

臺灣鐵路年鑑

TAIWAN RAILWAYS ANNUAL REPORT 2016

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2016
Annual Report

{ TRA }

Taiwan Railways
Administration



交通部臺灣鐵路管理局
Taiwan Railways Administration, MOTC

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TAIWAN RAILWAYS ANNUAL REPORT 2016

1. FOREWORD

FOREWORD



As part of public transport, Taiwan Railways Administration (TRA) is committed to providing the public with comprehensive services. Flourishing business areas formed around railway stations in different parts of Taiwan are important locations for people to enjoy leisure or conduct business. The transport dispersion missions during long holidays, where all TRA employees are assiduous to achieve without being sluggish, is our promise for passengers to enjoy a great vacation smoothly by train.

Adhering to the core value emphasizing "safety, punctuality, service, and innovation", TRA achieved the following in 2016: completion of elevation and operations of five stations in Taichung; completion of renovation and operations of the Badouzi Station and Toucheng Station; continued implementation of the cross-island railway network safety enhancement program; the six-year railway driving safety improvement program; Railway Rapid Transit Systematization in urban areas; and the ticket system integration and reengineering plan, in order to consistently improve the convenience and efficiency of railway transport, connect local living perimeters, relieve urban traffic bottlenecks, and thereby promote balanced regional development and for passengers to enjoy comfortable and convenient public transport.

TRA never stops to advance Taiwan's railway transport. With "A new engineering method to revolutionize traditional hoisting and installation in steel beam replacement: The case of the Pingxi Line Steel Beam Replacement Project", we won an award of excellence in the engineering category of the 2016 Innovation Award of the Proposal

Innovation Scheme of MOTC and the Eminent Contribution Award for the parking innovation and revitalization of the Banqiao Station. In route maintenance, we independently designed and manufactured the diamond crossing and purchased the CNC gantry machining center. In railway transport, we made continual innovation and keep the roots in Taiwan through technology inheritance to create value for TRA.

With the rise of globalization, connecting with the world, broadening vision, and innovation are keys to maintaining business competitiveness. Since the initiation of international railway exchange, we have made significant progress. In 2016, we signed an agreement of friendly relationship with the Enoshima Electric Railway of Japan, launched painted trains together with Tobu Railway Co., Ltd., and organized the UK-Taiwan Railway Forum to create income from tourism and promote local economic development of both parties through exchange.

It is the 130th anniversary of TRA. Looking to the future, TRA will make continuous efforts to develop its dual-core business featuring the transport business and affiliated business. In the core transport business, we will cultivate new resources and cut budgets, strengthen transport in Hualien and Taitung, capture the commutation and medium-distance and short-distance market, and optimize fundamental station services and facilities in order to build a seamless transport environment. In affiliated businesses, we will emphasize services that satisfy customers, raise the market share of TRA boxed meals, revitalize station asset utilization, and develop railway tourism, in order to create a beautiful life with railway, earn recognition from all citizens, and become a brand-new TRA renowned internationally.

C. S. Lu

Director-General
Taiwan Railways Administration

2. VISION

V I S I O N

I Vision

To provide a quality public transport system emphasizing customer satisfaction and operate the dual-core business featuring the transport business and affiliated business.

II Strategic goals

- (I) To build a safe, punctual, reliable, efficient, and green transport environment.
- (II) To use universal, friendly, and informational operational equipment.
- (III) To improve the quality of railway vehicles and innovate transport services.
- (IIII) To expand affiliated businesses and revitalize asset utilization.

III. Operational strategy

(I) Operational management

1. To strengthen medium-distance, long-distance, and cross-line transport of the Eastern Line; and reinforce regional and commutation transport of the Western Line to enhance transport efficiency.
2. To promote seamless transport by integrating with the tickets, timetables, and stations of intercity bus, local bus, MRT, and HSR, in order to develop quality transport services.
3. To enforce universal design, continuously build accessible spaces, and shape a modern and friendly transport environment.
4. To launch horizontal alliances, strengthen marketing strategies, provide custom services, and cultivate new customer groups by integrating with the railway culture.
5. To enforce environmental awareness for sustainable development and humanized design concepts; to develop travel and living services through effective utilization of existing assets; to create transit-oriented development (TOD) benefits by integrating transport infrastructure construction with land development to realize "TRA

connects beautiful life".

6. To promote the Asset Revitalization Repayment Plan to quickly repay debts through various ways of development, such as promoting private participation in infrastructure projects, urban renewal (re-generation), and creating a right in rem of superficies, on prioritized quality assets.
7. To reinforce the in-service training and evaluation of employees regarding risk management and crises response, to strengthen the disaster prevention and counter-terrorist mechanisms to improve the emergency response ability, in order to maintain train and passenger safety.
8. To strengthen and implement law and discipline education and the Ethics Guidelines for Civil Servants.
9. To reinforce internal communication and coordination with the organization in order to develop labor-management harmony.

(II) Balancing supply and demand

1. To accelerate the purchase and replacement of railway vehicles for operations and simplify vehicle types to improve service quality.
2. To continue the relocation project of the Taipei Railway Workshop and Kaohsiung Railway Workshop and improve train maintenance technology and quality to ensure train safety; and to promote the development and operations of the original workshop sites to preserve the railway culture and expand the scope of affiliated business.
3. To continue the follow-up design project for railway rapid transit systematization in urban areas and increase the number of stations and local trains in order to expand the scope of commutation service and shorten trip times and train intervals.
4. To progressively promote the "Automated Railway Scheduling System" and enhance scheduling and dispatch capacity to ensure that the supply planning of transport capacity can closely meet the transport demand of passengers.

3

ORGANIZATION AND OPERATIONS



ORGANIZATION AND OPERATIONS

I. Organization and workforce

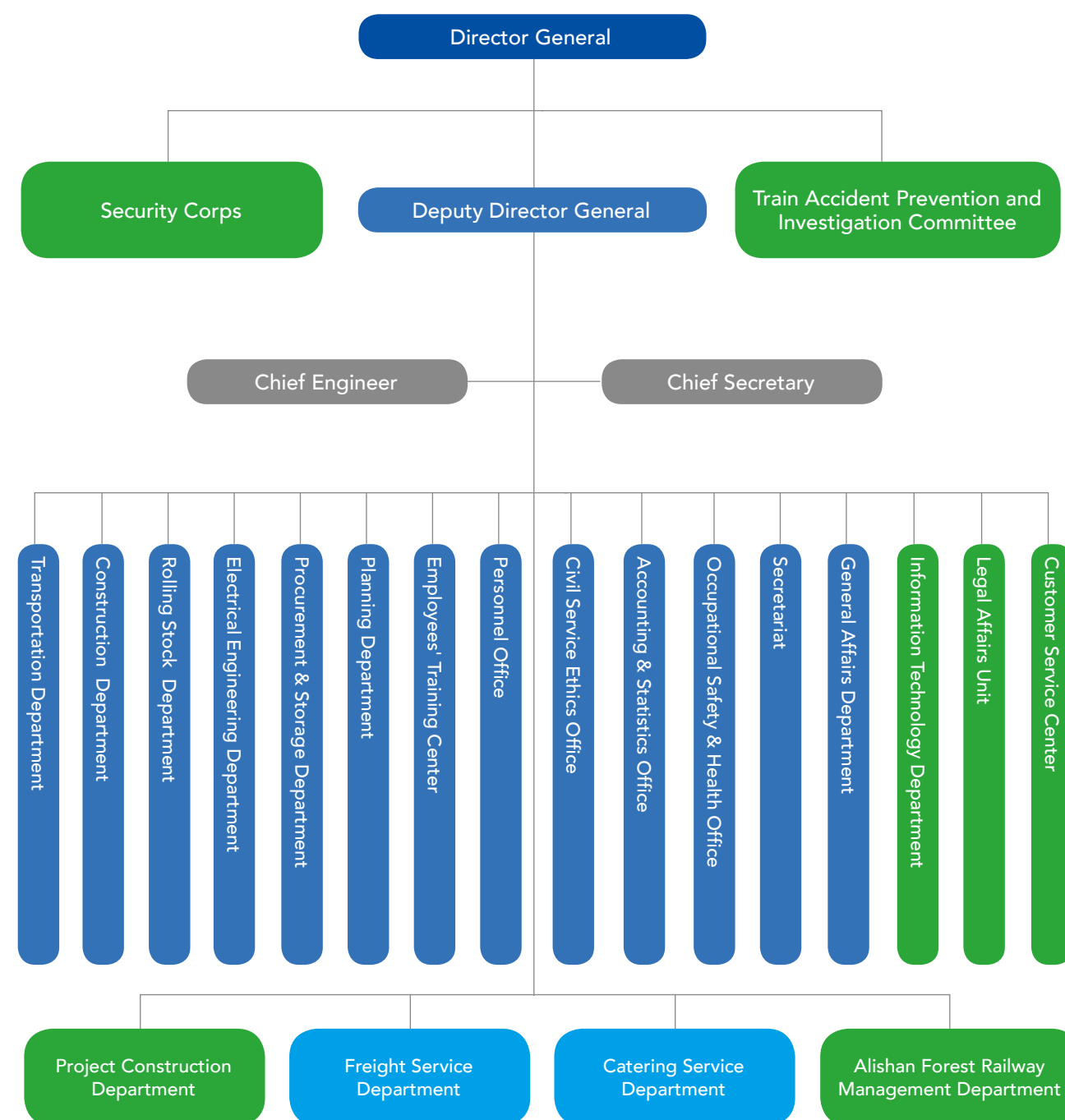
At the beginning of the Taiwan restoration, the central government commissioned the former Taiwan Provincial Government to take over the operations and management of the railways in Taiwan. In 1945, the Taiwan Railways Management Commission was founded. In 1948, the Taiwan Railways Administration was established and became an agency of the Ministry of Transportation and Communications(MOTC) since 1 July 1999. In terms of staffing, under the Director General, Deputy Director General, Chief Engineer, and Chief Secretary, there are 13 operational units including the Transportation Department, Construction Department, Rolling Stock Department, Electrical Engineering Department, Procurement & Storage Department, General Affairs Department, Planning Department, Accounting & Statistics Office, Secretariat, Personnel Office, Civil Service Ethics Office, Occupational Safety & Health Office, and Employees' Training Center; and seven task forces including the Information Technology Department, Security Corps, Legal Affairs Unit, Train Accident Prevention and Investigation Committee, Project Construction Department, Customer Service Center, and Alishan Forest Railway Management Department. In addition, there are two affiliated units: Freight Service Department and Catering Service Department; and 43 branch units, including plants, depots, centers, offices and teams outside of TRA.

