



2007 | 交 | 通 | 部

鐵路改建工程局

局務概況

Annual Report of
Railway Reconstruction Bureau, MOTC



都會的版圖不斷輻射擴展 | 幸福的列車不停向前駛動 | 鐵路捷運化、立體化以及支線化 | 串聯中短程交通運輸的津樑
讓夢想一個緊接著一個 | 在賞心中起飛、在愜意下奔馳

The city relentlessly expands in all directions | Trains of bliss constantly chug forward | Rapid transit,
branch lines, and railway grade separation | Seamlessly link local and intercity transit | Enabling one dream
after another to be realized | Letting them take flight and leave troubles behind

讓夢想不斷飛揚

Letting Dreams Take Flight

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局長序言 Preface

本局前身為「交通部台北市區地下鐵路工程處」，於民國69年籌備，72年正式成立，執行台北市區鐵路地下化規劃以來，辛勤耕耘歷經二十餘載，在全體同仁長期努力及各界支持下，陸續完成台北地區鐵路地下化14.42公里，包括「台北車站地下化」、「松山專案」、「萬板專案」等工程，及高雄鐵路地下化先期工程（含高雄車站臨時站與高雄舊站遷移等）、新左營車站工程、台鐵南港專案汐止段高架等。民國88年7月配合台灣省政府精簡，納編「東部鐵路改善工程局」業務擴及東部鐵路。爾後陸續推動鐵路立體化，接辦「台中專案」、「台南專案」，及「東部鐵路改善計畫」之賡續執行，同時代辦高鐵及台北捷運、高雄捷運等多項工程，工地遍及全台各地。基於工程推動之需要，民國91年元月奉命改制更名為「交通部鐵路改建工程局」，組織架構更為堅實，任務執掌劃分益趨明確。

鐵路地下化之實施，不但使都市生活品質得以提昇，社會經濟商業活動更顯活絡，大大有利於確保行車安全及市區道路交通改善，且配合台鐵捷運化計畫，逐步增設通勤車站，使台鐵轉型為具都會區捷運系統功能後，對於都會區之進步與發展尤具顯著之正面效益。而台鐵北部基地及南部基地之改善建設，對台鐵業務之振興，亦具催化作用。

面對鐵路改建工程逐步發展進入高峰，本局除秉持「安全、績效、溝通」三大工作目標及「如期、如質、如度」三大績效要求外，並重視工程品質、掌控進度，積極做好工地安全及環境衛生工作，以求降低成本，減少損害，使全般作業益臻完善。多年來，本局之績效與品質均深獲肯定，屢獲金路獎等多項殊榮，實乃我全體同仁共同努力，一致奮發，有以致之，並在此一穩定基礎上，更加努力。期盼全局同仁，從自我做起，大家都能具備「敬業」、「負責」、「尊重別人」、「良好操守」的特質，且樂於把「鐵工局當作自己的家」。

為激勵精誠，凝聚向心，交流經驗，共享心得，發揚整體團隊之合作精神與協力風尚，並奉行「為者常成、行者常至」之古訓，爰發行「局務概況」，以供閱覽，俾藉相互策勵，不斷進步。茲值創刊號發刊之日，僅綴數語如上，以誌個人之期望，並與我同仁共勉，是為序。

局長

鄭賜榮



Established in 1983 to planning and implement the Taipei Railway Underground Project, the Engineering Office of the Taipei Railway Underground Project (TRUPO) successfully put 14.42 kilometers of Taipei city railway underground over the course of two decades, thanks to the efforts of its entire staff and support from every sector. Among the projects it handled were the "Taipei Main Station Underground Project," the "Songshan Project" and the "Wanhua-Banciao Extension Project." In addition, it carried out pre-construction work on the Kaohsiung Railway Underground Project (which included constructing a temporary station and moving the existing station building) and construction of the new Zuoying Station and elevated railway work in Sijhi connected to the Nangang Extension Project for the Taiwan Railway Administration (TRA). In July 1999, when the provincial government was downsized, TRUPO's scope of operations was expanded to cover all the metropolitan areas in Taiwan. In a push for railway grade separation, the government gave it responsibility for the "Taichung Project," the "Tainan Project" and the "East Railway Improvement Project." In addition, it undertook many projects for the High Speed Rail (HSR) project, Taipei Mass Rapid Transit System (Taipei MRT) and Kaohsiung Mass Rapid Transit System (KMRT). In January 2002, to meet operational needs, it was restructured to become the Railway Reconstruction Bureau (RRB), MOTC, and its East Railway Improvement Engineering Bureau was renamed the Eastern Region Engineering Office. As a consequence, its organizational structure is more robust and its division of labor is more explicit.

Putting railways underground improves the quality of urban life, spurs social, economic and commercial activities, and makes driving in the city safer and traffic flows smoother. Furthermore, in coordination with the "TRA Rapid Transit Systematization in Metropolitan Areas Project," more commuter stations are being gradually added to ease the load on urban transportation systems. This is having an obvious and positive impact on the progress and development of urban life in Taiwan. In addition, the improvement projects for both TRA's northern and southern service bases will serve as a catalyst to revive its operations.

As the various railway reconstruction projects gradually move forward, the RRB continues to push to meet its three work goals of "safety, performance and communication" and its three performance expectations of "on time, of high quality and within budget." To reduce costs, keep damages to a minimum and ensure smooth operations, it pays great attention to construction quality and project timetables while actively pursuing work site safety and sanitation. In past years, the high performance of this bureau has been well recognized. Due to the collective efforts of its staff, it has won it a Golden Road Award, among many other honors. With such a solid foundation, I expect all the partners have a personality with a noble character, heavy responsibility, great respect, and a good behavior; glad to devote them to the work.

This publication aims to encourage employee dedication and cohesion, provide a place for all to exchange their experiences and share their insights, promote cooperation and exalting team spirit, and remind all that "only those who try succeed and only those who set forth reach their destinations." On the publication of this first issue, I offer these comments both as words encouragement for my colleagues and as expressions of my personal hopes.

Director General

Cheng, Tin-Jung



組織與職掌 Organization and Duties

行政院核定於民國72年7月1日正式成立「交通部臺北市區地下鐵路工程處」（簡稱地鐵處），負責台北市區鐵路地下化作業之規劃與執行，民國88年7月1日原台灣省交通處東部鐵路改善工程局改隸於地鐵處，改名東部工程處（簡稱東工處）。專責辦理東部鐵路改善工程，民國91年1月1日，再奉核定更名為「交通部鐵路改建工程局」（簡稱鐵工局），業務職掌隨之修訂，為重大鐵路改建工程之綜合規劃、設計與施工等。

本局為派用機關，設置規劃、工務、機電、運務等4個業務組及秘書、會計、人事、政風等室為行政單位，並按實際工程需要，成立任務編組之松山及南港施工區，以及中南小組與號誌、電力、電務、舖軌、測量等5個專業工程隊。另為落實採購作業，民國95年3月7日成立「採購中心」，統一集中辦理工程、財物及勞務採購業務，以期達到管理單一、時效迅捷、經簡節約、依法行政之具體效果。針對各項工程材料、試體所必須之驗證，工務組下並設立「材料實驗室」，以求確保工程品質。

本局業務範圍包括北、高兩院轄市在內之全省各都會區，民國96年1月2日行政院專案核定「南部工程處」，專責推動台南、高雄、屏東等地工程。擔負國家重大建設任務，為本局光榮使命，全體同仁均以獻身國家建設為榮為幸，忠誠務實精神，群策群力，戮力以赴，力求保證任務之貫徹，使命之達成。

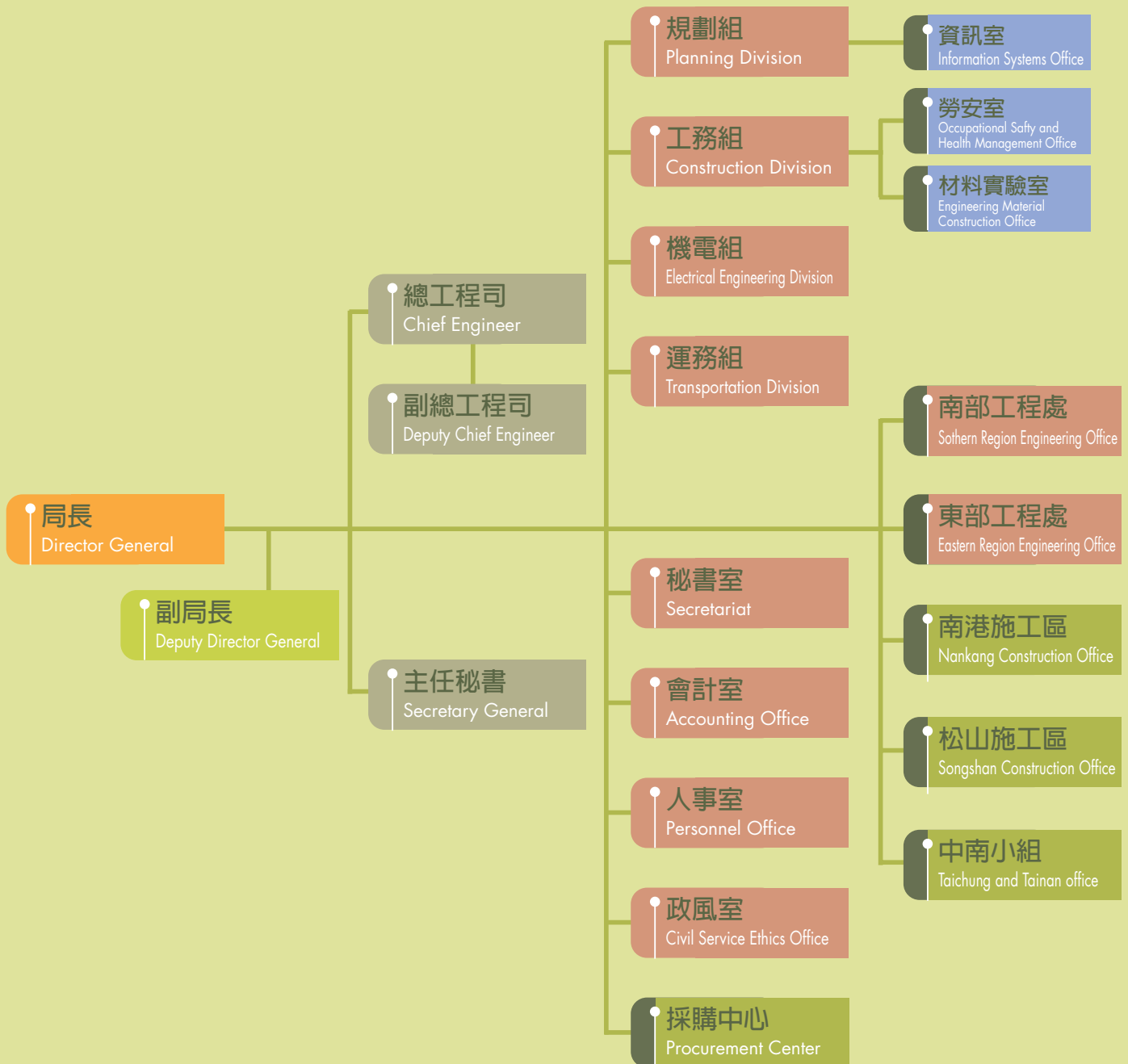
For the purpose of putting Taipei city's railway system underground, the Ministry of Transportation and Communications (MOTC) founded the Engineering Office of the Taipei Railway Underground Project (TRUPO) on July 1, 1983. On July 1, 1999, the provincial East Railway Improvement Engineering Bureau was merged into TRUPO. On January 1, 2002, TRUPO was renamed the Railway Reconstruction Bureau (RRB), MOTC, and put in charge of the general planning, design and construction of major railway reconstruction projects in Taiwan. Meanwhile, the East Railway Improvement Engineering Bureau was renamed the Eastern Region Engineering Office, responsible for railway improvement projects in eastern Taiwan.

