School in the morning of Saturday August 20 2011. With radio program hosts in the Police Radio Station directing the event, performing artists joined the listeners and outdoors, there were security or road safety publicity stands, sector for experiences of mobile transmission vehicles and an interaction sector for the hosts and the listeners. The event covering both indoor and outdoor performing programs arranged by this office offered tasty dishes, games and gifts that made the public happy.

In the event, TANFB had campaign posters and publicity materials on display in the stands along with fine campaign materials. Prize-winning Q&A games involving What ETC Does To Use, Traffic Updates and Travel Service among



others were also held, reason why the stands were packed all the time. It was a productive and educational event of fun.



A view of the event (1)



A view of the event (2)



In picture with the colleagues