The 2016 planned workforce consisted of 14,788 employees, and the actual workforce by the end of 2016 consisted of 13,510 employees



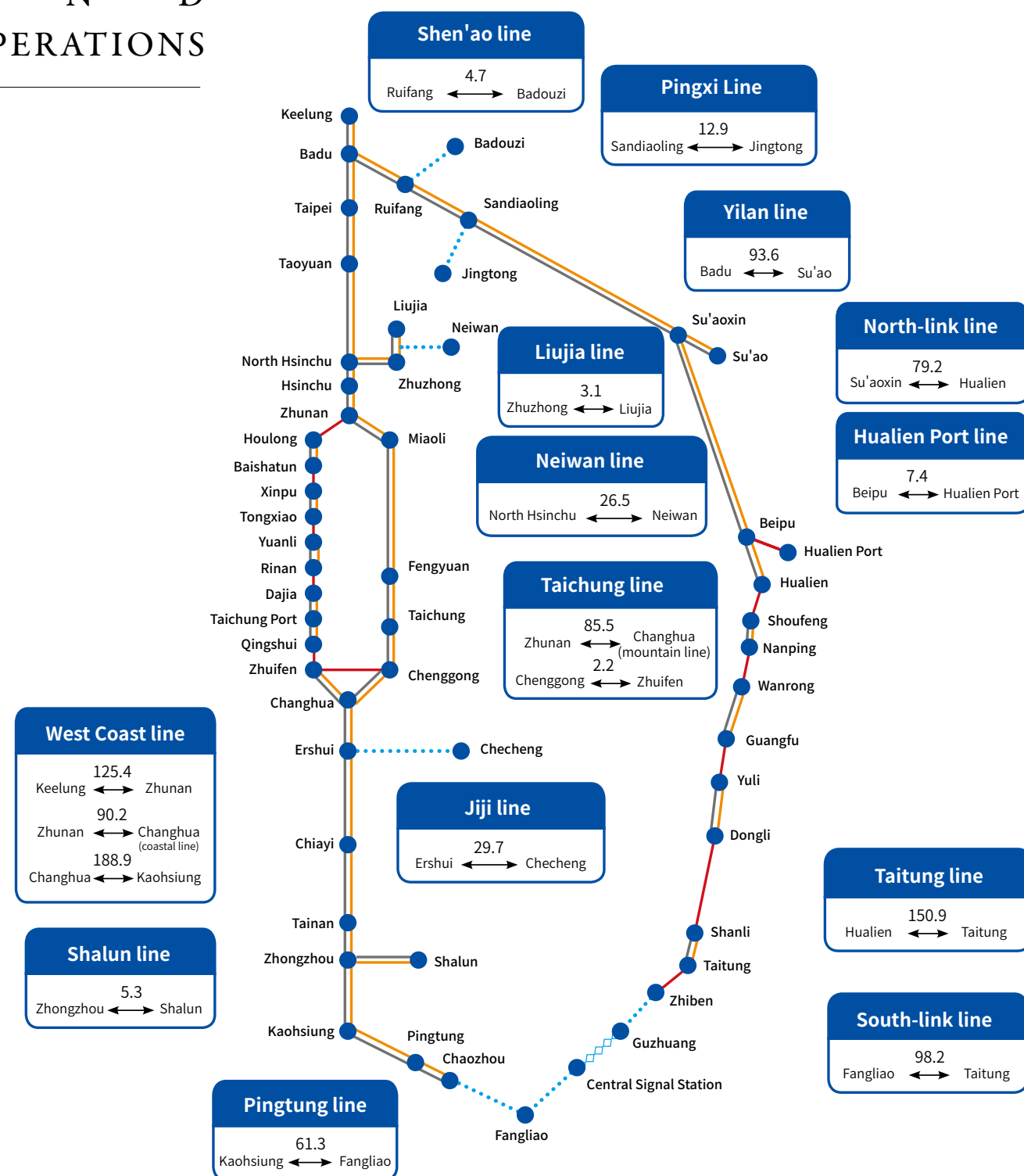
Photo by Ching-Hao Chou

TRA Organization Chart (simplified)



ORGANIZATION AND OPERATIONS

II. Operational facilities

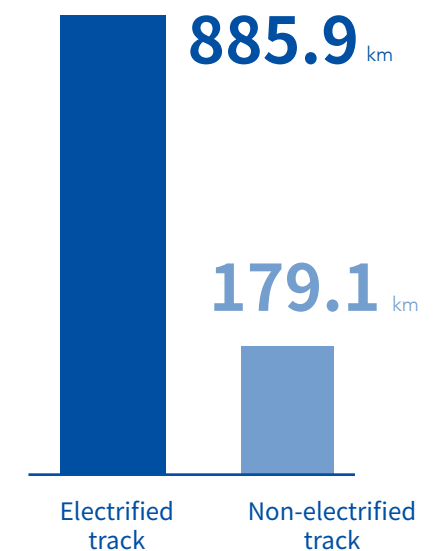
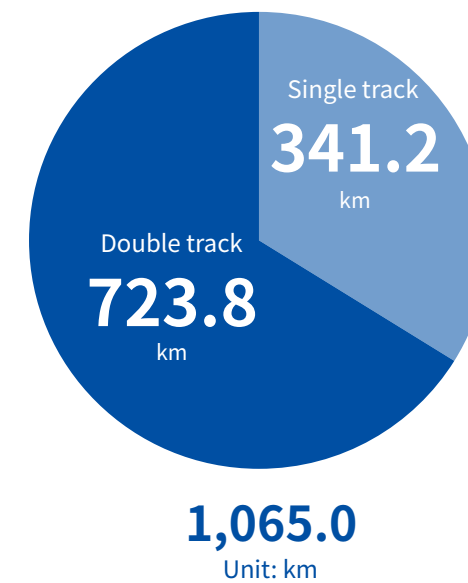


(I) Operational mileage (Data by the end of 2016) Operating distance 1065.0

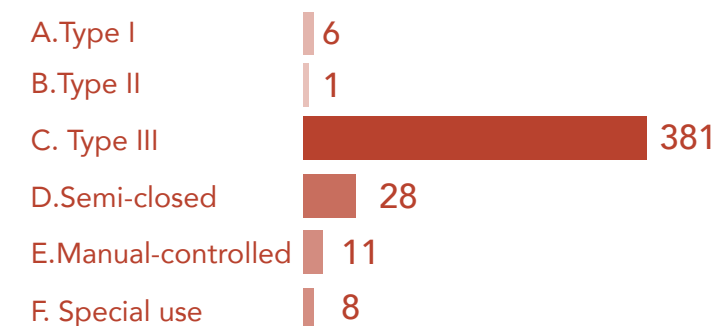
Unit: km



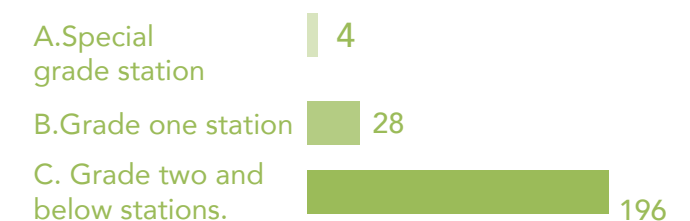
Operational mileage



Level Crossings: 435



Stations: 228



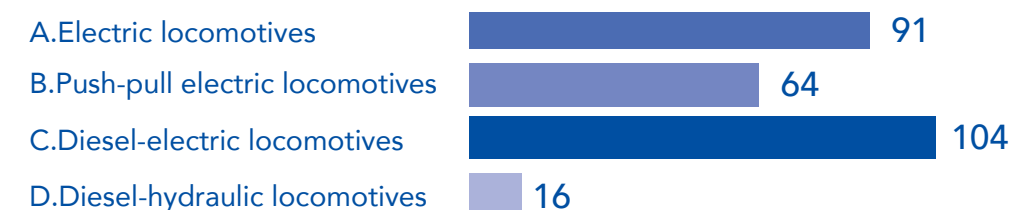
Bridges 1579

Tunnels 134

(II) Number of trains and utilization efficiency

1. The total number of trains by the end of 2016

275 locomotives unit: trains



There are also 995 EMUs, 216 tilting EMUs, 211 diesel passenger trains, 995 passenger trains, and 1,745 cargo trains.

2. Utilization efficiency

The 2016 locomotive availability was 87.76%, including electric locomotives accounted for 88.66% of the total number in the type, Push-pull electric locomotives 87.19%, diesel-electric locomotives 82.08%, diesel-hydraulic locomotives 83.25%, EMUs 90.08%, tilting EMUs 98.4%, and diesel passenger trains 84.75%.

4

8
car

開門時勿強行進出

ACHIEVEMENTS AND BUSINESS INNOVATION

TRA
Taiwan Railways Administration

形式 700
皮重 40.76公噸
重 45
空 40

②

ACHIEVEMENTS AND BUSINESS INNOVATION

I. Achievements

(I) Strengthening cooperation and exchange with international railway companies and reciprocal measures for passengers

1. Agreement of friendly relationship with Enoshima Electric Railway of Japan

TRA Pingxi Line and Enoshima Electric Railway of Japan signed an agreement on tourism cooperation with Enoshima Electric Railway of Japan on 26 April 2013 to exchange the day pass of each party for free. This Taiwanese-Japanese railway cooperation set an example for transnational cooperative marketing. On 14 March 2016, Enoshima Electric Railway Co., Ltd. signed an agreement of friendly relationship with TRA to promote cooperation between the TRA Pingxi Line and the Enoshima Electric Railway to a friendly level as of 1 April 2016. Under this new agreement, TRA and Enoshima Electric Railway co-launched the "Taiwanese-Japanese Railway Tourism Passport" on 1 May 2016. From then on, passengers can redeem a "Pingxi Line Passport" (Japanese version) at Taipei Station and Ruifang Station with an expired day pass (travel time after 1 April 2016) of the Enoshima Electric Railway. Or, passengers can redeem a "Enoshima Electric Railway Passport" (Chinese version) at the Fujisawa Station, Enoshima Station, and Kamakura Station of the Enoshima Electric Railway with an expired day pass of the TRA Pingxi Line (travel time after 1 April 2016). In addition to an introduction to the famous attractions along the Enoshima Electric Railway and the TRA Pingxi Line, these passports come with discount coupons for passengers to enjoy "endless fun with one passport in hand" with railway travel. This cooperation has thus opened a new chapter in railway travel.

Inlay of the
"Pingxi Line Passport"



Limited Edition of the Day Pass



2. Painting Keikyu 800 EMU on the anniversary of the TRA-Keikyu Corporation Agreement of Friendly Cooperation

TRA and Keikyu Corporation of Japan signed an agreement of friendly cooperation on 26 February 2015. To commemorate the anniversary of the agreement, Keikyu Corporation painted its local express trains in the blue and white appearance of TRA's ordinary local train on 22 February 2016. In return, we painted eight EMU700 local express trains into the red appearance of the Keikyu train on 12 May 2016. By painting one party's trains in the color of the other party, TRA and Keikyu Corporation successfully attracted visitors of each country to travel to the other country and created a new topic.

3. Sister railway agreements between TRA mountain and coast lines and two railway companies (Iwate Galaxy Railway Company, IGR, and Sanriku Railway Company) in Iwate Prefecture of Japan

The sister railway agreement signed between TRA and IGR and Sanriku Railway of Iwate Prefecture of Japan on 1 June 2016 marks the first example of co-operation between TRA and a Japanese local government. Through this agreement, TRA aims to promote operations and technology exchange with IGR and Sanriku Railway and to encourage visitors of each country to travel to the other country, in order to promote local development.