The RRB, a temporary agency of the MOTC, consists of four operational divisions (planning, construction, engineering and transportation) and four administrative divisions (secretariat, accounting, personnel and civil service ethics). Furthermore, in response to actual construction needs, the RRB has established two task forces (one each for the Songshan and Nangang and Kaohsiung construction sites), a Taichung and Tainan office and five professional engineering teams (traffic signals, power, electrical engineering, track work and survey). In order to have a mechanism in place for professional-level procurement, on March 7, 2006, the RRB established an internal procurement center to take charge over the acquisition of construction services and other goods and services. Because the RRB is a professional engineering unit, it pays special attention to verifying the quality of construction materials and test specimens. Therefore, a material lab was established under the construction division to ensure the quality of its work.

The RRB's scope of operations covers the two special municipalities of Taipei and Kaohsiung as well as all other metropolitan areas in Taiwan. On January 2, 2007, the Executive Yuan approved to establish a Southern Region Engineering Office to continue work from Tainan、Kaohsiung to Pingtung in Taiwan. The RRB is proud to participate in the major construction projects of the nation. It intends to maintain its high standards and to strive to achieve the goals of the nation's major construction projects.

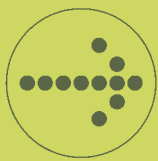


》組織表 Organization Chat



此色塊顏色代表任務編組

This color indicates a mission organization.



已竣工改建工程 Finished Reconstruction Projects

■ 臺北市區鐵路地下化工程（臺北車站地下化、松山專案）

台北都會區向為台灣政治、文化、商業之中心，然鐵路縱貫線、平交道、場站等穿越都會區中心，造成交通之阻隔及對市容之破壞亟待改善，以適應現代化發展之需要。故行政院於72年1月25日核定辦理台北市區鐵路地下化工程，以新台幣177.92億元經費，首先辦理台北車站地下化專案，將自華山至萬華間(含台北車站)，長4.42公里之路段移入地下，民國72年7月開工，於78年9月通車啓用。計消除鐵路平交道13處，大幅度顯著促進台北車站地區都市之發展更新。

為擴大鐵路地下化功效，並持續改善市區交通，消除橫越北市東區8處鐵路對交通之阻隔，77年7月20日復奉行政院核定辦理自華山向東延伸至松山之專案工程(簡稱松山專案)，於78年7月開工，並興建高鐵使用之南隧道及台鐵使用之北隧道雙軌隧道各乙座，共長5.33公里，經費274.8億元，83年6月竣工，全案先後總計完成鐵路地下化約7.93公里，並將騰空之土地，沿鐵路隧道上方興建與隧道共構之東西向高架快速道路，於民國86年9月7日全線通車，並命名為「市民大道」。



台北車站
Taipei Main Station



■ Taipei Railway Underground Project (Taipei Main Station Railway Underground Project and Songshan Project)

The Taipei metropolitan area has always been the political, cultural and commercial center of Taiwan. In light of the various railway lines, railway crossings and station facilities that cut through the city, causing traffic congestion and having an adverse impact on the city's appearance, TRUPO, with the approval of the Executive Yuan, implemented the Taipei Railway Underground Project (Taipei Main Station Underground Project). The NT\$17.792 billion project put a 4.42-kilometer section of railway between Huashan and Wanhua (including the Taipei Main Station) underground. Work began in July 1983 and the stretch was completed and opened in September 1989. The project eliminated 13 railway crossings and ushered in urban renewal around the Taipei Main Station.

To make an even bigger impact and to further improve the city's traffic conditions, TRUPO proposed eliminating the eight railway facilities that obstructed traffic in east Taipei. On July 20, 1988, the Executive Yuan approved the Songshan Project (an extension project from Huashan to Songshan). Additionally, the RRB at the same time constructed a 5.33-kilometer-long double-track tunnel (the south tunnel for HSR and the north tunnel for TRA) at a cost of NT\$27.48 billion. Work began in July 1989 and was completed in June, 1994. The two projects combined put about 7.93 kilometers of railway underground. A east-west elevated viaduct expressway (Civic Boulevard) was later constructed on the land reclaimed from this project, above the underground tunnels. It was opened to traffic on September 7, 1997.



■ 萬華板橋地區鐵路地下化工程（萬板專案）

以促進萬華、板橋地區都市發展為目的之「萬板專案」，納入國家建設六年計畫，透過鐵路地下化工程消除交通擁塞，並結合台北市、縣都市景觀美化，開發板橋車站特定區，整合高鐵、台鐵、捷運、公路客運成為交通中心樞紐與台北縣政治經濟中心。

本計畫範圍從台北市北門至樹林市樹林客車場，全長15.38公里(含地下段7.18公里)，於民國81年9月開工，88年7月台鐵移入地下營運，93年12月底完工（92年4月完成高鐵隧道工程交付）。

● 新板橋車站

位於板橋市文化路、漢生東路、民權路、中山路間面積48公頃，為萬板專案計畫重要工程，民國83年9月完成設計，88年7月21日完成第一期北隧道工程(台鐵先行營運啟用通車)，92年4月完成第二期南隧道工程(高鐵隧道)，新車站為台北都會區副都心(板橋市)之核心地區，且為板橋地區地標，結合臺北捷運南港板橋線、高鐵板橋站共構以及短、中、長程客運板橋站使轉乘方便，而成為台北都會區淡水河西岸之交通樞紐。

● 新萬華車站

位於和平西路與西園路之間，面積約41,000平方公尺，84年10月開工，民國88年7月完工，貫通康定路及萬大路，配合捷運南港板橋線網，與龍山寺、廣州街市集整合，車站特定區並結合萬華區行政中心，形成北市西區門戶。

Wanhua – Banciao Railway Underground Project (Wanhua-Banciao Project)

The Wanhua-Banciao Project was included in the Six-Year National Development Plan to promote urban development in the Wanhua and Banciao area. This underground railway project was aimed at integrating the cityscapes of Taipei City and Taipei County and alleviating traffic congestion. Furthermore, it has developed the Banciao Station special zone as a regional hub of the HSR, TRA, Taipei MRT and various bus services and as the political and economic center of Taipei County.

This project covered a 15.38-kilometer section between Taipei City's North Gate and the Shulin Coach Yard (including a 7.18-kilometer underground section). Work began in September 1992. In July 1999, TRA began underground operation. In April 2003, the tunnel constructed for HSR was completed and turned over to that agency. The whole project was completed by the end of 2004.

● New Banciao Station

Located on the block bounded by Wunhua Road, Hansheng East Road, Mincuan Road and Jhongshan Road, the new station is an important component of the Wanhua-Banciao Project. The design was completed in September 1994. The first phase of the project, the north tunnel construction, was finished on July 21, 1999. TRA trains started to run in it shortly thereafter. In April 2003, the second phase—the south tunnel construction (HSR tunnel)—was completed. The new station is a landmark in the heart of Banciao, a sub center of the Taipei metropolis. The station was co-constructed by Taipei MRT (Nangang-Banciao Line) and HSR, and it allows for easy access to city bus and inter-city bus services. Banciao Station has become a major hub for the part of the Taipei metropolis that is west of Danshuei River.

● New Wanhua Station

Situated at the intersection of Heping West Road and Siyuan Road, the site covers 41,000 square meters. Work began in October 1995 and was completed in July 1999. Besides connecting Kangding Road and Wanda Road, the project, together with the Taipei MRT's Nangang-Banciao Line, incorporates the businesses of the Longshan Temple and Guangjhou Street area into the Wanhua Station Special Zone. The special zone also includes the Wanhua District Administration Center. The station has thus become a gateway to west Taipei.

