

智慧管理 Intelligent Management

北區交控中心
Northern Region Traffic Control Center



安全順暢

Making Traffic Safe and Smooth

帶動經濟發展的高速公路，是臺灣最重要的運輸幹道，向來都是以最高的技術標準來建造，因此也需要比一般道路建置更為完善的交通設施，採用更為先進的科技技術，並運用更智慧和嚴謹的管理方式。

Our freeways that have boosted Taiwan's economic growth are Taiwan's most important transportation artery, and they were built by the highest technological standard. In fact, they require facilities with most state-of-the-art technology more advanced than those adopted by ordinary highways. Meanwhile, we manage them with stricter and more intelligent methods.

交通控制 Traffic Control



隧道廣播
Tunnel Broadcast

為了保護用路人的行車安全、提供旅行者資訊服務、增進事故處理及緊急應變能力，以及提昇公路管理效率和紓緩交通壅塞，我們建立了交通控制系統，全天候監視路況並提供交通資訊，更進而導入智慧型運輸系統(ITS)，將資訊、通信、電子、控制和管理等技術加以整合，為大家提供更完整且迅速的服務。

To help users drive safely, offer traffic information service, enhance capability of handling emergencies, upgrade management efficiency, and alleviate traffic congestion, we set up a traffic surveillance and control system which can monitor traffic situations and provide traffic information at all times. And we have introduced intelligent transportation system (ITS) to integrate technologies of information, telecommunication, electronics, control and management, thus rendering comprehensive and efficient service to freeway users.





服務區設置國道資訊補給站，可查詢國道全線的即時路況。

By telephone, internet, and the "National Freeway Information Kiosk" in service areas, freeway users can easily get real-time traffic information.

全年無休不中斷運作的交通控制中心是交通管理的指揮中樞，各類型的資訊收集系統將偵測和蒐集到的交通狀況傳回交通控制中心後，中央電腦及交管人員立刻進行資料運算與分析，產出最佳的交通管理策略，除了利用交通控制系統執行如速限調整、開放路肩及匝道儀控等交管措施外，並透過資訊顯示系統，將即時交通資訊傳送給用路人。如果遇到需要立即處理的緊急狀況，也會聯絡相關單位，馬上給予回應和協助。

未來更將成立「交通資訊管理及協調指揮中心 (TIMCCC)」，以「分區管理、資訊集中」的概念，統合高速公路4處交通控制中心，處理整個國道系統和12條東西向快速公路上的交通訊息，並結合地方道路的交通資訊，讓用路人對於路況能夠更確實且全面的掌握。

經由先進的設施及智慧化的管理，可以提供用路人完整的行車資訊，而且走到哪裡都能輕鬆取得。未來交通控制系統更將結合電子收費系統 (ETC)，以及相關的交通科技，讓智慧型運輸系統在紓解交通瓶頸之外，並能達到節能減碳、綠色運輸的理想目標。



Our traffic control center operates day and night and is a commanding center for traffic management. First, various traffic conditions collected from traffic data collection system are transmitted here; then our central computer and staffs will, after analyzing incoming information, adopt the most appropriate strategies--such as reregulation of vehicle speed, opening of road shoulders, or entrance ramp metering control, and broadcast to freeway users and related agencies by information display system. If an emergency occurs, the center will contact related agencies and guide and assist users in time.

In the future, we will set up "Traffic Information Management, Coordination and Command Center" (TIMCCC) which, based on the idea of "managing by region, centralizing of information", can integrate our four regional traffic control centers to handle traffic information in the freeway network and the 12 east-west expressways. And traffic information regarding local highways will also be included; then users will get the overall and real-time traffic information.

With these advanced facilities and intelligent management measures, we provide complete traffic information. Therefore, no matter where you are, you can easily gain access to our real-time information service. In the future, our traffic control system will integrate the ETC and related traffic technologies to enable the intelligent transportation system to not only alleviate traffic bottleneck but also achieve the goal of saving energy, reducing CO₂, and "green transportation".