ACHIEVEMENTS AND BUSINESS INNOVATION

4. Exchanging train appearance with friendly Tobu Railway Co., Ltd.

TRA and Tobu Railway Co., Ltd. of Japan signed an agreement of friendly cooperation on 18 December 2015. Both parties also started a one-year free ticket redemption activity. In order to promote railway travel and improve the friendly understanding of both parties, Tobu Railway painted its Ryomo limited express trains running between Asakusa and Isesaki stations in the “2016 Year of the Monkey Symbol” of TRA’s Puyuma Express between 17 June 2016 and 31 December 2016. In return, TRA painted its Tze-Chiang Limited Express in the shiny golden appearance of Tobu Railway’s Spacia limited express on 3 October 2016. The free ticket redemption between both parties has been extended to 31 December 2017 for cooperative marketing of railway travel.



Maiden voyage of the push-pull
Tze-Chiang Limited Express in
the appearance of Tobu Railway’s
Spacia limited express.



The sister railway agreement
signing ceremony between Jiji
Line and Tenhama Line

5. Sister railway agreement between TRA Jiji Line and Tenhama Line of Tenryu Hamanako Railroad in Shizuoka Prefecture, Japan

TRA Jiji Line signed a sister railway agreement with the Tenhama Line of Tenryu Hamanako Railroad on 27 August 2016 at the Checheng Station of Jiji Line. With a total length of 67.7km, the Tenhama Line of Tenryu Hamanako Railroad is located in Shizuoka Prefecture, Japan. As the scenery along the line is similar to that of the Jiji Line, both parties thus signed the sister railway agreement. To promote cooperation between both parties, the “free day pass redemption” activity between both lines was launched to promote railway travel and tourism. The activity will end on 31 December 2017.

6. MOU between TRA and MGBahn of Switzerland and sister railway MOU between Alishan Forest Railway of Forestry Bureau and MGBahn and GGB

TRA and the Forest Bureau signed a three-party MOU with Matterhorn Gotthard Bahn (MGBahn) of Switzerland, its affiliate Gornergrat Bahn (GGB) on 6 May 2016 to set a new milestone in Taiwan’s international railway cooperation. TRA and MGBahn agreed to launch future cooperation in specific fields (railway operations and technology), particularly in operations, marketing, repair, maintenance, and talent training. TRA hopes that the increase in civilian exchanges can promote interaction and friendly understanding between Taiwan and Europe.

(II) Developing cultural and creative railway products with brand value

We launch products relating to various festivities for TRA passengers to have a pleasant memory while travelling with TRA. These related products include:

1. “Summer Formosa SL Express” carrying bag.
2. Postcards commemorating the anniversary of the Hsinchu Station-Tokyo Station agreement.
3. The Cultural and Creative Lifestyle of Railways book series.
4. Second generation products (drawstring bag, meal box security band, empty meal box) of “The Evolution 1001” project.
5. The “2016 Year of the Monkey Symbol” vacuum flask and “Forever Safety and Health” drawstring bag for the maiden voyage of the Puyuma train.
6. Related products (magnet bookmarks, paper bookmarks, and stamp and stamp pad set) for the completion of the Xincheng (Taroko) Station.
7. Golden Shovel Boxed Gift for good luck.
8. Hana and Teru related products (figures, fluffy dolls, pencil cases, and refrigerator magnets).
9. Limited-edition magnets and bottle opener magnets for the 99th

ACHIEVEMENTS AND BUSINESS INNOVATION

anniversary of Taichung Railway Station and the 90th anniversary of Tainan Railway Station.

10. Alishan Forest Railway related products (acrylic key rings, bottle opener, and wooden box postcards).
11. The "Celebration for Commencement of E-ticket usage on TRA's WHOLE Line" ticket set.
12. "Train Station Memories" product series (ceramic plate, meal box wrapping cloth, cotton and linen bag)
13. "Heritage of 12 Generations" 2017 monthly calendar
14. Picnic with Hana and Teru" desktop calendar
15. New Taroko Hello Kitty Train related products.



Upper left: Golden Shovel Good
Luck Boxed Gift
Upper right: "Heritage of 12
Generations" 2017 monthly calendar
Bottom: Hana and Teru dolls

(III) Diversifying TRA products through image licensing from Sanrio

By signing an image licensing agreement with Sanrio Co., Ltd. and EVA Air, we developed the Taroko Hello Kitty Train related products. This cooperation project started with the maiden voyage of the "New Taroko Hello Kitty Painted Train" to attract more passengers to take the Hello Kitty train. Later on, we launched a total of 40 limited-edition related products, such as the Hello Kitty Train plush dolls, stainless steel meal box, train super set, stationery, and peripherals of computer, communication and consumer electronic products. The royalty income is over NT\$1 million.



New Taroko Hello Kitty
Train related products.

(IV) Organizing the "2nd Formosa Railroad Bento Festival 2016"

At the 2016 Taiwan Culinary Exhibition held on August 5-8, 2016 at Exhibition Hall 1 of the Taipei World Trade Center, we carefully planned and organized the "2nd Formosa Railroad Bento Festival 2016". In addition to a total income about NT\$2.11 million, there were 188 media exposures (TV, printed, and internet), with an estimated advertising value about NT\$21.09 million according to the exhibition planner. The event has created extremely high benefits and significantly improved the awareness of TRA boxed meals at the same time.



Poster of the Formosa Railroad Bento
Festival 2016

ACHIEVEMENTS AND BUSINESS INNOVATION

(V) Launching a wide variety of boxed meals and history books

1. Integrating with local specialty food to launch the "TRA Wanlan Pork Knuckle Boxed Meal" to celebrate the opening of the Chaozhou Workshop in Pingtung.
2. Designed two "TRA Mother's Day Happiness Boxed Meals" in support of the TRA Mother's Day event: "Guanyin Taiwan, Avalokitesvara Train of Happiness". These boxed meals, including the Healthy Vegetable Meal and Rosemary Boneless Chicken Leg Meal, were made with fresh, natural ingredients, low in salt, oil, and sugar.
3. Launched the limited-edition Puyuma (Red Quinoa Pine Nut) Boxed Meal on Railway Day on 7 June 2016 to celebrate the 129th anniversary of TRA.
4. Published Unforgettable Taste of Times: A History of TRA Bento, the first book on the history of TRA bento for citizens to understand the evolution of TRA boxed meals and explore the heydays of TRA bento.

(VI) Promoting the multifunctional performing zone of Taipei Station foyer

To raise the foyer occupancy of Taipei Station, the Catering Service Department implemented the "Directors for Renting the Multifunctional Performing Zone in Taipei Station" in 1 January 2014. In 2016, a total of 18 medium and large events were organized in the multifunctional performing zone, creating a rent income over NT\$5.25 million.

(VII) Painted train for awareness education of level crossing safety

To promote level crossing safety, TRA painted an EMU700 local train (Alfred) for awareness education. The maiden voyage of Alfred was held on platform 4 of Taipei Station on 16 November 2016. On that day, CTS anchor Yu-Chieh Chuang was invited to be the one-day conductor of Alfred's maiden voyage. Lovely kindergarten students were also invited to be the guests of the voyage and participated in the quiz of the "Level Crossing Safety Education".

Four safety education themes were set in support of the 70th anniversary of the Train Security Week:

1. Maximum fine of forced entry of level crossings is NT\$90,000.
2. Maintaining safety and clearance of level crossings.
3. Value your life and love your family.
4. Three steps to save life: Press, Push, and Run.



Cartoon painted educational train for level crossing safety



"Painted Train" maiden voyage

(VIII) Expanding e-ticket coverage

For passengers from all parts of Taiwan to take train more conveniently, TRA integrated various types of e-tickets with the multi-card system (EasyCard, iPass, iCash, and HappyCash). The range of the multi-card system was expanded to all stations (except for Hualien Port Station and Fangye Station) of the whole line and branch lines (Pingxi Line, Shen'ao Line, Neiwan Line, Liujia Line, Jiji Line, and Shalun Line) on 28 June 2016. The 2016 daily average users were 356,000 users.

(IX) Offering convenient booking service

1. Convenience store booking and collection

In 2016, about 21,543 citizens booked TRA tickets through convenience stores every day, up by 3.5% from the daily average about 20,814 persons in the previous year. To provide citizens with more convenient booking service, we will continue to offer booking and collection services at 7-ELEVEN, Family Mart, Hi-Life, and OK Mart to increase ticket collection channels, in order to save ticket purchasing time and cost for passengers, raise TRA's level of service, and meet with the trend of the Information Age.

ACHIEVEMENTS AND BUSINESS INNOVATION

2. 24-hour on-line and voice booking services

Passengers can book any same-day train one hour before the scheduled departure time through the on-line or voice booking and collect and pay for the tickets no later than half an hour before train departure. Both services are available round-the-clock for the citizen's convenience. In 2016, passengers collected tickets in 14.24 million bookings.

(X) Launching the member service system

TRA introduced the membership system on 30 March 2011 to raise the satisfaction and loyalty of customers with the member booking service. By 2016, there were 226,062 members, and the system successfully matched 149,891 transactions, with a matching success rate at 20.66%.

(XI) Constantly promoting different types of theme cruise-style trains

We constantly develop new cruise-style train tour packages in line with seasonal events and festivities and launch strategic alliances with local industrial associations. In 2016, TRA organized 37 cruiser train one-day tours for 10,049 passengers to create revenue of about NT\$3.75 million. In addition, to comply with the new labor law, the cruiser train one-day tour was suspended in September 2016, and only the two-day one-night tour is still available.

(XII) Bike eco-trains

To support energy conservation and emissions reduction and meet with the cycling trend, we continued the bike eco-train service for the eco-delivery of bicycles. In addition to offering a 50% discount for bicycle fares, we remodeled some cars of the push-pull Tze-Chiang Express and Chu-Kuang Express into passenger-bike cars. In 2016, we transported 91,861 passengers and their bikes.

(XIII) Continuing charter train services

To improve the travel comfort and convenience for foreign and domestic visitors and to extend the accessibility and scope travel, we continue to offer the charter train railway travel services. In 2016, we accepted chartering from 659 groups to provide services for 192,288, creating a revenue of NT\$66,080,814.

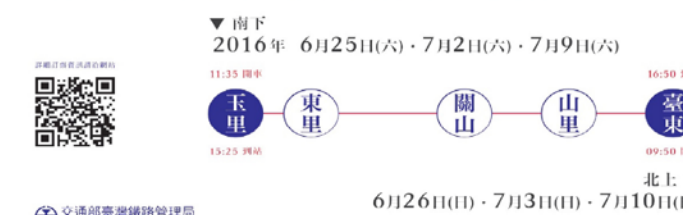
(XIV) Continuing scholarly station promotion

By the end of 2016, TRA has set book exchange points in 47 stations: Qidu, Wudu, Xizhi, Xike, Nanganga, Songshan, Taipei, Banqiao, Fuzhou,

Shulin, Shanjia, Yingge, Taoyuan, Zhongli, Xinfeng, Hukou, Hsinchu, Hexing, Neiwan, Zhudong, Zhunan, Miaoli, Fengyuan, Taichung, Xinwuri, Dajia, Qingshui, Shalu, Changhua, Yuanlin, Douliu, Chiayi, Xinying, Tainan, Xinzuo, Kaohsiung, Pingtung, Xishi, Hualien, Taitung, Luye, Guanshan, Shuangxi, Ruifang, Luodong, Yilan, and Su'aoxin stations. Apart from continually reproducing the said facilities in other stations, we have aggressively encouraged employees to promote book recruitment in order to turn train stations into a traffic hub that connects places and beautiful life.