新板橋車站
New Banciao Station





● 樹林客車場

位於樹林車站與山佳車站間，面積約14.3公頃，成為台鐵宜蘭線北迴線、東部幹線柴電列車及西部幹線電氣化列車之綜合整備基地。

● Shulin Coach Yard

Between Shulin Station and Shanjia Station, the coach yard covers an area of 14.3 hectares. It is the service base for TRA's diesel multiple units (Yilan Line, North-Link Line and Eastern Line) and electric multiple units (Western Line).

樹林客車場
Shulin Coach Yard





■ 東部鐵路改善計畫（東改計畫）

為加速東部地區資源開發與提昇滿足民衆交通需求，政府核定進行東部鐵路現代化之路線改善工程。首要目標在台北到花蓮鐵路電氣化，其次為基隆八堵至台東間路線重軌化、號誌自動化及部分雙軌化，同時興建花蓮機廠。自台鐵八堵站經蘇澳站、花蓮站至台東站止，全長337公里，民國87年6月起陸續開工，92年7月4日電氣化通車啓用，93年12月底完工，總經費436.91億元。

本工程因位處於地質滑動崩塌最嚴重區域，隧道施工為全計畫之關鍵，其中工程難度高，所需施工技藝特殊的「新觀音隧道」及「新永春隧道」最具挑戰性。

● 新觀音隧道

位於宜蘭縣武塔與漢本間，全長為10,307m，為台灣最長之鐵路雙線隧道，隧道洞口段受限於地質、地形影響，設計兩座橫坑增加開挖工作面，以確保完工後的通風效果，為隧道洞口段施工成功之關鍵。



■ East Railway Improvement Project

In order to speed up development of eastern Taiwan's resources and to address the increased traffic needs there, the government decided to modernize the railway system in the region. The first priority of the project was to electrify the route between Taipei and Hualien. The next was to improve the route between Badu in Keelung and Taitung City, by changing its 37kg rail to 50kg rail, automating its traffic signals and turning part of the route into double-track. The project also included the construction of the Hualien Coach Yard. This project involved a 337-kilometer stretch of railway, from the Badu Station, to the stations of Su-ao, Hualien and Taitung Station. Work began in June 1998. On July 4, 2003, the part of the project that involved electrification was completed and services commenced. Before the end of December 2004, the whole project was completed. The total cost of the project was NT\$43.691 billion.

Because this line of railway passed through areas especially prone to landslides, tunnel construction was key. The New Guanyin Tunnel and the New Yongchun Tunnel were among the most challenging to build.

● New Guanyin Tunnel

This tunnel is located between Wuta and Hanben of Yilan County. At 10,307 meters, it is the longest double-track railway tunnel in Taiwan. Because of the local geology and terrain, two adits were added to the entrance areas to increase excavation surface to ensure good ventilation of the tunnel after completion. This was fundamental to the success of the construction of the entrance sections.



● 新永春隧道

位於宜蘭縣永樂與東澳間，87年10月24日隧道南口工程曾發生國內外隧道工程史上罕見之巨量湧水崩塌災變，湧水量一度高達80 m³/min，累積崩塌土石達22,000m³，湧水不斷，且持續維持25~30 m³/min之流量。歷經近四年七十多次之工程會議協商，終於針對災變段高壓、巨量湧水特性，選擇以熱瀝青灌漿處理，並實施新奧工法「邊做邊設計」、「選擇適應地質或改良地質以求適應工法」，始順利突破困境，完成興建。

● New Yongchun Tunnel

This tunnel is located between Yongle and Dongao in Yilan County. On October 24, 1998, part of the construction near the south entrance collapsed due to water inundation. The inundation volume once reached 80 cubic meters per minute, and as much as 22,000 cubic meters of earth and rocks slid down. What's more, the inundation continued at a rate of 25 to 30 cubic meters per minute. Four years and some 70 engineering meetings later, the method of hot bitumen grouting was chosen to address the problem in consideration of the site's level of high-pressure inundation. The problem was finally solved. The RRB applied the concepts and principles of the New Austrian Tunneling Method—making the designs as construction proceeds, and choosing a construction method suitable for the geological conditions or improving the geological conditions to suit the construction method.

Railway

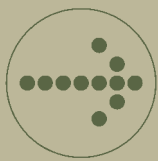
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花東線南平站
TRA's Hualien Line Nian Ping Station



執行中工程專案 Projects Underway

■ 臺北市區鐵路地下化東延南港工程（南港專案）

台北市東區發展快速，為消弭貫穿阻礙都市發展的現存鐵道，及配合南港經貿園區重大建設，將松山至南港間予以地下化，並遷移台鐵南港客車場，使現存台北市東區(基隆路至南港大坑溪)最後一段平面鐵路移入地下，民國87年8月27日奉行政院核定，辦理台北鐵路地下化東延南港工程(簡稱南港專案)，西起台北市基隆路口(松山專案引道)東至七堵，總經費765.02億元，87年11月1日開工，預定至100年8月底完工，工程計畫全長19.4公里，共消除鐵路沿線平交道15處。主要內容包括：

- 一、興建高鐵、台鐵雙軌隧道各乙座，(長5.4公里)及台鐵山岳隧(引)道一座(長2.0公里)。
- 二、汐止第二高速公路跨越橋至五堵隧道間，興建二軌高架鐵路長約5公里(含汐止、五堵高架車站)。
- 三、新建台鐵七堵調車場與七堵車站改建，以及五堵貨場。
- 四、交由台灣鐵路管理局辦理作站區多目標使用大樓之台鐵松山站及南港站之地下車站。
- 五、高鐵南港地下營運輔助站與台北捷運藍線從BL17站(南港站)至BL18站(南港展覽館站)隧道。



南港車站施作情形

The Construction of the Nangang Station

Nangang Eastern Extension Project of the Taipei Railway Underground Project (Nangang Extension Project)

Due to the rapid growth of east Taipei and the construction of Nangang Business Park, the existing surface railway impeding the city's development needs to be removed and TRA's Nangang Coach Yard needs to be relocated. This means the last section of surface railway in Taipei is being put underground (from Keelung Road to the Dakeng River in Nangang.) On August 27, 1998, the Executive Yuan approved the Taipei Railway Underground Project's Nangang Eastern Extension Project (Nangang Extension Project). This NT\$76.502 billion project stretches from Keelung Road (approach road of the Songshan Project) eastwards to Cidu. Work began on November 1, 1998 and is scheduled for completion at the end of August 2011 to eliminate 15 railway crossings within this 19.4-kilometer stretch. The main parts of the project include:

- (1) Constructing a double-track tunnel (5.4 kilometers) each for HSR and TRA as well as a TRA mountain ramp (2 kilometers).
- (2) Constructing a five-kilometer stretch of double-track elevated railway between the Sijhi Overpass Bridge of the Northern Second Freeway and Wudu Tunnel (including the Sijhi and Wudu elevated stations).
- (3) Constructing a new TRA marshalling yard in Cidu as well as reconstructing the Cidu Station and Wudu Yard.
- (4) Putting TRA's Songshan Station and Nangang Station underground. The mixed-use station buildings would be transferred to TRA after completion.
- (5) Constructing the Nangang underground auxiliary station for HSR and a tunnel between the BL17 station (Nangang Station) and the BL18 station (Nangang Exhibition Center Station) for Taipei MRT's Blue Line.



松山車站 The Songshan Station



汐科園區站 The Sijhi Science Park Station



汐止車站 The Sijhi Elevated Station



五堵車站 The Wudu Elevated Station



五堵高架車站
The Wudu Elevated Station

- **新七堵調車場**

因應台鐵貨運業務功能調整，合併南港客車場及七堵貨車場，整地改建七堵調車場成為台鐵北部基地，同時將長期分隔兩處之前、後站予以整併，使成為一個新七堵車站，面積約45公頃，為維持原調車場功能，採先建後拆之多階段切換方式施工，猶如「穿著西裝改西裝」，且限時完成。94年8月3日將南港客車場調車場遷入並啟用，完成第一階工程，使成為東南亞第一大調車場。。

- **新松山車站**

配合南港經貿園區之開發及地方產業整體發展，並結合台鐵、短中長程客運、捷運、輕軌及藍色公路等交通轉運設施，帶動松山地區全面發展成使為核心商業中心以及東區交通樞紐。建築樓地板面積約5.5萬平方公尺，總經費約78億元，預定99年全部完工。

- **新南港車站**

建設新南港車站為台北都會區東區門戶，與捷運板南線共站，具有台鐵、高鐵、捷運、公車、中長程客轉運及商場等多目標使用，為南港地區都市發展的新契機，成為機能完整之永續發展都市。新南港車站建築樓地板面積約28萬平方公尺，總經費約117億元，預定99年5月底完工。

- **汐止高架車站及五堵高架車站**

汐止高架鐵路工程汐止及五堵高架車站，東自新五堵隧道西口，西至汐止第二高速公路高架橋下方，與南港專案地下化引道出口銜接，並興建汐止及五堵高架車站各乙座，全長約4.5公里，施工時，發現劉銘傳鐵路遺蹟(基石堆砌橋礎)，當即辦理工程變更妥予保護，使古蹟與建設共存，樹立古蹟處置之良好典範。第一階段工作於民國95年4月8日深夜至9日凌晨順利完成切換啟用。通車後不僅帶動週邊老舊建物，及都市整體更新，且使汐止地區常年水患得以改善。

● New Cidu Marshalling Yard

In response to the changes of TRA's freight business, a marshalling yard was constructed in Cidu (combining the Nangang Coach Yard and the Cidu freight yard) as the northern service base for TRA. Additionally, the existing Cidu Station, which consists of a front station building and a back station building, would be revamped to become one unified new Cidu Station. The project covers an area of 45 hectares. To prevent disruption of its marshalling yard operation during construction, the original facilities were kept until the new facilities were completed. It was like "making alterations on a suit while it was being worn within a strict time limit." On August 3, 2005, the first phase of the construction was completed and the Nangang Coach Yard and Cidu freight yard moved into their new home. The biggest marshalling yard in Southeast Asia was born.