交通資訊管理及協調指揮中心架構圖 Framework of Traffic Information Management, Coordination and Command Center (TIMCCC)



多元路況提供

- ◎ 網路：上網即可查詢交通資訊和即時影像，
<http://1968.nfreeway.gov.tw>。
- ◎ 廣播：與警察廣播電台及地方交通專業電台連線報導即時路況。
- ◎ 電話：撥打1968國道即時交通資訊語音查詢專線。
- ◎ 服務區：設有國道資訊補給站。
- ◎ 手機、PDA、GPS導航機亦可查詢最近路況。
- ◎ 路上的資訊可變標誌隨時提供前方的即時路況。

Providing traffic information via multiple ways:

- ◎ Internet: Traffic information and real-time image are available at <http://1968.nfreeway.gov.tw>
- ◎ Radio: Traffic conditions are broadcast at the Police Radio Station and the Regional Traffic Networks
- ◎ Phone: Call 1968 for instant traffic information of national freeways.
- ◎ Service area: There is freeway information kiosk in each service area.
- ◎ Cell phone, PDA & GPS: Can get instant traffic conditions via on-line function.
- ◎ Changeable message signs: Display real-time messages along freeway.

收費服務

Toll Collection



泰山收費站是高速公路第一個啟用的收費站，見證從現金、不找零、回數票車道，到設置電子收費專用車道的完整歷史。

Taishan Toll Station is the first freeway toll station in Taiwan. It has witnessed the complete history of toll collection from cash, no-changes, tickets lanes, to the ETC system.



國道3號/後龍收費站
Houlong Toll Station of National Freeway No. 3

泰山收費站是高速公路第一個啟用的收費站，隨著國道的拓展，目前共設置了23個收費服務點。

收費站採用的是主線柵欄式收費，通行費依車輛類別採均一費率。早期收費為現金與回數票併用，之後為了加快車輛的行進速度，減少車輛停滯時間，於民國72年開設不找零車道，民國85年更進一步推出小型車回數票專用車道（不收現金不找零），努力將繳費過程簡化、縮短過站時間，提升收費服務品質。

隨著科技進步，自95年開始啟用電子收費系統，讓用路人不須停車即可輕鬆完成繳費。

Taishan Toll Station is the first freeway toll station in Taiwan. With the expansion of freeway network, toll stations total 23 now.

The tolls at national freeways are collected at the lane-based toll stations. Toll fares are categorized by vehicle classification. In the early time, both cash and ticket were accepted at toll stations. To reduce the queue time at toll plaza, non-cash lanes have been opened since 1983. Furthermore, starting 1996, dedicated lanes for cars using ticket have been opened. All these efforts are made to meet the objectives of simplifying toll process, reduce queue time, and improve toll service quality.

With the advancement of modern technology, Electronic Toll Collection (ETC) system was started in 2006, which enables freeway users to pass toll stations without stopping vehicles.

收費站分布圖 Location of Toll Stations



收費站 Toll Station



使用電子收費，用路人可以減少因煞車再起步或停車再啟動的油耗，既可節省能源，又可節省油費，還可以減少溫室氣體排放、降低空氣污染、提昇過站速度及縮短行車時間，一舉數得。而且因不使用回數票，降低紙張消耗，進而減少樹木的砍伐，對於地球環境助益良多。

就節省省時少污染的效益而言，電子收費比人工收費高出許多，尤其是在車流龐大的尖峰時段，效益更為顯著。

因此，我們除了鼓勵用路人使用回數票證，減少現金繳費之外，更希望在不久的將來能夠全面實施電子化自動收費，除了徹底奉行節能減碳、貫徹綠色運輸，也希望能夠實現「走多少、付多少」計程收費的理想，達到真正公平付費的原則。

The advantages of ETC include: non-stop vehicles save gasoline and its expenses while no waiting time is need; no-break and no-restart can reduce greenhouse effect emissions and air pollution. Meanwhile, ETC helps decrease the demand of papers used for toll tickets, and so people will fell fewer trees to preserve our planet.