(XV) Summer Formosa SL express

After signing a sister steam locomotive (SL) train agreement with Hokkaido Railway Company of Japan Railways Group (JR Hokkaido) in 2012, TRA plans to run a special SL train every March to celebrate the anniversary of the agreement and the Summer Formosa SL express every summer. In 2016, we planned six trips for the Summer Formosa SL express on three different days: June 25, July 2, and July 9. Unfortunately, the two trips on July 9 were cancelled due to a typhoon. In 2016, the four trips attracted about 900 passengers.



Poster of the Summer
Formosa SL Express

ACHIEVEMENTS AND BUSINESS INNOVATION

I. Business innovation

(I) Piloting real-name booking system in Hualien and Taitung

In 2016, we piloted the “real-name booking system” for Hualien and Taitung citizens during the long holidays on Dragon Boat Festival. Those who took the train to go home before the holiday and returned to work after the holiday must book tickets with their real names. The pilot program was available for Hualien and Taitung citizens, i.e., the citizen ID card number begins with “U” or “V”. In on-line booking, the “one ID card number for one ticket” policy was adopted, citizens can only use three different ID card numbers in each transaction, and no ID card number can be reused. The system was re-experimented during the long holidays on Mid-Autumn Festival. In the future, the “real-name booking system” will apply to four trains for every 3-day holiday, six trains for every 4-day holiday, and eight trains for Spring Festival. In 2016, 12 trains with 4,464 seats were opened for real-name booking for long holidays on Mid-Autumn Festival and National Day.

(II) On-line ticket booking with boxed meal ordering

For passengers to enjoy their meals conveniently on a trip, we started the “On-line Ticket and Boxed Meal Booking” service on 10 May 2016. At the beginning, this new policy was experimented on seven Puyuma express trains and one Taroko express train, totaling eight trains. After successfully booking a train ticket, passengers could order TRA boxed meals including the pork chop boxed meal or vegetarian boxed meal at NT\$80 each. Stage two started on August 8 to extend the service on two more Puyuma express trains, No. 111 and No. 136, making up to ten trains, on the Western Line. In addition, ticket collection at convenience stores started at the same time. Stage Three began on December 12 to add ticket booking and boxed meal ordering through major convenience store chains (7-ELEVEN, Family Mart, OK Mart, and Hi-Life). The service was extended to 40 trains running on the Western Line and South-Link Line, making up to 50 trains, for more passengers to enjoy meals when travelling with TRA.

(III) Winning Innovation Award from 2016 Innovation Proposal Scheme of MOTC with the Pingxi Line Steel Beam Replacement Project

1. Revolutionizing traditional hoisting and installation for steel beam replacement

In “A new engineering method to revolutionize traditional hoisting and installation in steel beam replacement: The case of the Pingxi Line Steel Beam Replacement Project”, Chief Yen-Tung Lo of Yilan Construction

Branch proposed a new method to replace old steel beams of railway bridges with “moveable hydraulic spreader gantry crane” to substitute the traditional hoisting and installation method. This method has passed all structural safety inspection items and can overcome replacement difficulties due to excessively low curvature radius to achieve old steel beam replacement. Therefore, it won an award of excellence in the engineering category of the 2016 Innovation Award of the Proposal Innovation Scheme of MOTC.

2. Commendation and encouragement for employees with merits

By winning this award, Chief Yen-Tung Lo of Yilan Construction Branch was granted to a major merit while Deputy Chief Chen-Feng Wang and Chief Chin-Hsiang Lo were granted two merits. MOTC Minister Tan Hochen presented certificates to them on 1 December 2016 to commend their deeds, and TRA Director Chieh-Shen Lu presented bonuses to them at the 343rd TRA Administrative Meeting on 16 December 2016 to praise their performance. In addition, as “Safety Maintenance of Replacing Buffering Trail with Expansion Joints on Curve of Continuous Welded Rail” proposed by Taichung Construction Branch entered the semi-finals, all related employees were given one commendation as encouragement.



MOTC minister and TRA award-winners of the 2016 Innovation Proposal Scheme.



TRA Director-General Chieh-Shen Lu (right) and award-winner Chief Yen-Tung Lo of Yilan Construction Branch (left) at the 343rd TRA Administrative Meeting. *

ACHIEVEMENTS AND BUSINESS INNOVATION

3. Pingxi Line Steel Beam Replacement Project

This project was implemented between Sandiaoling Station and Jingtong Station. The bridge has a total weight of 310 m.t. and 25 I-beam bays. As the site was steep, heavy cranes could not be shipped to the site, making old beam replacement extremely difficult. If we built a new makeshift road and bridge to ship heavy machinery there, the construction cost would increase and local ecosystem damaged. While the Pingxi Line is an important TRA tourism line, both the TRA image and local tourism profit will be affected if we closed the service for construction. After careful assessment, we implemented construction in the nighttime and overcame the site obstacles with the moveable gantry crane to replace the old beams without closing the service in order to save cost, maintain local ecosystems, and sustain service for visitors.

With the moveable gantry crane, we did not need to build a new makeshift road and bridge to reduce steel consumption and emissions from high-energy-consuming steel making. In addition, as no excavator or pill-driver was needed, fuel contamination of the local environment was reduced. Furthermore, nighttime construction has maintained the daytime railway operation of the line. This new method can save costs from building new makeshift road and bridge, maintain local ecosystems, sustain railway operation, and ensure local tourism development. Maintaining all aspects before construction was the major characteristic and biggest challenge of this project. Our success has provided an important reference for future homogenous TRA projects.

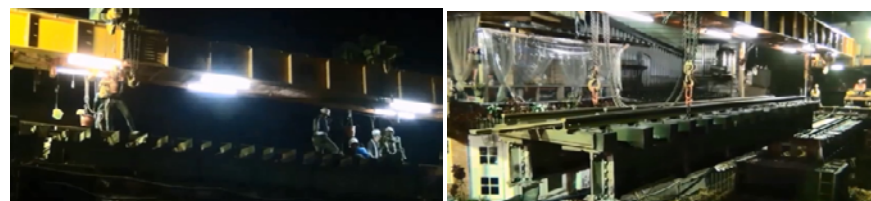


Entry of the gantry frame

Steel bridge anchor removal and track fastener unloading



Rail track removal



Releasing level hoist

Old beam hoisting



Transporting old beams with metal carrying car



Removal of original pier surface



Entry of the new beam, level hoist with a U-shape ring



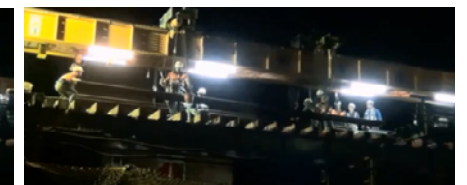
New beam installation



New beam installation



Repairing with non-shrinkage grout



Hoisting trail track



C channel pedestrian path installation

ACHIEVEMENTS AND BUSINESS INNOVATION



Rail track installation



Track fastener installation



Gantry frame withdrawal

(IV) Route maintenance innovation and achievements

1. Development and manufacture of 50kg-N 4 diamond crossing

Scissors crossovers are required due to the station spatial limit and the need for the cross configuration of routes. A scissors crossover comprises four sets of general turnouts and one diamond crossing. Figure 1 shows the diamond crossing at the TRA Qidu Marshalling Yard. The diamond crossing is different from the crossing of general turnouts



Diamond crossing

and is more expensive due to its lesser use. In addition, as the procurement procedure is complex, timely on-site supply is not possible.

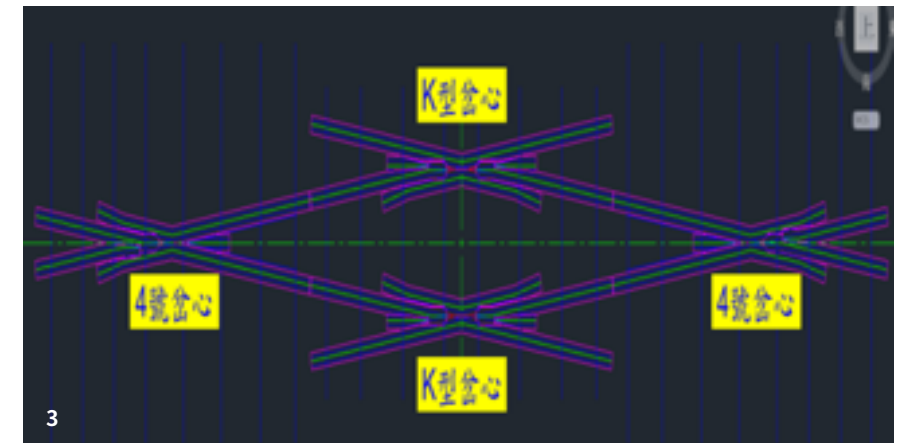
Currently, the diamond crossing used by TRA is forged with mangalloy. After an on-site inspection of the wearing of crossings at Qidu Marshalling Yard, significant wear and crush as shown in Figure 2 are confirmed, and immediately replacement is required.



Serious crush at the crossing nose.

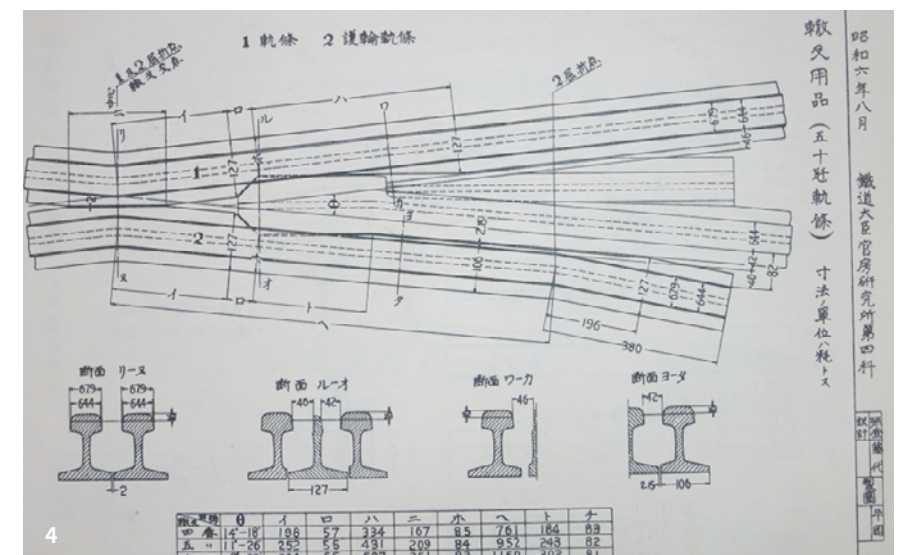
3

Distribution of diamond crossing #4. Diamond crossing #4 is made up of two sets of K crossing and two sets of crossings.