● New Songshan Station

In coordination with the Nangang Business Park Project and overall area development, this project would link TRA passengers to intra-city and inter-city buses, Taipei MRT, light rail and "blue highway" services. It would help the Songshan area develop into a business center and the traffic hub of east Taipei. The floor area of the new Songshan Station building is around 55,000 square meters. This NT\$7.8 billion project is due for completion in 2010.

● New Nangang Station

The objective of this project is to make the new Nangang Station the gateway to east Taipei. The mixed-use station building would be shared by the TRA, HSR and Taipei MRT (Banciao-Nangang Line) and it would also include a mall. Passengers will be easily able to connect to intra-city and inter-city buses. This project is crucial to the urban development of Nangang area. The new Nangang Station building will contain around 280,000 square meters of floor space. This NT\$11.7 billion project is due for completion on May, 2010.

● Sijhi Elevated Station and Wudu Elevated Station

The elevated railway (4.5 kilometers) to be constructed in this project starts from the west entrance of the new Wudu Tunnel and goes west to under the Northern Second Freeway's Sijhi Elevated Bridge, where it connects to the tunnel ramp of the Nangang Underground Project. The project also includes the construction of the Sijhi Elevated Station and the Wudu Elevated Station. During construction, some foundation rocks—relics of the Liu Ming-chuan Railway—were found. The RRB quickly revised its construction plan to preserve the site, setting a good example for historic preservation. The first phase of the project was opened during the early hours of April 9, 2006. The opening of the railway has spurred a citywide urban renewal and improved the flooding situation in the area.





■ 高雄市區鐵路地下化工程（高雄計畫）

為促進高雄都市整體發展與建構整合高雄都會區交通路網，民國92年12月15日行政院將本計畫納入五年五千億「新十大建設－台鐵捷運化計畫」中，並於民國95年1月19日核定。

主計畫期程從規劃、設計、施工共需11年，總經費572.62億元，範圍自高雄市葆禎路至正義路，隧道全長約9.75公里，工期9年，民國95年10月29日開工，預定102年12月底台鐵移入地下隧道營運，104年12月底全部完工。

本計畫最主要特色，在於配合高雄市都市計畫建設及更新台鐵高雄車站，以及因應台鐵捷運化興建台鐵內惟站、美術館站、鼓山站、三塊厝站、民族站及大順站等六處通勤車站，未來將結合高雄捷運紅橘線及臨港輕軌線，使高雄都會區交通運輸系統益臻健全。

■ 高雄都會區鐵路地下化先期工程（高雄專案）

高雄都會區鐵路地下化工程(簡稱高雄專案)自民國87年起開始研究規劃，為配合高雄捷運紅線建設計畫施作，行政院於民國89年11月27日核定辦理專案先期工程，包括高雄臨時車站、中博臨時高架橋、與原高雄車站既有前站遷移等工程，總經費38.47億元。

計畫範圍自高雄車站站區南側(建國路)至站區北側(九如路)，工期6年，民國95年底完工，高雄臨時站(含跨站天橋)已於民國91年3月28日完成，並分別於92年1月及5月完成高雄車站前站既有帝冠式建築物遷移保留及中博臨時高架橋(穿越高雄車站站區下方)，全長約872公尺，以「先建後拆」方式興建，替代原地下道功能，同時為記錄高雄火車站及鐵道文化，特興建「願景館」提供文化展覽，高雄前後站跨站天橋則作為文化棧道，提供旅客了解鐵道文化的歷史演進，為捷運時代先趨工程奠立的重要里程碑。

● 高雄車站帝冠式建築物遷移保留工程

既有高雄車站帝冠式建築，興建啓用於民國30年6月20日，配合「高雄車站特定區計畫」展現都市新風貌，考量市民記憶與歷史性建築共存的時間軸脈動，採用國外安全性高、風險性最小之總掘施工方式，以油壓千斤頂置於建物後方水平推進平均1 cm/min左右的緩慢移動，將舊站遷移至暫存位置。遷移工程已於民國92年1月20日完成，俟高雄市區鐵路地下化工程完成後再遷回原址，將可活化車站站區機能並賦予新生命力，形塑發展願景。



Kaohsiung Railway Underground Project (Kaohsiung Main Project)

In order to promote citywide development and build a fully integrated transportation network within the metropolis, on December 15, 2003, the Executive Yuan included this project as part of TRA's Rapid Transit Systematization within the Metropolitan Areas Project, which is one of the NT\$500 billion New Ten Construction projects. The Executive Yuan approved this project on January 19, 2006.

This NT\$57.262 billion project—from planning and design to construction—is scheduled to take 11 years. The project involves a 9.75-kilometer stretch of railway between Baojhen Road and Jhengyi Road, and construction is expected to take nine years. Work began on October 29, 2006 and TRA runs work underground by the end of December 2013. The entire project is due for completion by the end of December 2015.

This project is one of many that are collectively transforming Kaohsiung. Others include building projects that are part of Kaohsiung's urban plan, the renewal of TRA's Kaohsiung Station, and the six new TRA commuter stations being built in response to TRA's Rapid Transit Systematization Project (Neiwei Station, Art Museum Station, Gushan Station, Sankuaicu Station, Minzu Station and Dashun Station.) In the future, the completion of this project in conjunction with the construction of KMRT's Red and Orange Lines, as well as the Harbor LRT Line, will create a comprehensive transportation network for the Kaohsiung metropolis.

Pre-construction Work for the Kaohsiung Railway Underground Project (Kaohsiung Project)

Planning for the Kaohsiung Railway Underground Project (Kaohsiung Project) began in 1998. In coordination with the construction of KMRT's Red Line, on November 27, 2000, the Executive Yuan approved the pre-construction work for the project, which includes the Kaohsiung temporary station, the Jhongbo temporary elevated bridge and the moving of the existing Kaohsiung station building (the front station building). The total budget amounts to NT\$3.847 billion and was projected to require six years (completed by the end of 2006.) The project covers the area between Jianguo Road on the south side of the station and Jiuru Road on the north side of the station. The construction of a Kaohsiung temporary station (including a pedestrian overpass that connects it to the back station building) was completed on March 28, 2002. In January 2003, the existing imperial-crown-style front station building was moved from the site in order to be preserved. In May 2003, the Jhongbo temporary elevated bridge was completed. At a length of 872 meters, the bridge was built before the existing underpass it replaced was closed. In addition, in order to preserve and record the history of the Kaohsiung Station and railway culture, the Visionary Museum was created to provide a venue for cultural exhibitions and the pedestrian overpass connecting the front and the back station buildings was transformed to serve as an exhibition hall. These two exhibition sites give passengers a chance to understand the history and evolution of railway culture. They represent an important milestone in the coming era of rapid transit.

• The preservation and moving of the imperial-crown-style Kaohsiung Station building

The existing imperial-crown-style Kaohsiung Station building was opened on June 20, 1941. To display a new urban face with the coming of the Kaohsiung Station Special Zone and to preserve the public's collective memories and the historical building itself, the RRB decided to move the building as a single piece. This method posed the least risk to the structure of the building. The entire structure was lifted off its foundation and hydraulic jacks were then placed behind the structure to push it horizontally at an average speed of 1cm/min to a temporary location nearby. The move was completed on January 20, 2003. The building will be moved back to its original site once the underground railway project is completed. This project will enliven the station.

■ 東改後續計畫（宜蘭冬山高架）

配合「冬山河森林公園計畫」與成效持續發揮，並加速東部開發與經濟發展，民國92年6月30日，奉行政院核定辦理東部鐵路後續改善計畫(簡稱東改後續計畫)，由鐵路宜蘭線冬山站以北，至武荖坑溪以南，全長5.7公里，分為冬山站場提高工程、台塑及力霸支線新建工程及冬山河森林公園段鐵路改建，總計畫經費27.79億元，於民國93年2月動工，預定民國97年底完工，完成後，可改善鐵路宜蘭線冬山站內三處平交道，整體解決市內交通瓶頸及冬山河觀光發展。

■ Continued Improvements of Eastern Railways — Dongshan Elevation Project of Yilan

In coordination with the "Dongshan River Forest Park Project" and in order to speed up the general development and economic development of eastern Taiwan, on June 30, 2003, the Executive Yuan approved Continued Improvements of Eastern Railways. The project involves a 5.7-kilometer stretch of railway (the Yilan Line) between the area north of the Dongshan Station and the Wulaokeng River, including the construction of Dongshan Elevated Station, the Taiwan Plastic Branch Line, the Rebar Branch Line and the reconstruction of a section of railway within the Dongshan Forest Park. Work for this NT\$2.779 billion project began in February 2004 and is due for completion by the end of 2008. Upon completion, the project will eliminate three railway crossings in the Dongshan Station area, relieve traffic bottlenecks in the city and promote the development of tourism in the region.



△ 冬山高架車站遠景圖

The prospective of Dongshan Elevation Station

> 花蓮車站及站區

Hualien Station and Station Yard







■ 臺鐵支線化－新竹內灣支線改善計畫（內灣計畫）

為配合高鐵通車營運，銜接高鐵新竹站聯外交通，同時發展新竹都會區大眾運輸系統，消除8處鐵路平交道，並有效改善台鐵新竹內灣支線設施，民國93年9月27日行政院核定本計畫。

奉交通部指示本案係由高鐵局規劃，鐵工局施工，台鐵局營運。計畫內容包括新建3處及改建1處通勤站，改善竹中至內灣支線標準，全長約11.2公里，其中跨越68號快速道路及頭前溪隆恩堰兩處橋樑跨徑均超過100公尺，為本計畫關鍵工程，總經費63.15億，預定98年12月底完工。

■ 臺鐵支線化－臺南沙崙支線建設計畫（沙崙計畫）

為提供銜接高鐵台南站聯外交通，發展台南都會區大眾運輸系統，民國93年11月5日奉核定興建高鐵台南站與台鐵台南車站間(銜接點為中洲站)之聯絡路線，由高鐵局規劃，鐵工局施工，台鐵局營運。

本計畫內容包新建2處及改建1處通勤車站，全長6.4公里，總經費48.31億元，預定98年12月底完工，將有助於高鐵台南站及其特定區沿線開發，帶動地方繁榮發展。

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■ TRA Branch Line—Neiwan Branch Line Improvement Project of Hsinchu (Neiwan Project)

To provide traffic access to HSR's Hsinchu Station as well as to develop a mass transit system to serve the Hsinchu metropolis, on September 27, 2004, the Executive Yuan approved a proposal to eliminate eight railway crossings and to improve facilities on TRA's Neiwan Branch Line. According to instructions from MOTC, this project is being planned by the Bureau of High Speed Rail, constructed by RRB and operated by TRA. The project involves the reconstruction of one and construction of three commuter stations, as well as improvements along an 11.2-kilometer stretch of railway between Jhujhong and Neiwan. The most crucial parts of the project are the construction of two bridges, both with spans of over 100 meters, which will cross the Route 68 Expressway and the Long-en Dam on the Toucian River. This NT\$6.315 billion project is scheduled for completion at the end of December 2009.