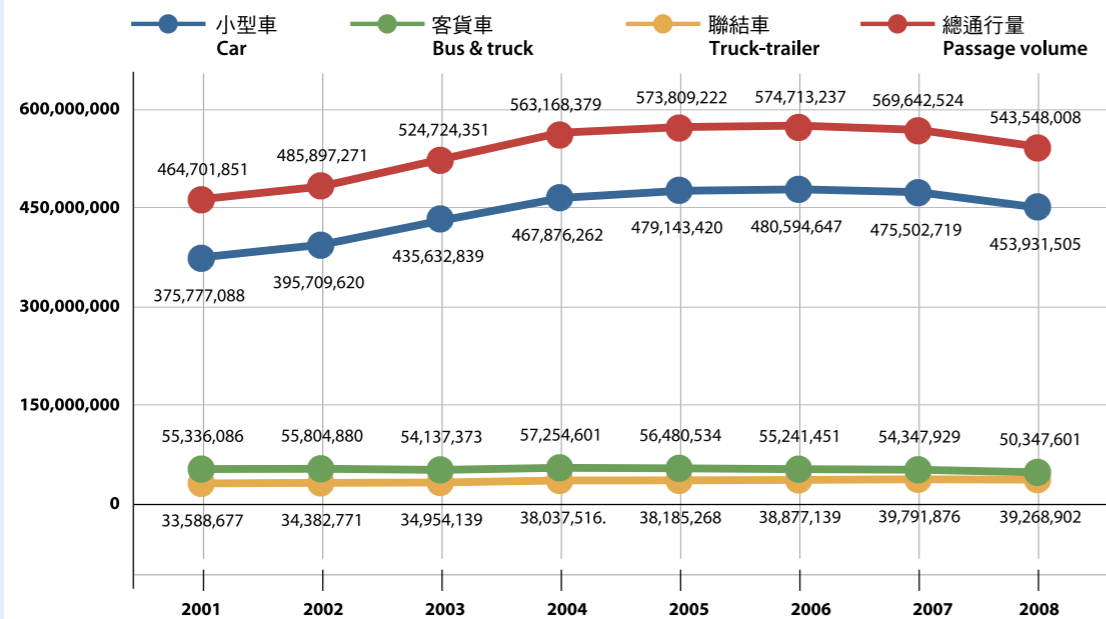
Indeed, as far as saving time and reducing pollution are concerned, ETC is a much better choice, particularly during peak hours.

Therefore, we now encourage the use of toll tickets and hope the ETC will be in all-out operation soon. Only by doing, so we can save energy, reduce CO₂ emissions, and realize green transportation. Our ultimate objective is a fair toll collection by mileage so that freeway users can just pay for the actual distance they have traveled.

用路人每次使用ETC節省時間、能源、污染 Time-Saving & Environmental Protection Benefits of Vehicles Using ETC (per time)

		節省時間 (分) Time saved (min.)	節省燃油 (CC) Fuel saved (cc)	減少二氧化碳排 (g) CO ₂ emission reduced (g)	通行百次 節時及節能效益 (元) Time & Energy Saved (NT\$ per 100 times)
小型車 Car	尖峰 Peak hours	3	35	80	834
	離峰 Off-peak hours	0.5	10	20	150
大型車 Heavy Vehicle	尖峰 Peak hours	3	60	160	878
	離峰 Off-peak hours	0.5	15	40	158

90-97年度收費站通行量
Statistics of Traffic Volume Passing Toll Stations, 2001-2008



通行量效率 Tollgate Passage Efficiency

電子收費車道 ETC gate	小型車回數票專用車道 Car (ticket) gate	小型車找零車道 Car (cash) gate	大型車車道 Heavy vehicle gate
1,600-1,800 輛/小時 vehicles per hr.	850-950 輛/小時 vehicles per hr.	350-550 輛/小時 vehicles per hr.	420-530 輛/小時 vehicles per hr.

交通安全

Traffic Safety



除了推動智慧型運輸系統和電子收費系統之外，如何讓用路人瞭解各項道路設施的用途，以及正確安全的行車方式，也是我們工作的重點。

在標誌、標線等交通設施上，力求簡單明瞭，讓大家在行車時即能獲得清楚的指引資訊，並擁有安全的行駛環境。此外，更運用各種宣傳管道來教育民眾使用高速公路的正確觀念和習慣，以維持良好的行車秩序。

例如，交通控制中心的交管人員會將最新的消息與即時的路況，在國道的資訊可變標誌即時顯示，並透過網際網路、導航系統、電話和廣播，發布道路路況資訊；我們會依據不同主題及對象，編製各類平面文宣，讓民眾可以依需要索取；我們的網站上也提供歷史資料、現今資訊，以及未來預告；另外重要政策或彈性措施，也會利用各種媒體宣導，讓民眾能夠經由各種管道獲得必要資訊。

對於交通安全觀念的推廣與教育，我們一直不斷在努力，讓大家能夠確實且快速的瞭解更是我們一貫的目標。然而，真正行車安全還是需要用路人的配合，惟有每位駕駛和乘客都留意行車資訊且遵守規則，交通才能更安全。

It is our duty to help freeway users clearly understand the functions of various facilities and the correct way of safe driving.

First and foremost, we make traffic signs and markings simple and clear so that users can get clear guidance and drive in a safe environment. Besides, to maintaining traffic order, we also use various channels to help people cultivate correct knowledge and good habits of using freeways.