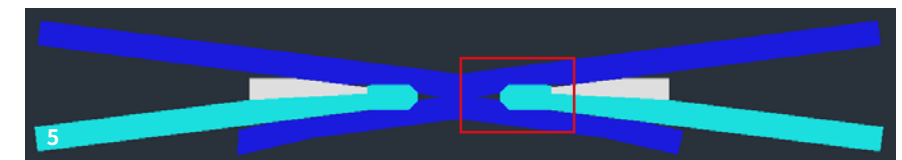
4

Wing rail drawing of crossing #4



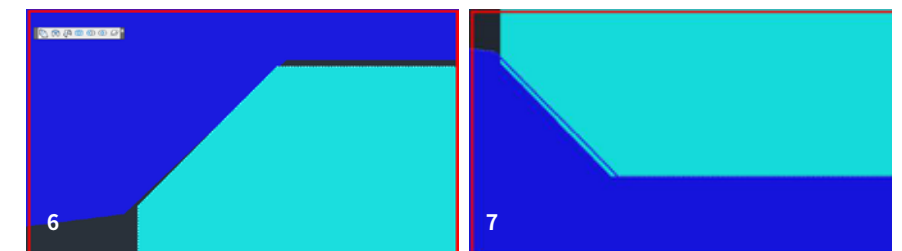
5

Track bottom location



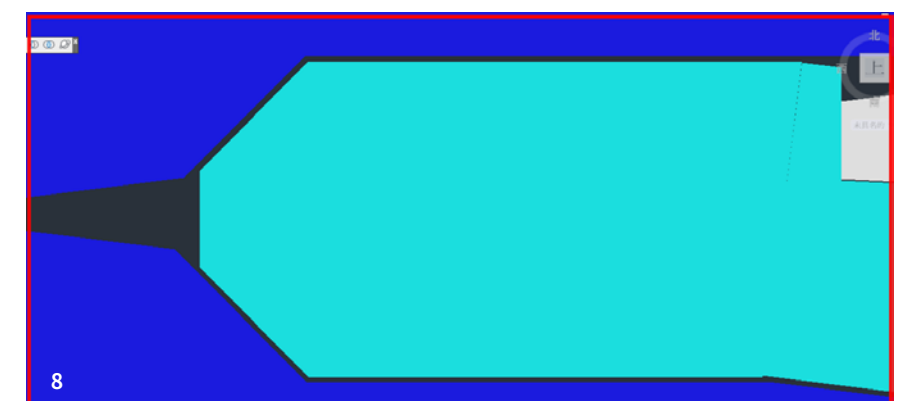
6

Upper side intervention of at track bottom



7

Lower side intervention at track bottom



8

Track bottom after revision

ACHIEVEMENTS AND BUSINESS INNOVATION

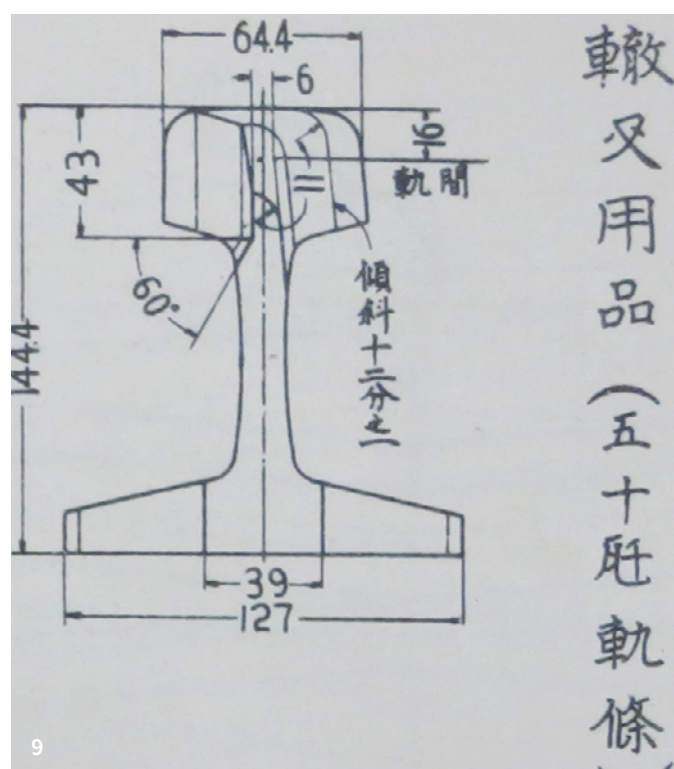
In the absence of equipment for manufacturing mangalloy crossing, TRA decided to replace existing crossings with assembly crossings. However, as the available referenced drawings were based on the JIS 50Kg track (Figure 4) that does not fit the JIS 50Kg-N track currently in use, it is necessary to make new drawings and verify if there is intervention or excessive gap between each strapping surface.

After drawing and verifying the new wing rail drawings with CAD, bottom intervention was found as shown in Figures 5-7. Figure 8 shows the wing rail after size revision.

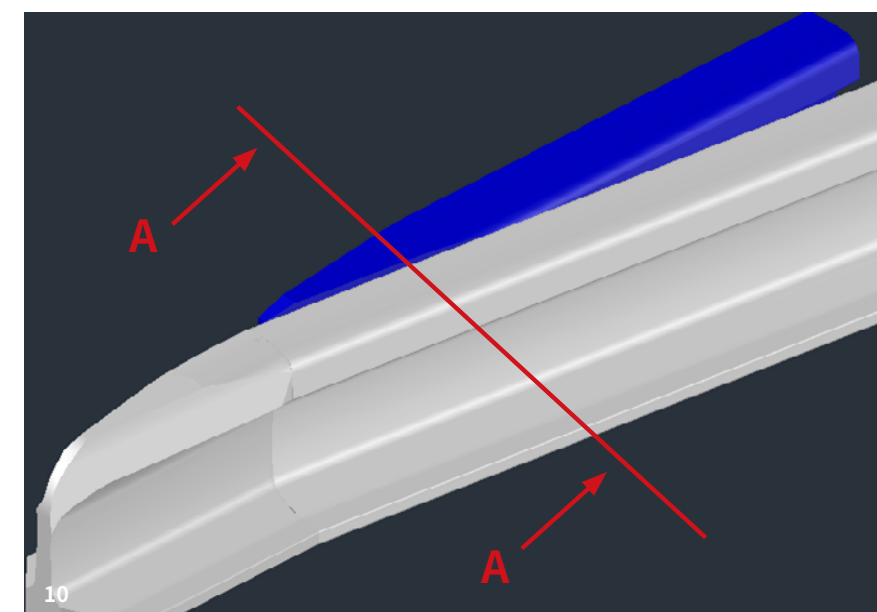
The nose drawings were made with reference to the original referenced drawings and verified with 3D CAD. Interventions and uneven gaps were found as shown in Figures 9-11. Figure 12 shows the nose drawings after revision.

After completing the dimensional change, related dimensions were re-examined with 3D CAD to verify the presence of intervention, as shown in Figures 13-14.

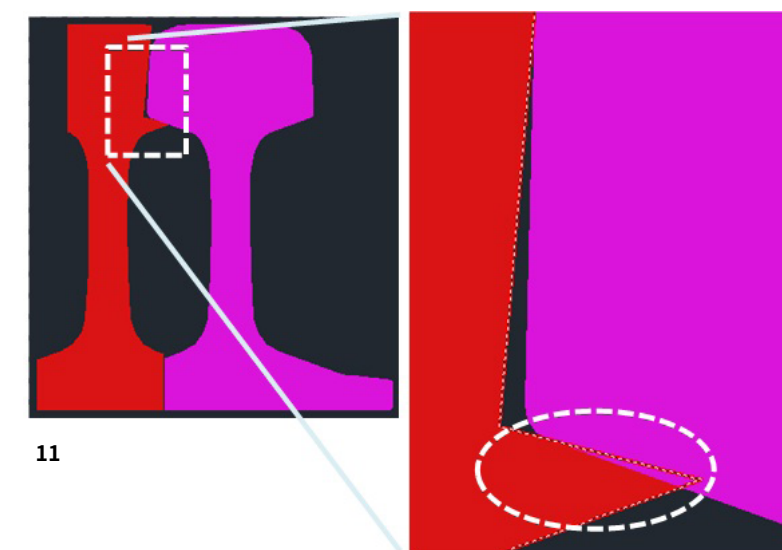
After verifying each layer of crossing #4 and the K crossing, four sets of crossings were assembled in the shape required by the rail to complete the diamond crossing #4 assembly drawing, as shown in Figure 15.



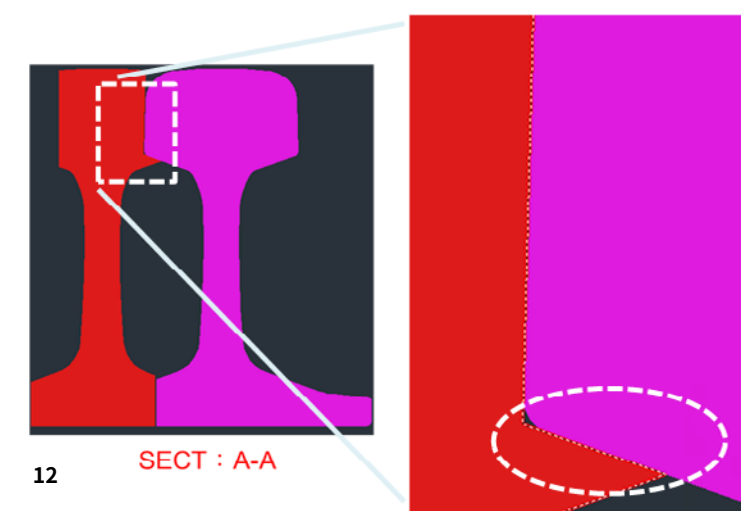
9
Nose cross-section



10
CAD A-A cross-section

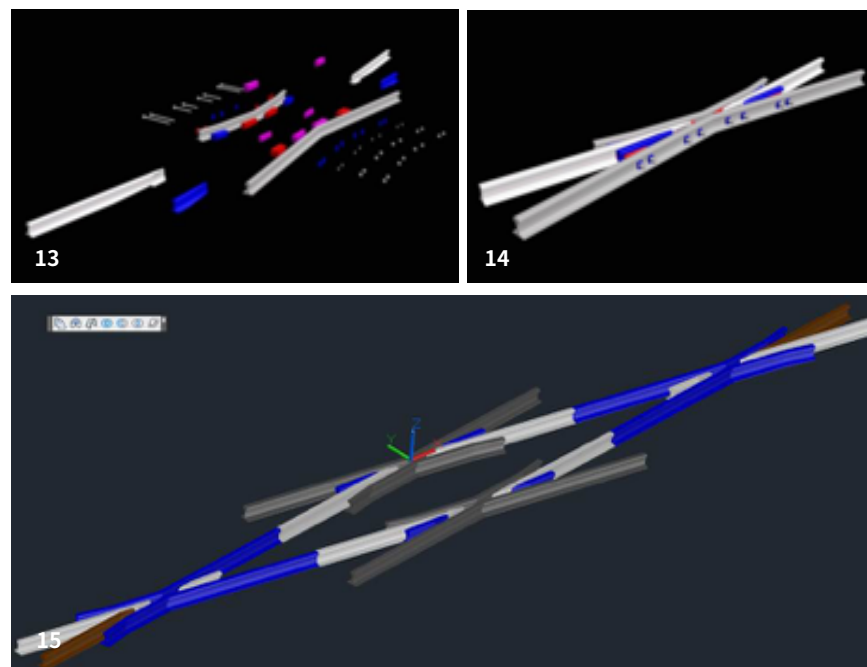


11
Nose before revision



12
Nose after revision

ACHIEVEMENTS AND BUSINESS INNOVATION

**13**

Parts and components breakdown drawings

14

Parts and components assembly drawing

15

Diamond crossing #4 assembly drawings

Next, the supervisor led site workers to implement various steps; measurement, rail cutting, marking, drilling, shaving, rail bending, and grinding (Figures 16-24). In the process, the supervisor showed the key points of all steps, construction methods, measurement, and marking to newcomers. Apart from completing crossing development and manufacture, this project has realized technology inheritance.