■ TRA Branch Line—Shalun Branch Line Construction Project of Tainan (Shalun Project)

To provide traffic access to HSR's Tainan Station and to develop a mass transit system for the Tainan metropolitan area, a plan was proposed to connect HSR's Tainan Station and TRA's Tainan Station through the Jhongjhou Station. This connection is being planned by the Bureau of High Speed Rail, constructed by RRB and operated by TRA. The project was approved on November 5, 2004.

The 6.4-kilometer long project includes one reconstructed and two new commuter stations. This NT\$4.831 billion project is due for completion at the end of December 2009. Upon completion, it will help boost development of HSR's Tainan Station and the adjacent areas.



潮州-枋寮電氣化示意圖

The perspective of Chaozhou-Fangliao Railway Electrification

■ 臺鐵捷運化高雄－屏東潮州捷運化建設計畫（潮州計畫）

「臺鐵高雄-屏東潮州捷運化建設計畫」（簡稱潮州計畫）分為「屏東~潮州雙軌電氣化」（約18公里）及「潮州車輛基地」兩大工程，為建構高雄至潮州間之便捷通勤系統，將臺鐵屏東站以南之單軌非電氣化路段改為雙軌電氣化並延伸至潮州站。民國92年12月15日奉行政院核定，計畫經費87.59億元，94年7月正式執行，工期4年，95年5月21日復奉行政院指示將現有鐵路全線高架化，預定民國100年6月完工，總經費暫估列120億元。縮短高雄與屏東、潮州間通勤時間約35~45分鐘，同時消除平交道20處。

● 屏東潮州車輛基地

配合高雄市區鐵路地下化計畫，優先辦理高雄車站東側之機務段及檢車段遷移，基地位於潮州站南約1.9公里處，面積約34.67公頃。完成後將取代現有「高雄機檢段」，成為台鐵西幹線之「台鐵南部車輛基地」。



TRA Rapid Transit Systematization in the Kaohsiung Metropolitan Area – Rapid Transit Systematization between Pingtung and Chaozhou (Chaozhou Project)

The project comprises two parts: the Pingtung-Chaozhou Double-Track Electrification (around 18 kilometers) and construction of the Chaozhou Service Base. In order to create a fast and convenient commuter rail system between Kaohsiung and Chaozhou, a plan was proposed to turn the single track, non-electrified section between Pingtung and Chaozhou into double-track electrified system. The Executive Yuan approved the project on December 15, 2003. Work for this NT\$8.759 billion project began in July 2005 and is due for completion within four years. On May 21, 2006, the Executive Yuan issued the instruction to elevate the whole section. The project is due for completion in June 2011. The total budget is currently set at NT\$12 billion. Upon completion, the commuting time between Kaohsiung and Pingtung or Chaozhou will be shortened to 35 to 45 minutes. In addition, travel time to central and northern Taiwan will be reduced. This project will eliminate 20 railway crossings.

● Chaozhou Coach Yard

To facilitate the Kaohsiung Railway Underground Project, it is a priority to move the depot and vehicle inspection division that is now east of Kaohsiung Station. The new service base, which has a total area of 34.67 hectares, is 1.9 kilometers south of Chaozhou Station. Upon completion, it will replace the existing Kaohsiung depot and vehicle inspection division to become the southern vehicle base of TRA's Western Line.





新台中站示意圖
The perspective of Taichung Station



新員林站示意圖
The perspective of Yuanlin Station

■ 臺中都會區鐵路高架計畫（臺中計畫）

為有效發揮台鐵捷運化功能、整合台中都會區大眾運輸路網、重塑台中市、豐原市、潭子鄉等都市發展連結整合，行政院於民國95年2月13日核定本計畫，北起台中縣豐原站以北，南迄大慶站以南，全長21.2公里，納入「新十大建設計畫-台鐵捷運化計畫」項下辦理。

本工程除將台中車站舊站列為古蹟原地保留，消除鐵路平交道17處外並，興建9處高架車站(增設4處通勤車站，改建5處車站)，其中松竹、大慶車站規劃為台中捷運綠線的轉乘站，總經費288.31億元，工期8年完工。完成後，將與台中捷運綠線結合，形成完整大眾運輸網絡，便捷交通運輸，平交道所形成之交通擁擠與行車安全問題，均可獲致解決，高架後增加所騰空之土地並可充分運用，不但土地利用價值提高，亦獲都市景觀美化。

■ 彰化員林市區鐵路高架計畫（員林計畫）

為促進員林市區都市均衡發展及車站地區都市更新，使鎮不再受鐵路阻隔影響發展，以及興建員林環鎮道路，減少立體化經費支出，行政院於民國95年2月13日核定本計畫，北起北勢路，南迄員林大排，全長約3.98公里，並納入「新十大建設計畫-台鐵捷運化計畫」項下辦理。

本工程完工後，將可消除3處鐵路平交道、5處地下道及1處公路陸橋(興建2座通勤車站，改建1處高架車站)，總經費40.72億元，工期7年完工，完成後可解決靜修、莒光、新生等主次要道路交通擁塞及騰空後之土地興建停車場等公共設施，增加土地利用價值。

Taichung Metropolis Railway Track Elevation Project (Taichung Project)

In order to allow for the TRA Rapid Transit Systematization to realize its potential, and also to integrate the Taichung Metropolis' public transportation network, and to prod Taichung City, Fengyuan City and Tanshi Township to develop hand in hand, the Executive Yuan approved this project on February 13, 2006. The project involves a 21.2-kilometer stretch of railway between Fengyuan and Dading in Taichung County. It is part of the TRA Rapid Transit Systematization in the Metropolitan Areas Project, which is one of the New Ten Construction projects.

The old Taichung Station building has been listed as an historic site and thus will be preserved at its original site. Upon completion, the project will eliminate 17 railway crossings and add nine elevated stations (four new and five reconstructed commuter stations). Among these stations, the Songshu and Dading Stations will serve as transfer points to Taichung MRT's Green Line. This NT\$28.831 billion project is due for completion eight years after its date of approval. Once completed, the TRA lines will be integrated with the Taichung MRT's Green Line and form a comprehensive public transportation network. Traffic congestion will be eased and driving safety issues at railway crossings will be resolved. In addition, the land made available by this project will contribute to more efficient land utilization and beautification of the city.

Yuanlin City Railway Track Elevation Project, Changhua County (Yuanlin Project)

To ease problems caused by railways cutting through the city of Yuanlin, promote balanced development throughout the city, and encourage urban renewal in the downtown train station area, as well as to facilitate the construction of a rim road around the city and cut down on the expense of grade separation, on February 13, 2005, the Executive Yuan approved a plan to elevate a 3.9-kilometer stretch of railway between Beishi Road and the Yuanlin Irrigation Canal. This project is part of the TRA Rapid Transit Systematization in the Metropolitan Areas Project, which is one of the New Ten Construction projects.

Upon completion, this project will eliminate three railway crossings, five underpasses and one highway overpass bridge, as well as bring about the construction of two commuter stations and the reconstruction of one elevated station. This NT\$4.072 billion project requires six years (completed by the end of 2013.) Once completed, traffic congestion on Jingsiou Road, Jyuguang Road and Sinsheng Road will be eased, and the land made available by the project can be used to build public facilities, such as parking lots.





代辦工程項目 Contract Work

■ 台鐵建設

● 臺鐵捷運化—八堵南港三軌工程、百福站、汐科站、樟樹灣站

為有效改善台北大眾交通運輸需求，及回應基隆地方要求捷運工程建設，考量受限於基隆河廊帶之用地淨空等地理因素，並因應台鐵基隆-台北間之路線運輸容量超負荷狀況，使高鐵與捷運軌道系統可分擔台鐵南港車站以南現有運輸功能，消除八堵車站至南港車站間交通瓶頸，必須興建第三軌予以疏解，行政院分別於92年與94年核定「台鐵都會區捷運化暨區域鐵路」之先期建設計畫及後續(基隆苗栗間)建設計畫，由於本計畫與本局施工中之「南港專案」產生工程界面，故核由本局代辦設計與施工。

本計畫除興建台鐵八堵車站至南港車站間第三軌(含高架段)工程外，並擴大五堵車站月台配置以及增建「百福站」、「汐科站」及「樟樹灣站」等三座通勤車站，分別於97年底、102年底及98年底完工，屆時將可增加路線容量及縮短列車交會時間，進而強化台北都會區段台鐵車站轉運功能，提供民眾便捷之通勤運輸服務。

五堵貨場及五堵雙軌隧道現況

The Condition of the Wudu Marshalling Yard and the Wudu Double-Track





■ TRA Rapid Transit Systematization in Metropolitan Areas

● Triple-track construction between Badu and Nangang and the construction of Baifu Station, Sike Station and Jhangshu Bay Station

To address the needs for better public transportation systems in Taipei and to respond to Keelung citizens' requests for a mass transit system, a proposal was made to add a third TRA track between Badu and Nangang. This location was chosen because there is no land available for any new transportation construction along the Keelung River Corridor, and TRA's operations between Keelung and Taipei already exceed capacity. While HSR and Taipei MRT can take some load off TRA south of Nangang, the traffic bottleneck between Badu Station and Nangang Station has yet to be addressed. The Executive Yuan approved the pre-construction work and a follow-up project (Keelung-Miaoli section) for the TRA Rapid Transit Systematization in Metropolitan Areas and Regional Railway Project in 2003 and 2005 respectively. Because these projects interface with the RRB's Nangang Project, the RRB has been given responsibility for design and construction.