For example, our staffs in control center will put the newest traffic messages on changeable message signs along freeway, and will release related information through internet, navigation system, telephone and radio broadcast. Paper publications on specific subjects will also be available for interested people. Our official website provides complete information of this Bureau's past, present and future development. Whenever there are important policies or temporary measures, we will make known to the public through various channels.

Indeed, we have spared no efforts in promoting traffic safety. More importantly, we need the cooperation of every freeway user in abiding by traffic rules to ensure safe journey for all people at all times.



透過宣導活動、平面文宣及海報，讓民眾獲得正確駕駛及行車資訊。

Our activity bulletins, printed publications, and information kiosks in service areas can provide all the required information.



隧道行車

Driving in Tunnel



臺灣地勢多山，為快速連結山嶺阻隔的兩地，需要隧道來擔任開通大使的角色。而公路隧道因為密閉的特性，一旦發生事故，將產生聯絡困難、情況難以掌握和救援不易等狀況，且後續復原亦較一般路段困難。因此我們對於隧道的安全管理及防救災工作相當重視，在建造之初即裝設完整的電力、通風、照明、消防、監控、交控及通訊等設施，並訂定嚴格的行車規定，各交通控制中心亦隨時監控隧道內的狀況，如遇事故立即通報處理。

在眾多隧道中，對於長達12.9公里，名列世界第五長的國道5號雪山隧道，我們更是不敢輕忽。除了基本的隧道安全管理之外，特別成立專屬的坪林行控中心，配屬24小時待命的自衛消防編組、事故處理小組

國道5號坪林行控中心，以及24小時待命的自衛消防編組。

The Pinglin Traffic Control Center with a self-help fire extinction team operates at all times on Freeway No. 5.



及特約拖救車，再配合隧道兩端的專責消防隊，隨時保護用路人在隧道內的行車安全。

用路人的配合更是隧道行車安全最為重要的一環，因此我們積極加強宣導工作，請民眾在進入雪山隧道之前務必檢視引擎溫度，以防溫度過高引發起火的危險；請大家收聽FM頻道，接收即時路況資訊；全程開啟大燈、不要變換車道、遵守管制號誌，且與前車保持50公尺以上的安全距離；如遇事故應開啟危險警告燈、放置故障標誌，並利用路邊緊急電話通報相關單位處理。

相信只要大家全力配合，再加上完備的管理及防救災緊急應變機制，絕對可以讓雪山隧道不僅是快速，更是一條安全的道路。



設置各種交通設施，都是為了保障隧道行車安全。

All our traffic measures and facilities aim to ensure traffic safety inside tunnel.



國道5號雪山隧道長達12.9公里，名列世界第五。

The 12.9-km Hsuehshan Tunnel is the world's 5th longest highway tunnel.

Taiwan is an island with many mountains and tunnels have been opened here and there to connect two separated places. Because tunnel is a close environment, it will be difficult for communication and rescue works if an accident occurs. And subsequent recovery operations will also be harder than ordinary sections. Bearing this in mind, we attach great importance to safety management and firefighting works inside tunnels. In building a tunnel, we would install complete systems of electricity, ventilation, lightning, firefighting, monitoring, traffic control, and communication facilities. Strict regulations of driving would also be made. Our control centers in different regions monitor closely situations inside each tunnel and will immediately deal with every accident whenever it arises.

Among all the tunnels, the 12.9km-long Hsuehshan Tunnel, which ranks 5th in the world's highway tunnels, requires the greatest attention. Besides basic tunnel safety requirements, we have set up the Pinglin Control Center to specially monitor it. There are also a self-help fire extinction team, an accident-handling team,

a towing truck contractor, and two specialized firefighting squads at both tunnel-ends all standing by day and night.

Well knowing the importance of cooperation of freeway users, we have been promoting tunnel safety to remind people to check vehicle conditions, especially engine temperature, before driving into this tunnel. After entering, it is advised to listen to FM radio channel for tunnel traffic condition; and drivers must turn on headlights, never change lanes, follow control signals, and keep a 50-meter distance at least from vehicles ahead. In case of an accident, drivers should turn on warning lights, put visible signs behind vehicle, and use emergency telephone installed on roadside for help.

Indeed, the cooperation of all the people, along with our effective disaster-prevention and emergency-response mechanisms will ensure a speedy and safe journey inside the Hsuehshan Tunnel.