The design and structure of the diamond crossing is complex. By revising existing drawings and processing with technical legacy, the team eventually developed the four sets of crossings required by the diamond crossing after overcoming many failures through continual improvements. In addition to the never-surrender perseverance, it was the devotion to TRA that made this happen.

Each set of the diamond crossing developed by the Construction Maintenance Corps can save NT\$700,000, about 70% of the cost. More importantly, this has enabled the core technology of assembly crossing manufacture to take root in Taiwan, which is an undeniable value.

**16**

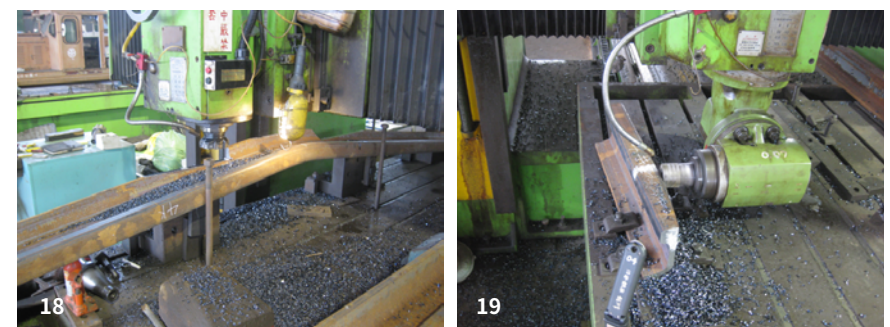
Rail cutting

**17**

Marking

18

Wing rail processing with a gantry milling machine

**19**

Nose processing with a gantry milling machine

**20**

Nose bottom processing with a vertical milling machine

**21**

Processed nose

**22**

Shop pre-assembly



ACHIEVEMENTS AND BUSINESS INNOVATION

23

On-site test installation: Qidu
Marshalling Yard



24

Completion of on-site test
installation: Qidu Marshalling Yard



2. Turnouts switch rail manufacture with CNC gantry machining center

Metal processing technology advances constantly. A computerized numerical control (CNC) machining center can replace 90% of traditional cutting, drilling, milling, shaving, and grinding work. After analyzing the design model and calculating the required processing commands with CAD and CAM software, the postprocessor converts the required processing commands and auxiliary commands in the process into the format readable by the numerical control system. By uploading the output file to the CNC machining center, it will automatically process the required workpiece.

To raise rail material capacity and fulfill the material demand of each branch, TRA submitted a CNC procurement budget in 2013 to complete switch rail and basic rail manufacture with the fully automatic CNC gantry machining center in order to shorten processing time and increase outputs, save labor, and enhance overall economic efficiency.

The procurement and acceptance of the CNC gantry machining center were completed in 2016, and operation started in 2017. It is expected that the CNC gantry machining center will raise switch rail capacity by 300% to bring TRA's rail material manufacture to a new milestone.

1

Foundation works were completed,
and machine support and pipelines
were reserved.



2

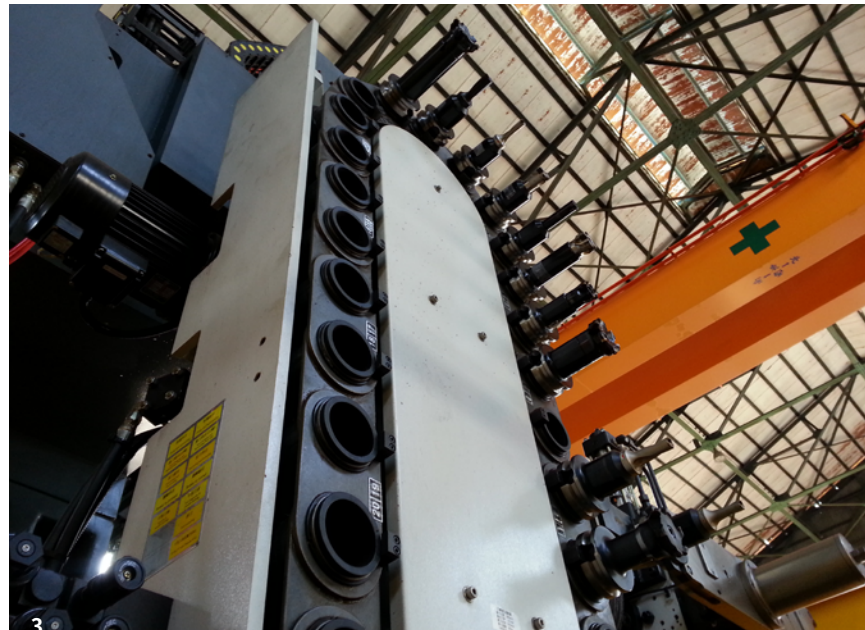
Preliminary machine assembly was
completed, and wire connection
and test will follow suit.



ACHIEVEMENTS AND BUSINESS INNOVATION

3

The CNC gantry machining center includes a tool magazine and automatic switch system for fully automatic tool switch.



4

Switch rail processing: milling switch rail alignment line and rim line. Fully automatic to finish eight steps in one time.



5

5

Switch rail processing was completed, after measurement and verification with the processing drawings, the processed switch rail conform to the processing precision requirements.



6

The travel of the CNC gantry machining center is 10m, which is sufficient for processing the switch rail and basic rail required by TRA. As the worktable is 2.4m wide, the center can process three switch rails or four basic rails at the same time.



7

7

The automatic scrap removal system can automatically remove scraps to maintain environmental protection and save cost at the same time.



8

Deputy Chief Engineer Hui-Yuan Hsu visited the Construction Maintenance Corps and gave on-site instructions.





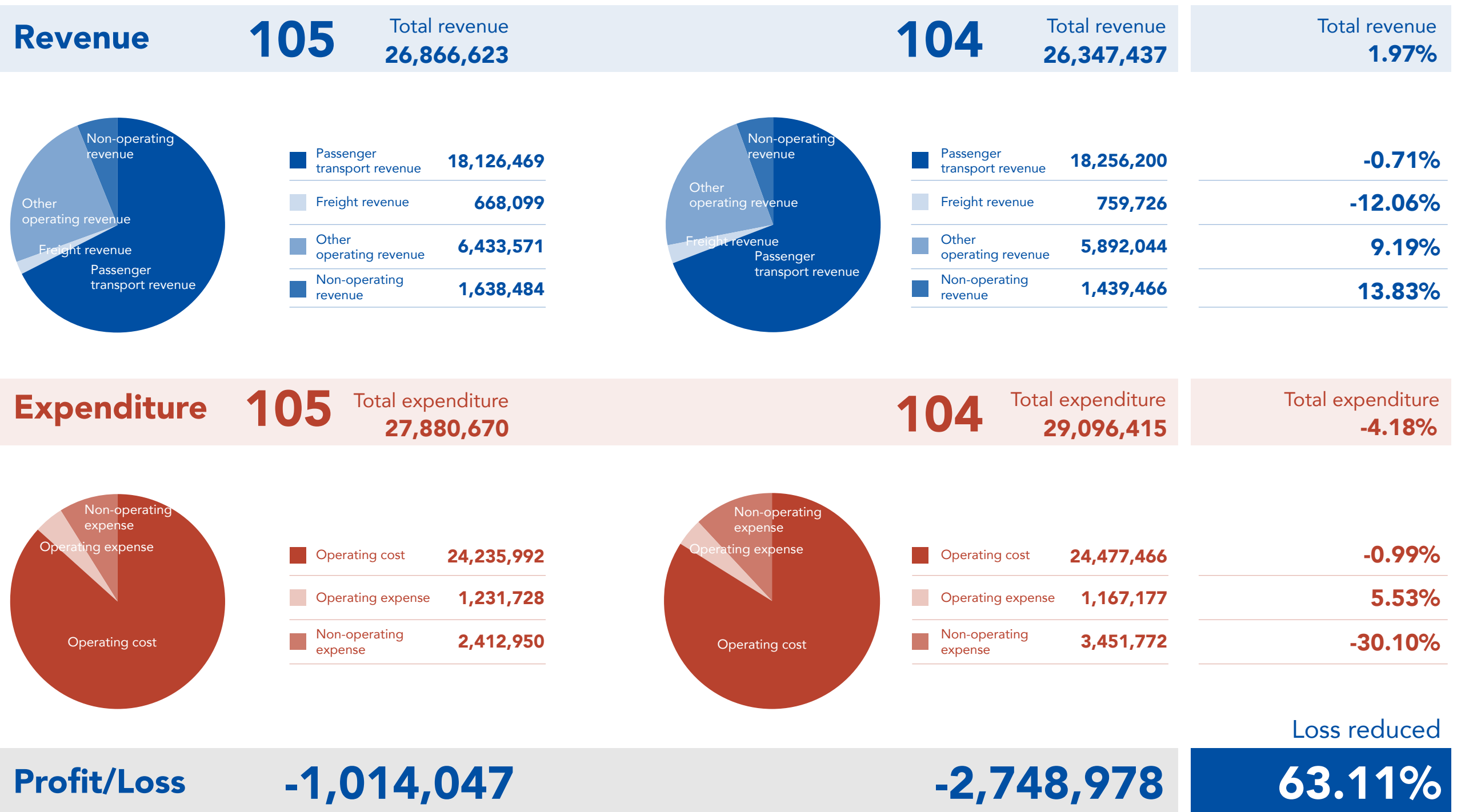
5 2016 BUSINESS PERFORMANCE

1

PROFIT
AND LOSS
ANALYSIS

Profit/Loss Comparison between 2016 and 2015 (in thousand NTD)

Comparison with 2015



Loss reduced

Remarks: 2015 data are approved final accounts, while 2016 data are preliminary final accounts

Cause
analysis

I. The 2016 revenue from passenger transport amounted to NT\$18,126,470,000, slightly down by 0.71% compared to 2015 and the second highest over the years. This is mainly attributed to the following reasons: loss of medium-distance and long-distance passengers after THSR launched three new stations and a discount policy; some passengers turned to private vehicles as the oil price fell; and some trains stopped services as a result of a typhoon.