These projects will add a third track (including an elevated section) between TRA's Badu Station and Nangang Station, build three commuter stations (Baifu Station, Sike Station and Jhangshu Bay Station) and enlarge the Wudu Station platforms. These three objectives are due for completion by the end of 2008, 2009 and 2013 respectively. Upon completion, the TRA will have increased passenger capacity and the time needed for two trains to pass each other will be shortened. As a result, the TRA stations in the Taipei metropolitan area will be better able to provide convenient commuting service.



● 高雄三鐵共站－新左營車站

本工程為高鐵建設計畫之政府應辦事項，於民國92年12月20日奉行政院核定，規劃以三鐵（台鐵、高鐵、捷運）共站模式興建，便利旅客轉乘。車站位於高雄市半屏山以東、南臨大中路高架橋、北接高雄捷運R16車站，與高鐵左營站緊鄰，距現有台鐵左營站約2公里，民國94年7月15日完工，並配合高鐵通車於民國95年11月移交台灣鐵路管理局，總經費新台幣24.63億元。

本車站(於民國95年12月1日啟用)係台鐵、高鐵、捷運之三鐵共站模式，為高雄都會區之交通樞紐，同時可調整作為台鐵列車調度之南迴鐵路起站，服務中長程客、貨運及短程通勤旅運，啟用後將可大幅提昇區域整合運作效率與運輸服務品質。

■ 高鐵建設

● 臺北第二大科崙溪段高架工程

本工程為屬高鐵計畫政府應辦事項，位於大台北都會區鐵路地下化延伸至板橋最南端之標段，考量其與本局「萬板專案」工程界面之密切關連，故由本局代辦其設計與施工。自板橋大觀路至新莊新樹路止，全長1,495.3公尺，與台鐵路線平行，並跨越板橋大觀路、僑中二街、板橋環河路、第二大崙溪、新莊環河路及新樹路地下道及台鐵雙軌路線等。施工需跨越第二大崙溪，及台鐵現行鐵路，受分於僅能有一次非防汛期施作時段之工期因素，並利用台鐵夜間營運結束後斷電封鎖約3至4小時之空檔施作，又不能影響鐵路相關設施，工程難度高而極具挑戰性。

● 臺北基隆路－大坑溪高鐵路工程

高鐵南港站以東至大坑溪西側之隧引道工程，為高鐵南港站往汐止基地之通道，屬為高鐵計畫政府應辦事項，與本局「南港專案」之鐵路地下化工程共構，經協調由本局負責施工。東起大坑溪西側至南港車站東側，全長約1190公尺，預定98年10月完工交付高鐵。本工程以高鐵在上台鐵在下共構方式配置，兩者為上下重疊，於大坑溪西側以引道爬昇地面至捷運研究院路東側，將可配合南港經貿園區等重大建設，促進地方商業繁榮。高鐵與台鐵之南港車站共站，尤便利於相互轉乘。

- **Co-Station of KMRT, TRA and HSR—New Zuoying Station**

This project is one of the items of the HSR project to be built by the government. On December 20, 2003, the Executive Yuan approved the plan to co-construct a station building to be shared by KMRT, TRA and HSR to allow for easy connections. This new station is about two kilometers from the current TRA Zuoying Station and is located back to back with HSR's Zuoying Station. To its west is Mt. Banping of Kaohsiung City, to its south is the Dajhong Road Elevated Bridge, and to its north is KMRT's R16 Station. The project was completed on July 15, 2005 and handed over to TRA in November 2006. The cost of the project was NT\$2.463 billion.

When this joint KMRT, TRA and HSR station opens (operating the work in 1, Dec. 2006), it will serve as the transportation hub of the Kaohsiung metropolitan area. What's more, TRA now has the flexibility of making it the terminal of the South Link Line, so as to facilitate short-distance commutes, intercity journeys and freight services. The project will raise the efficiency and service quality of the traffic network in the region.

■ HSR Construction

- **Railway Track Elevation Project for the Second Dakekan River in Taipei**

This is one of the HSR projects to be built by the government. The site of the construction is located at the southern end of the Banciao Extension of the Taipei Railway Underground Project. Because it interfaces with the RRB's Wanhua-Banciao Project, it was decided that the RRB would take care of its design and construction. Starting from Daguean Road in Banciao and ending at Sinshu Road in Sinjhuang, this 1,495.3-meter section runs parallel with TRA's route and crosses over Daguean Road, Ciojzhong Second Street and Huanhe Road in Banciao; the Second Dakekan River; and Huanhe Road, the Sinshu Road Underpass and a double track route of TRA in Sinjhuang. This is a very challenging project for the following reasons: the construction has to cross the Second Dakekan River and existing TRA tracks; it will have to be completed within a narrow window of time when there is no threat of flooding; and work will have to be carried out at night within 3 to 4 hours after TRA ceases operations and the power is turned off. Furthermore, railway facilities are not to be affected.

- **Tunnel Construction between Keelung Road (Taipei) and the Dakeng River**

One of the HSR projects to be built by the government, this project will connect the HSR Nangang Station to its Sijhi service base. It involves the construction of a tunnel ramp from the east of HSR's Nangang Station to the west of the Dakeng River. As it will be co-constructed with the railway underground project of the RRB's Nangang Project, the RRB has been assigned to handle construction. This 1,190-meter construction is due for completion in October 2009, when it will be transferred to the HSR. The HSR tunnel will be positioned right on top of the TRA tunnel. Starting from the west side of the Dakeng River, the tunnel ramp will gradually climb to the surface east of Yanjouyuan Road. This project will tie-in with the Nangang Business Park project and promote business activities in the district. In addition, HSR's Nangang Station and TRA's Nangang Station are being constructed together to allow for easy transfers.



- 高鐵左營站附屬事業大樓地下結構工程

捷運左營站東側新建高鐵附屬事業大樓，為高鐵計畫政府應辦事項，大樓地下室結構與高雄捷運紅線左營站地下穿堂層聯通，且與車站站體結構相容，為減少施工介面，經協調由本局代辦設計與施工。工程位置在高雄捷運左營車站東側，高鐵左營車站北側，為地下三層之SRC構造，總經費5.3億元，由高鐵局負擔。預定民國95年10月完成大樓地下結構體，交由高鐵局進行上部結構及建築裝修等工程。本局並建立之「左營工地即時影像」網路系統，提供社會大眾瞭解現場施工情形，施工過程呈透明化展現，符合施工中全民督工要求，完工後，將可改善高鐵左營站北端周邊交通及轉乘動線，加強高鐵左營站商機，擴大經營附屬事業。

- 高鐵南港站（營運輔助站）

南港專案早於辦理可行性研究階段，即依高鐵建設計畫需求，於此車站設置整備站。其主要功能為提供列車折返前之清潔與物品補給等簡易整備工作，並採台鐵在下、高鐵在上之雙層配置方式。民國87年4月14日奉行政院核定，屬高鐵計畫政府應辦事項並將整備站得兼作營運輔助站，由本局負責施作。位於台鐵南港車站鐵路地下化地下第一層空間，98年10月交付高鐵鋪軌，為高鐵全線始發站。依台灣高鐵公司分析，台北都會區高鐵運量25%將轉移至南港站，即台北站、板橋站、南港站佔台北都會區高鐵運量之比例分別為55%、20%及25%，另將增加2%衍生需求。可望大幅提升轉運站功能之運輸效益及包含花東地區旅次需求，並可減輕台北至南港聯外交通負荷，改善台北車站周邊地區之交通擁擠狀況。

● Substructure of HSR Zuoying Station's Subsidiary Building

The construction of an ancillary building for HSR to the east of KMRT's Zuoying Station was an item listed in the HSR project to be built by the government. The substructure of this building will connect with the underground concourse of KMRT (Red Line, Zuoying Station). In order to minimize coordination problems, the RRB was charged to handle the design and construction of this project. The work site of this project is located to the east of KMRT's Zuoying Station and to the north of HSR's Zuoying Station. This NT\$530 million project, to be paid for by the Bureau of High Speed Rail, consists of a SRC structure with three basement levels. The project is due to be completed in October 2006 when it will be turned over to the Bureau of High Speed Rail, which will proceed with the construction of the above-grade structure and interior finishing work. To make the construction process transparent, the RRB has a website showing real-time images of the work site so that the public can gain familiarity with and oversee the construction. Once completed, the traffic conditions and transportation connections to the north of HSR's Zuoying Station will be greatly improved and the retail businesses in the station and HSR's ancillary enterprises will all benefit from it.

● HSR's Nangang Station (Auxiliary Station)

When conducting a feasibility study for the Nangang Project, a service station was added at the request of the Bureau of High Speed Rail. The station's main function is to handle basic prep work, such as cleaning and restocking supplies before a train turns back for its next trip. This station will be built on top of TRA's structure. On April 14, 1998, the Executive Yuan approved the proposal and designated it to become one of the items of the HSR project to be built by the government. Additionally, the service station in the original plan was upgraded to become an auxiliary station. The RRB has been given responsibility for the construction. This station is located on the B1 level of TRA's Nangang Station. It is due to be transferred to HSR for track work on October 2009. The station will serve as HSR's northern terminal. According to THSRC's analysis, Nangang Station, Taipei Station and Banciao Station will respectively represent 25%, 55% and 20% of HSR capacity in the Taipei metropolitan area. There will be a 2% derivative need. This project will raise HSR's transit efficiency, extend services to passengers from Hualien and Taitung, and reduce the burden on the city's other forms of transportation between Taipei and Nangang and thus alleviate traffic congestion around the Taipei Station area.





■ 捷運建設

● 台北捷運－藍線(研究院路段隧道工程)

南港專案研究院路段隧道工程，係代辦臺北捷運南港線東延段範圍，與本局「南港專案」工程產生工程界面，由本局代辦設計與施工。本工程自台北捷運BL17站(南港站)至南港捷運BL18(展覽館站)，全長約710公尺，預定於98年8月完成結構體交付。本段工程為三鐵共構，可節省道路空間，疏解道路擁塞，與捷運內湖線經貿南站銜接，縮短內湖、南港地區民衆交通時間，提供便捷轉乘接駁功能，發揮大眾運輸轉乘實質效益。

● 高雄捷運－紅線(R16左營站、R11高雄站)

高雄捷運紅線沿高雄市重和路由東向西穿越高鐵左營站與台鐵新左營站北側月台端下方設置捷運左營車站，形成三鐵共站。高雄捷運R16車站位於29期重劃區之重和路台鐵機九用地為，一地下二層之車站，91年6月開工，93年11月完成結構體交付。

配合未來高雄車站特定區計畫，優先辦理位於高雄火車站之高雄捷運R11站，形成三鐵共構共站R11車站為一座長130公尺、寬12.2公尺之島式月台及二股道之車站，目前已完成臨時站正配合高雄市政府辦理都市計畫變更，辦理永久站施工。

■ MRT Construction

● Taipei MRT Construction—(Blue Line Yanzhouyuan Road Tunnel Construction)

This construction is part of the eastern extension of the Taipei MRT's Nangang Line. Because the project interfaces with the RRB's Nangang Project, the RRB has been given responsibility for handling its design and construction. The project involves a 710-meter-long tunnel between Taipei MRT's BL17 station (Nangang Station) and BL18 station (Nangang Exhibition Center Station). It is due for completion and transferring to Taipei MRT in August 2009. A co-construction of Taipei MRT, TRA and HSR, this project will free up much roadway space and alleviate road traffic congestion. In addition, because it connects to the Nangang Business Park South Station of Taipei MRT's Neihu Line, travel times between Neihu and Nangang will be shortened with this convenient linkage, which will help to realize the full potential of the city's transportation network.

● KMRT Construction—Red Line's R16 Zuoying Station and R11 Kaohsiung Station

KMRT's Red Line runs along Chonghe Road in an east-west direction before it reaches its Zuoying Station under the north side platforms of HSR's Zuoying Station and TRA's New Zuoying Station. The station building is a co-construction shared by KMRT, HSR and TRA. To minimize construction coordination problems, the RRB was given responsibility for its design and construction. KMRT's R16 Station is located on Chonghe Road within Kaohsiung's #29 Re-planned District, on a piece of land belonging to TRA. It has two underground levels. Work began in June 2002 and was completed in November 2004 when it was handed over to KMRT.

To facilitate the Kaohsiung station district project, the RRB has completed a prior construction of a temporary station, the KMRT R11 station co-constructed with TRA and HSR, which includes 130-meter-long, 23.2-meter-wide island platform with two tracks. The Kaohsiung city government is modifying urban planning for the construction of a permanent station.



規劃研議計畫（鐵路捷運化、立體化） Projects Being Planned

(Railway Rapid Transit Systematization and Railway Grade Separationn)

■ 嘉南地區－鐵路立體化

- 嘉義市區鐵路高架化計畫（嘉義計畫）

本計畫範圍自牛稠溪至嘉義站以南，全長8.2公里，民國93年6月行政院將此計畫納入「新十大建設計畫－台鐵捷運化計畫」項下辦理。本工程完工後，可消除5處平交道、興建3處車站(增設3處通勤站、改建1處車站)，總經費約140億元，計畫核定後7年完工。

- 臺南市區鐵路地下化計畫（臺南計畫）

本計畫自台南市中華路橋以南至生產路以南，全長7.55公里(包含隧道長約6.61公里)，消除8處平交道，興建3處地下車站(增設2處通勤車站，改建1處車站)，總經費約295.86億元，計畫核定後8年完工。



Chianan Area—Railway Grade Separation

● Chiayi City Railway Track Elevation Project—(Chiayi Project)

This project involves an 8.2-kilometer stretch of railway between the Niuchou River and the area to the south of Chiayi Station. In June 2004, the Executive Yuan included this project as part of the TRA Rapid Transit Systematization in the Metropolitan Areas Project, which is one of the New Ten Construction projects.

Upon completion, this project will eliminate five railway crossings, add three new commuter stations and reconstruct one existing station. This NT\$14 billion project is due for completion seven years after government approval.



● Tainan City Railway Underground Project (Tainan Project)

This project involves a 7.55-kilometer stretch of railway (including a 6.61-kilometer long tunnel) between the area to the south of Jhonghua Road Overpass and the area to the south of Shengchan Road. Upon completion, this project will eliminate eight railway crossings, add two new underground commuter stations and put one existing at-grade station underground. This NT\$29.586 billion project is due for completion eight years after government approval.



■ 高屏地區－鐵路高架化

● 潮州－枋寮電氣化

為解決屏東地區長年水患，配合地方發展觀光事業，規劃枋寮至墾丁間接駁運輸，將鐵路電氣化路段伸至潮州站。本計畫自潮州車站至枋寮站，全長約25公里(包括潮州至枋寮河川橋改善和平交道改善等工程)，工期5年，總經費約64億元。

本工程完工後可將消除24處平交道，水患、交通延滯及噪音、空氣污染等問題，將可獲得改善，並可提供便捷轉乘運輸，節省民衆行車時間，帶動地方觀光展業發展，開發都市的潛力。

● 屏東地區鐵路高架化

本計畫範圍自屏東六厝車站屏東廣東南路，全長約4.2公里（包括屏東高架車站、車站以南雙軌電氣化及沿線鐵路廊帶高架化），消除9處鐵路平交道，工期5年，總經費約31億元。

■ 花東地區－鐵路快捷化

● 東部鐵路快捷化計畫（東快計畫）

為提昇東部旅運服務品質，並消除12處鐵路平交道，達到節省東部地區行車時間，從台北至宜蘭35分鐘，以及台北至花蓮小於90分鐘之目的，經由北宜直線鐵路與花東鐵路電氣化之計畫推動，將可透過聯接高鐵後，縮短鐵路行車時間(宜蘭至高雄2小時，花蓮至高雄3小時)，形成一日生活圈之鐵路運輸效能。

(一) 北宜直線鐵路：從南港車站至礁溪車站(包括新建3座高架車站，頭城至礁溪高架路段，新建2座隧道)，全長45公里，總經費約339.4億元，預估工期10年完工。雖於95年1月20日經行政院環保署審議「不應開發」，全案仍待審議中。

(二) 花東鐵路電氣化：北起台鐵花蓮車站，南至台東站，全長約155公里。包括花東鐵路電氣化及部分雙線工程，經費約140億元，預估工期7年完工。嗣於95年7月經行政院經建會審議「綜合規劃」原則同意。

■ Kaoping Area-- Railway Track Elevation

● Chaozhou--Fangliao Railway Electrification

To resolve long-established flooding problems in the Pingtung area and to provide traffic links between Fangliao and Kending of TRA in coordination with regional tourism development efforts, a plan was made to extend the electrified section of rail as far south as Chaozhou. This project involves a 25-kilometer stretch of railway between Chaozhou and Fangliao (including Chaozhou to Fangliao double-track electrification, improvements on river bridges and railway crossings.) This NT\$6.4 billion project is due for completion five years after government approval.

Upon completion, this project will eliminate 24 railway crossings, and it will mitigate problems such as flooding, traffic delays, noise and air pollution. In addition, because of the convenient and speedy transit connections it will bring, travel times will be shortened, which in turn will help to spur local tourism development and unlock the city's potential.

● Chaozhou--Fangliao Railway Electrification

This project involves a 4.2-kilometer stretch of railway between Lioucu Station and Guangdong South Road (including railway track elevation, Pingtung Elevated Station and double-track electrification south of the station.) Upon completion, this project will eliminate nine railway crossings. This NT\$3.1 billion project is due for completion five years after government approval.

■ Huatung Area — Improvements to Increase Speeds

● East Railway Improvements to Increase Speeds

This project includes:

(1) Taipei—Yilan Direct Rail Link: From Nangang Station to Jiaosi Station (including three elevated stations, one section of elevated railway between Toucheng and Jiaosi and two tunnels) for a total length of 42.5 kilometers.) This NT\$33.94 billion project is due for completion ten years after government approval. On January 20, 2006, at its 138th meeting, the Environmental Protection Administration concluded it was not feasible; The Project is under examination.

(2) Huatung Railway Electrification: This project involves electrification of a 155-kilometer stretch of railway between TRA's Hualien Station in the north and Taitung Station in the south. Part of this stretch will be upgraded to double-track. This NT\$14 billion project is due for completion seven years after government approval. The Council for Economic Planning and Development of the Executive Yuan generally approved the general planning report in July 2006.