II. 2016 freight revenue amounted to NT\$668,100,000, down by 12.06% from 2015. This is mainly attributed to the reduction of demand for limestone and cement transport.

III. 2016 loss was NT\$1,014,050,000, NT\$1,734,930,000 less than 2015. This is mainly attributed to the increase in claim revenue, lease revenue, and government subsidization at NT\$345,240,000, NT\$264,750,000, and NT\$224,240,000 respectively; and the reduction in personnel expense and interest from debts at NT\$893,260,000 and NT\$338,480,000 respectively.

2

ANALYSIS OF
PASSENGER
AND
FREIGHT
TRANSPORT
VOLUME

Freight Transport 2012-2016

Status of Passenger and Freight Transport in Past Five Years

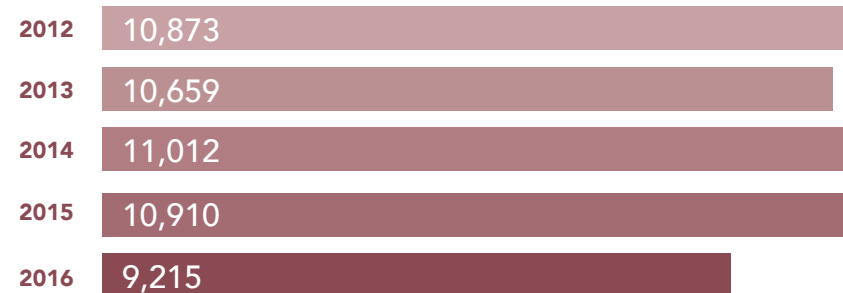
Year Passengers (in thousand persons)



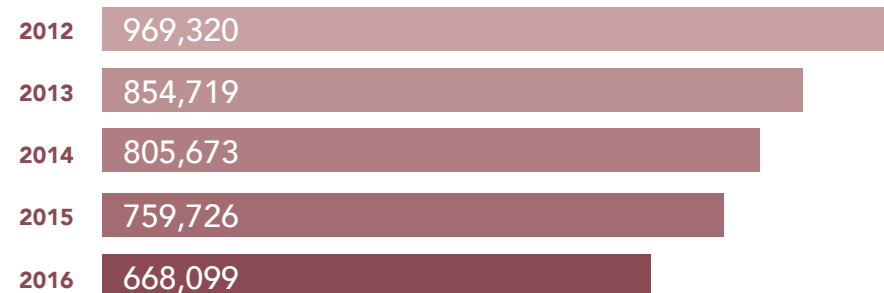
Year Passenger Transport Revenue (in thousand NTD)



Year Freight Transport Volume (in thousand tons)



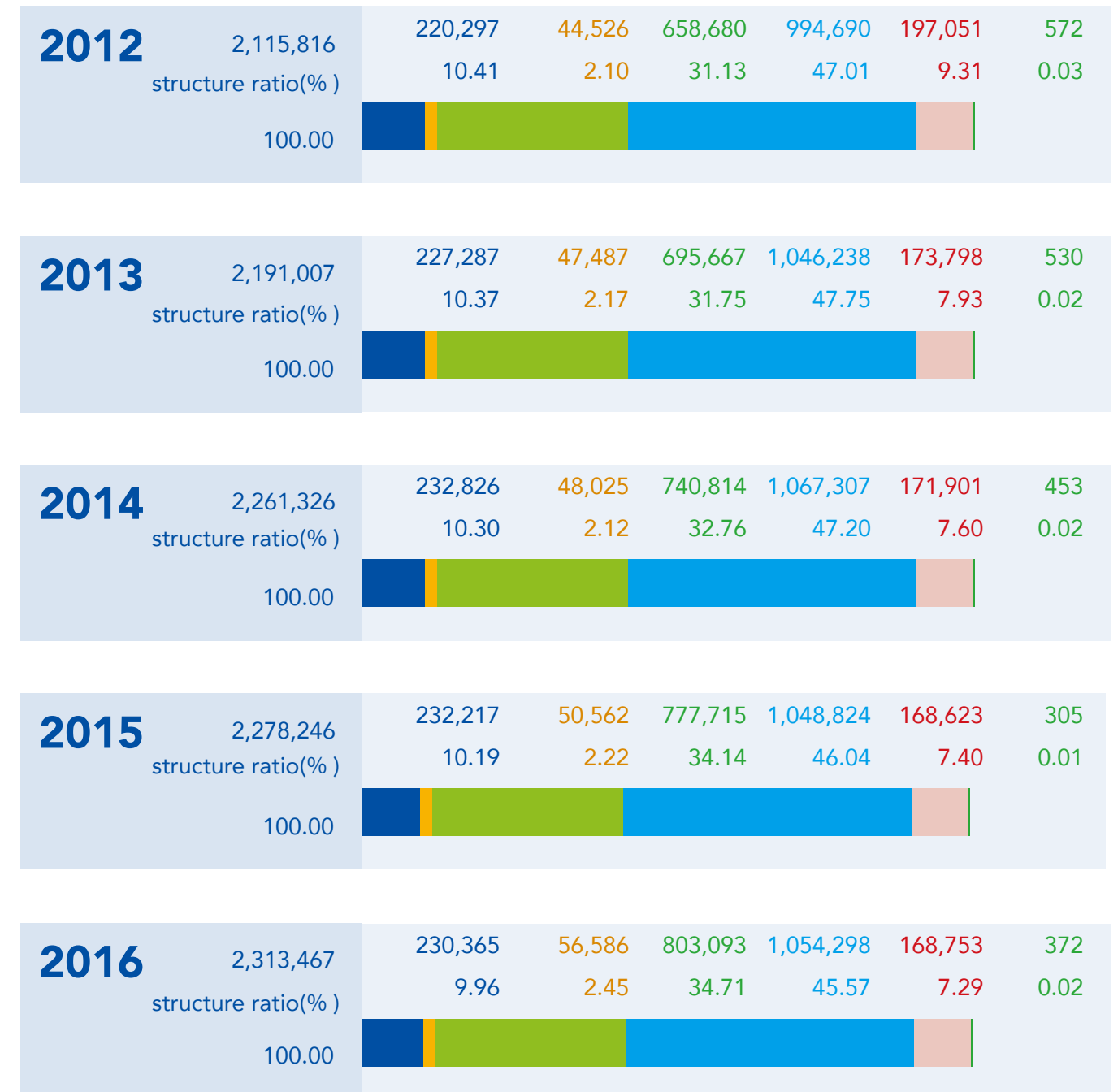
Year Freight Transport Revenue (in thousand NTD)



Ridership by Vehicle in Taiwan

Year	Total	Taiwan Railways Administration	High-Speed Rail	Mass Rapid Transit	City Bus	Highway Bus	Inland Airway
------	-------	--------------------------------	-----------------	--------------------	----------	-------------	---------------

Number of Passengers (in thousand)



Source: Monthly Statistics of Transportation & Communications

2016 total volume of passenger transport of all vehicle types was 2.31 billion persons, including 230 million persons, or 9.96% of the total, by TRA.

3

BENEFIT FROM
SUBSIDIARY
BUSINESS**(I) Asset development**

To improve Operational Performance, TRA has been aggressively engaging in land development through promoting private participation in infrastructure projects, urban renewal, and creation of superficieses to expand the scope of subsidiary business, in order to increase revenue and improve financial condition.

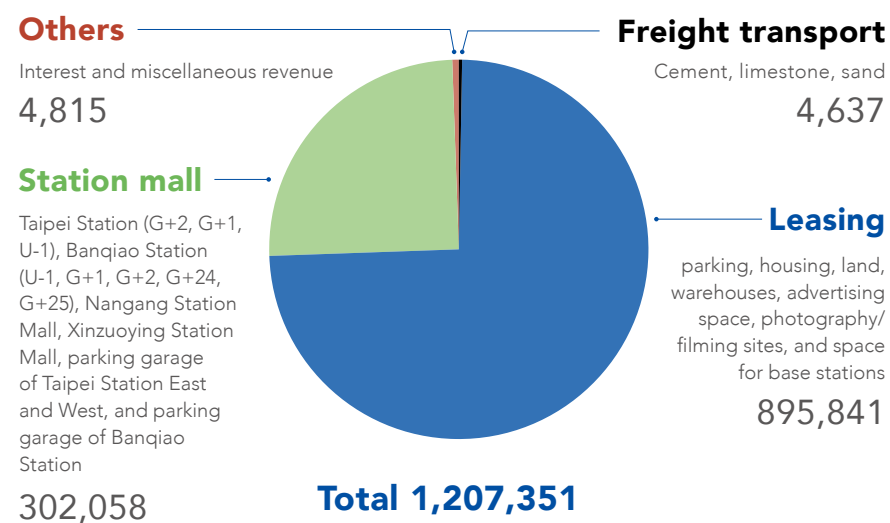
Since the promotion of asset revitalization, significant performance has been seen so far in land development through promoting private participation in infrastructure projects and creation of superficieses. From the contract execution of the "Taipei Bus Station BOT Project" in December 2004 to the auction of the superficieses of land in the Fuhe Section, Zhongzheng District, Taipei City, in November 2015, the total revenue from land development amounted to NT\$3.96 billion. In 2016, the total revenue from related land development projects amounted about NT\$390.48 million, as shown in Table 1.

(II) Asset revitalization

To revitalize TRA assets and effectively increase revenue, TRA launched a series of asset revitalization activities in 2016 to increase revenue by about NT\$1.2735 billion. These activities included TRA freight transport service, promotion of private participation in station mall and parking projects, and leasing housing, land, warehouses, advertising space, photography or filming sites, and space for base stations.