研究成果及優良事蹟

Research Results and Achievements

研究成果

1. 高架鐵路結構、噪音、振動及外型景觀之考察/蘇直評/交通部鐵路改建工程局/民國94年
2. 鐵路隧道及地下站場防火避難設施及消防安全設備標準工作報告書//警大消防科學研究所/交通部鐵路改建工程局//警大消防科學研究所/交通部鐵路改建工程局//民國94年
3. 中日工程技術研討會專輯/交通部鐵路改建工程局/交通部鐵路改建工程局/民國94年
4. 日本鐵路車站設施、共構系統及施工考察報告/秦繼孔/交通部鐵路改建工程局/民國94年
5. 日本鐵路車站規劃與設計出國考察報告書//謝潮儀/秦繼孔//交通部鐵路改建工程局//民國94年
6. 版式軌道設計施工養護實務考察/陳正楷/交通部鐵路改建工程局/民國94年
7. 列車自動防護系統(A T P)訓練及檢測//莊振昌/張建祥//交通部鐵路改建工程局//民國94年
8. 日本式號誌電子聯鎖系統訓練//林淞沂/曹文植//交通部鐵路改建工程局//民國94年
9. 七堵調車場啓用研討會文集/交通部鐵路改建工程局/交通部鐵路改建工程局/民國94年
10. 萬板紀要第四輯/交通部鐵路改建工程局/交通部鐵路改建工程局/民國94年
11. 東部鐵路快捷化計畫北宜直線鐵路(含礁溪車站東移段)初步綜合規劃整體工程初步綜合規劃設計成果報告/聯合大地工程顧問股份有限公司/交通部鐵路改建工程局東部工程處/民國94年
12. 東部鐵路快捷化計畫北宜直線鐵路(含礁溪車站東移段初步綜合規劃)民間投資可行性研究/聯合大地工程顧問股份有限公司/交通部鐵路改建工程局東部工程處/民國94年
13. 台北縣樹林地區鐵路立體化可行性研究測量成果報告/聯合大地工程顧問股份有限公司/交通部鐵路改建工程局/民國95年

優良事蹟

1. 94年度金路獎傑出工程類獎項/「七堵機務段設施及調車場水電工程」/第一名/交通部/95.09
2. 94年度金路獎傑出工程類獎項/「松山車站遷建工程」/第二名//交通部/95.09
3. 94年度金檔獎/機關檔案管理/行政院研究考核委員會國家檔案局/95.08
4. 94年度工程優良獎項/高雄車站(捷運R11車站)土建工程/特優/交通部/95.03
5. 93年度交通部考評(工程類)/南港客車臨時軌共同管道價值工程/優等獎/交通部/94.09
6. 93年度交通部考評(工程類)/高雄屏東潮州捷運化建設價值工程/優等獎/交通部/94.09
7. 93年度交通部施工品質/台鐵左營新站土建及機電工程/優等獎/交通部/94.04.



Research Results

1. Field Study Report on the Structure of Railway Tracks, Noise, Vibration and Appearance of Elevated Railways; Su Chih-ping; RRB, MOTC; 2005
2. Work Report on Fire Safety and Evacuation Standards of Railway Tunnels and Underground Stations; Graduate School of Fire Science, Central Police University; RRB, MOTC; 2005
3. Summary Report of the Sino-Japanese Modern Engineering and Technology Symposium; RRB, MOTC; 2005
4. Field Study Report on Japan's Train Station Facilities, Co-constructions and Railway Constructions; Chin Chih-kung; RRB, MOTC; 2005
5. Overseas Fact-Finding Trip Report on Train Station Planning and Design in Japan; Hsieh Chao-yi and Chin Chih-kung; RRB, MOTC; 2005
6. Field Study Report on the Design, Installation and Maintenance of Slab Tracks; Chen Cheng-kai; RRB, MOTC; 2005
7. Report on Attending Training and Inspection Program for Automatic Train Protection (ATP) system; Chuang Chen-chang and Chang Chien-Hsiang; RRB, MOTC; 2005
8. Report on Attending Training Program for Electronic Interlocking System in Japan; Lin Sung-yi and Tsao Wen-chih; RRB, MOTC; 2005
9. Reports of the Cidu Marshalling Yard Opening Symposium; RRB, MOTC; 2005
10. Journal of Wanhua-Banciao Project, Volume IV; RRB, MOTC; 2005
11. Preliminary General Planning and Design for the Taipei—Yilan Direct Rail Link Project (Including the Relocation of Jiaosi Station); United Geotech, Inc; RRB, MOTC; 2005.
12. Feasibility Research into Private Investment on the Taipei—Yilan Direct Rail Link Project of the East Railway Improvements to Increase Speeds Project (Including the Preliminary Planning for the Relocation of Jiaosi Station); United Geotech, Inc; RRB, MOTC; 2005
13. Feasibility Research into Railway Grade Separation in the Shulin Area, Taipei County; United Geotech, Inc; RRB, MOTC; 2006

Achievements

1. Winner of 2005's Golden Road Award in the Outstanding Construction Category; Plumbing and Electrical Works of Cidu Depot and Marshalling Yard; Construction of Songshan Station; First Place; Public Construction Commission, Executive Yuan; September, 2006
2. Winner of 2005's Golden Road Award in the Outstanding Construction Category; Plumbing and Electrical Works of Cidu Depot and Marshalling Yard; Construction of Songshan Station; Second Place; Public Construction Commission, Executive Yuan; September, 2006
3. Winner of 2005's Archives Management Quality Award; Government Agency Archives Management; National Archives Administration, Research, Development, and Evaluation Commission, the Executive Yuan; August, 2006
4. Winner of 2005's Annual Award of Excellence: Kaohsiung Station (KMRT R11 Station); Excellence in Construction; MOTC; March, 2006
5. Winner of 2004's MOTC Evaluation (Construction); Temporary Track and Common Duct Value Engineering; Award of Excellence; MOTC; September, 2005
6. Winner of 2004's MOTC Evaluation (Construction); Chaozhou Project Value Engineering; Award of Excellence; MOTC; September, 2005
7. Winner of 2004's MOTC Construction Quality Award; Construction and E&M System of the New Zuoying Station of Kaohsiung; Award of Excellence, MOTC; April, 2005



前瞻未來 A Look into the Future



台灣鐵路發展濫觴於1891年(清末光緒17年)基隆至台北之鐵路，開啓了台灣現代化建設之新頁，期間歷經日治時期殖民經濟的運輸需求而快速發展，並建立了台灣鐵路網絡的雛形。光復後迄今，台灣鐵路歷經數十年之改革與遞嬗，不再侷限於單純之客、貨運輸任務，而更肩負著都市整體發展與促進全台區域經濟平衡之使命，因而有高速鐵路興建、都會區鐵路立體化與捷運化以及東部鐵路快速化等計畫之遂行。其中鐵路改建工程局一直都擔任關鍵性的角色，努力從事於整體鐵路改善工程。展望未來，面對四通八達高速化運輸時代的來臨，鐵路改建工程局將持續擔任重要的推手，驅動鐵路運輸服務朝下列目標邁進：

一、整合鐵路資源、充分發揮運轉效能：

在原有鐵路整體運輸網絡架構下，積極協助推動「高速鐵路」建設，以為聯繫台灣南北旅客運輸服務之主軸，透過「台鐵都會捷運化」與「都會區捷運網」，紓解都會區擁擠之交通，提供民衆舒適、安全、便利、準點的優質軌道運輸系統服務。



It all started in 1891 during the late Qing Dynasty when the opening of the railroad between Keelung and Taipei turned the page onto a new chapter in Taiwan's modernization. During the Japanese occupation, railroads in Taiwan developed rapidly to meet the transportation needs of the colonial economy. The basic railroad network was thus established. Several decades after the return of Taiwan to Chinese rule, railroads began to evolve from their simple original role of transporting passengers and freight. The railways now have the mission of promoting cities' overall development and helping to balance economic development across Taiwan. To these ends, projects such as the construction of a high-speed rail system, railway grade-separation, rapid transit systematization in metropolitan areas and east railway route standard improvements were initiated, and the RRB's role is fundamental to these projects. When facing the arrival of an era that demands high speed transportation and a comprehensive traffic network, the RRB will continue to play an important role in driving railway services towards the following goals:

I. Integrating railway resources to realize the rails' full potential:

The RRB will actively promote high-speed rail construction as the main conduit for passenger service between the north and the south, and integrate this service within the original railway network. Through TRA Rapid Transit Systematization in Metropolitan Areas and Rapid Transit System Network in Metropolitan Area projects, traffic congestion in metropolitan areas will be alleviated and the public will be provided with comfortable, safe, convenient and on-time high-quality rail transportation system service.

二、促進區域平衡發展、增進東部經濟繁榮：

除持續進行西部都會區鐵路立體化、都會區鐵路捷運化計畫及興闢高鐵車站聯外鐵路系統外；在東部幹線方面，透過東部鐵路持續改善之執行，架構東部迅捷、快速軌道運輸路網，持提供舒適、方便之軌道運輸系統服務，以有效縮短東西部走廊間之距離，達成促進區域經濟發展之目的。

三、健全鐵路服務環境、提供永續運輸服務：

嶄新的鐵路建設，除可促進建築營造業、電子科技業、軌道及車輛工業、軌道營運及維修等產業升級外，透過由高鐵與台鐵及各都會區捷運系統所構築成之綿密網路，將可提供產業以健全且快捷之運輸環境。在永續經營的理念，「綠色」的鐵路運輸已成為世界潮流，台灣在高鐵通車及台鐵立體化、捷運化工程完成後，二者緊密配合，相輔相成將使運輸之效能高度發揮，社會永續發展。

II. Promoting balanced development across the island and spurring economic growth of eastern Taiwan:

In western Taiwan, the RRB will continue to proceed with railway grade separation and rapid transit systematization in metropolitan areas and provide linkage to HSR stations. In eastern Taiwan, by implementing the East Railway Improvement Project, the RRB will construct a speedy railway network and provide comfortable and convenient services in order to effectively shorten the distance between the eastern and western corridors of Taiwan and achieve the goal of balanced economic development across the nation.

III. Creating a comprehensive railway service environment and a sustainable transport society:

New railway construction will not only help to stimulate construction, electronics, rail track and rolling stock, track operation and maintenance industries to upgrade but will also provide other sectors a fast and comprehensive transportation environment through the extensive network of HSR, TRA and the various MRT systems. With sustainable operations in mind, "green" railway transportation has become a world trend. After HSR opens and TRA's grade separation and rapid transit systematization projects are completed, coordination of transit modes will fully realize the efficiency of rail transportation and achieve the goal of sustainable development.