Contents and Profits from Asset Revitalization (2016)

(in thousand NTD)



(in thousand NTD)

Land Development Type	Project	2016 Revenue	
		Rent	Royalty
Promotion of private participation in infrastructure projects	Taipei Bus Station BOT Project	63,087	-
	Nangang Station Building BOT Project	95,523	89,300
	Songshan Station Multipurpose Building & multi-storey Parking BOT Project	39,892	29,398
	Wanhua (East & West) Station Building BOT Project	40,797	-
Creation of Superficies	International Tourism Hotel Construction Project in Banqiao Station Special Zone II	16,244	8,885
	Creation of superficieses on Jingxiu Road, Yuanlin Township, Changhua County	354	-
	Creation of superficieses in Baoqing Section, Songshan District, Taipei City	4,160	-
	Creation of superficieses in Linyi Section, Zhongzheng District, Taipei City	2,537	-
	Creation of superficieses in Fuhe Section, Zhongzheng District, Taipei City	308	-
Total		390,485	

Table 1

Income & Expenditure Statistics of Asset Revitalization (2012-2016)

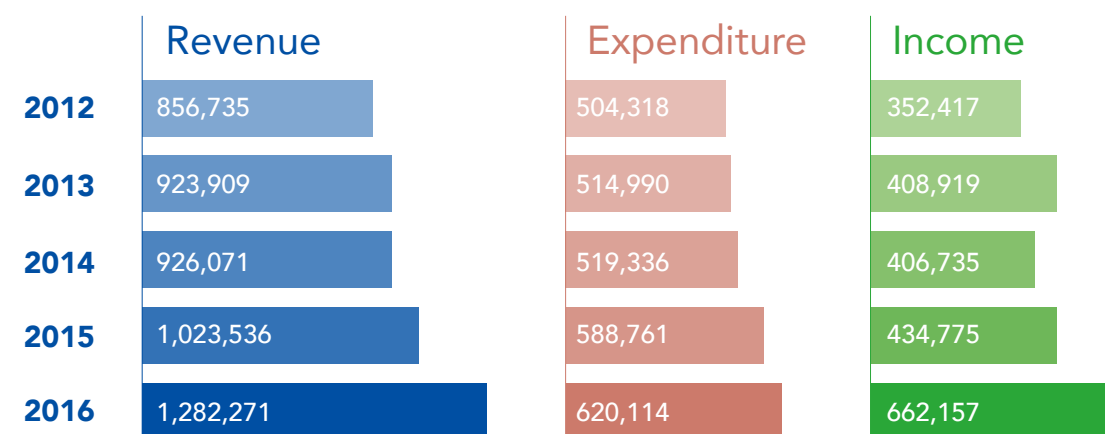
(in thousand NTD)

	Revenue	Expenditure	Income
2012	1,175,303	623,089	552,214
2013	1,049,495	365,901	683,594
2014	1,074,974	472,897	602,076
2015	1,134,379	455,746	678,633
2016	1,207,351	443,425	763,926

(III) Dining & travel service

The dining & travel service includes expanding the TRA bento (boxed meal) market, maintaining train service quality, developing tourism (promoting two-day and one-night cruise-style train tour services), promoting seat-cover advertising, vending boxed meals on platforms, publishing the TR News Quarterly, promoting TRA cultural volunteer service, developing railway related products and trademark licensing, establishing travel information desk, soliciting business for shops in station, and erecting self-service lockers and other passenger services. 2016 total revenue was NT\$1,282,271,695, total expenditure was NT\$620,114,876, and the profit was NT\$662,156,818.

Income & Expenditure Statistics of TRA Catering Service Department 2012-2016 (in thousand NTD)



1. Aggressively cultivating the TRA bento (boxed meal) market

In 2016, TRA sold 10,489,862 bento(boxed meal) (average 28,739 pcs/day), an increase by 7.28% or 7,110,654 pcs from 2015. The 2016 revenue from bento(boxed meal) sales amounted to NT\$748,741,817, an increase by 9.40% or NT\$64,329,725 from 2015.

2. Launching festivity bento sets

In 2016, we launched the "TRA Heritage of 12 Generations", G9 EMU400, and "Summer Formosa SL Express" stainless steel bento box and carrying bag set, and sold a total of 6,000 sets. In addition, at the "Guanghua Express 50th Anniversary Celebration", we introduced the remade version of the "Guanghua Express" stainless-steel bento box and carrying bag set, and sold a total of 760 sets.

3. Maintaining train service quality

- (1) In addition to dressing check at roll call and attendance evaluation, we reinforce the "Train Duty Personnel e-Roll-Call" training (including: improve train duty service quality and policy publicity), and broadcast educational films during the 40-minute roll call, in order to improve service quality and improve the image of TRA.
- (2) We reinforce the etiquette and service training of train duty service personnel in order to provide quality and touching service for passengers.

4. Developing railway travel (promoting two-day and one-night cruise-style train tour services)

To develop two-day and one-night (or longer) cruise-style train local tour services, we select travel agents through open tendering to promote railway travel. In 2016, a total of 31 tours were offered, with an average

efficiency of seat utilization at about 65%. The total revenue was NT\$10,027,408 (including fares, boxed meals, royalties, and in-car product sales), an increase by 24.42% or NT\$1,967,696 from 2015.

5. Vending TRA boxed meals on station platforms

To provide better station service for passengers and to increase revenue, we provide TRA boxed meal vending services at Guangshan and other stations. The 2016 rent income was NT\$1,449,344.

6. Publishing TR News Quarterly

To promote railway culture, we publish the TR News Quarterly and place it in the seat pocket of the Puyuma Express and Taroko Express for passengers to read while traveling. The quarterly focuses on introducing railway vintage artifacts, railway travel, and TRA boxed meals, with other information including travel with other branch lines, and local specialty foods, culture, and customs along these lines. In 2016, we published four issues and a special Spring Festival issue with a total of 100,000 copies.

7. 2016 achievements of TRA cultural volunteers

TRA cultural volunteers are committed to introducing the history of TRA, the evolution of trains, and local culture. In 2016, TRA cultural volunteers organized the TRA Little Heroes activity for 604 elementary school students from Caotun, Hualien, and Tainan. TRA cultural volunteers also engaged in academic and cultural exchange with the NCTU Railway Culture Camp, Heping Senior High School, NTU Railway Club, China University of Technology, Railway Culture Society Taiwan, Institute for Historical Resources Management, Taiwan Historica, Kishu An Forest of Literature, Academia Historica, National Taiwan Science Education Center, Chengdu Cross-Strait Exchange Association and local cultural affairs bureaus. In addition, TRA cultural volunteers has set in order the "Business Newsletter" between 1956 (first release) and 1991. After summarizing important events in each year, they reviewed and categorized them in 1,207 DVDs.

8. Developing railway related products and trademark licensing

We solicit quality manufacturers to develop railway related products using the TRA trademark. In 2016, a total of 143 trademark applications were approved by the Intellectual Property Office (IPO) of the Ministry of Economic Affairs, and a total of 250 products were licensed, creating royalty revenue of NT\$3,923,532, an increase of 20.18% or NT\$658,761 from 2015.

9. Improving TRA image by commissioning professional teams to operate station malls

We commission professional teams, such as 7-ELEVEN, Hi-Life, and McDonald's, to operate all shops in station across Taiwan. In 2016 the revenue from commissioning operations was over NT\$148.87 million.

10. Increasing revenue by leasing space for commercial use

TRA Catering Service Department lease part of waiting lounges in all stations to the private sector to set up stores, post offices, ATMs, beverage vending machines, water fountains, photo booths, self-service lockers, travel sever centers, etc. This service also includes short-term leasing and other kinds of business. 2016 rent revenue was over NT\$144.98 million.

11. Promoting cultural and creative industries and developing railway related products with brand value

Railway related products are sold at the Taiwan Railway Shop, on the train by the Train Duty Department, and the tuck shops in all TRA restaurants. The total sales in 2016 was over NT\$33.86 million.

6 OPERATIONAL PERFORMANCE

車次 Train No.	開往 Destination	時間 Dep. Time	備註 Remarks	3A 月台 Platform
3110	斗六	04:53	準點	
列車訊息 Train Message				
下班列車資訊 Next Train				
504	七堵	05:23	準點	現在時刻 Clock 22:13



OPERATIONAL PERFORMANCE

I. Passenger and freight transport

(I) Passenger transport

In passenger transport, we purchased four more tilting EMUs (two Puyuma Express and two Taroko Express trains) with the balance of the previous train procurement project in 2016 to join the service. Apart from expanding the transport capacity of the Eastern Line, one Puyuma Express will run on the Western Line to significantly shorten the traveling time between Taipei and Kaohsiung. In addition, to improve service quality, we expanded the scale of the “Train Etiquette” campaign featuring “courtesy for the vulnerable, alighting first, and maintaining travelling order together” to provide passengers with a quality travel environment.

1. Strengthening passenger transport for the Eastern and Western lines

For the Eastern Line, we added one pair (two trains) of push-pull (PP) Tzu Chiang Limited Express trains (trains 418 and 443) running between Shulin and Taitung stations. The travelling time between Taipei and Taitung is about 4 hours.

For the Western Line, we added two pairs (four trains) of Puyuman Express trains (trains 111, 136, 133, and 110) running between Nangang and Chaozhou stations. The travelling time between Taipei and Kaohsiung and Taipei and Pingtung is about 3 hours 40 minutes and 4 hours, respectively.

2. Providing safe and punctual transport service

Punctuality is the core value of railway transport. The 2016 punctuality rate of passenger trains was 94.50%, 0.89% higher than 2015 (93.61%) and the highest over the past four years. This suggests that our efforts to renew train infrastructure and reduce equipment failure rate in recent years are effective. In the future, we will continue to build a safe and punctual railway transport environment to provide passengers with quality transport services.

3. Develop international tourist business

Visitors between Taiwan and Japan have been increasing in recent years, to the benefit of the tourism industry. TRA also aggressively signs agreement of friendship with railway companies in Japan. In addition to the railway business, TRA has launched extensive exchange and cooperation with them in other areas to connect each other and create a win-win situation for both countries. Between 2012 and 2016, TRA has signed agreements of friendship with 16 Japanese railway companies.

4. Improving service quality

(1) Launching the “Train Etiquette” campaign

The “Train Etiquette” campaign features “courtesy for the vulnerable alighting first, and maintaining travelling order together”. By improving station and in-train guide services, and calling for passenger cooperation, we aim to build a quality travelling environment. In addition, in September 2013, we implemented Phase I of the “Platform Queuing Line Project” in some southern Taiwan stations and all branch lines by marking queue lines on platforms for “Local Train” for passengers to wait for trains in a line. By the end of 2016, we have marked queue lines in the following 45 stations: Badu, Qidu, Baifu, Xizhi, Xike, Nangang, Songshan, Taipei, Banqiao, Shulin, Yingge, Hsinchu, Liujia, Zhudong, Zhuzhong, Neiwan, Yuanquan, Zhuoshui, Longquan, Jiji, Shuili, Checheng, Zhunan, Miaoli, Fengyuan, Taichung, Changhua, Yuanlin, Douliu, Chiayi, Xinying, Tainan, Gangshan, Xinzuo, Kaohsiung, Shalun, Chang Jung Christian University, Zhongzhou, Chaozhou, Shifen, Pingxi, Su’aoxin, Ruifang, Yilan, and Luodong stations. In the future, we will extend the project to other stations to maintain platform order.

(2) Enhance the station barrier-free facilities

We add elevators in stations. By 2016, we have added elevators in 128 stations, with a passenger service coverage of about 91.94%.

(3) Free timetables

To cope with the train schedule adjustment on 20 October 2016, we printed 400,000 pamphlets and 80,000 leaflets for free collection by passengers in all stations on 19 October.

(II) Freight transport

1. To prevent accidents caused by truck overloading, we completed a new weigh station in Xincheng Station in 2016 to spot-check truck load in order to maintain train operation safety.

2. To coordinate with the “Suhua Highway Mountain Section Improvement Project” of the Directorate General of Highways, we provided additional freight trains to transport residual soil up to 610,000 m.t. with a daily average of 9 trains from both ends in 2016.

3. We encourage cargo owners to prepare their own trucks and reward trucks to carry cargo on the return trip to reduce truck turnover period, expand transport capacity, and enhance operational efficiency. In 2016, the average turnover period of self-owned trucks as 1.13 days, reduced by 15% from 2015 (1.3 days).

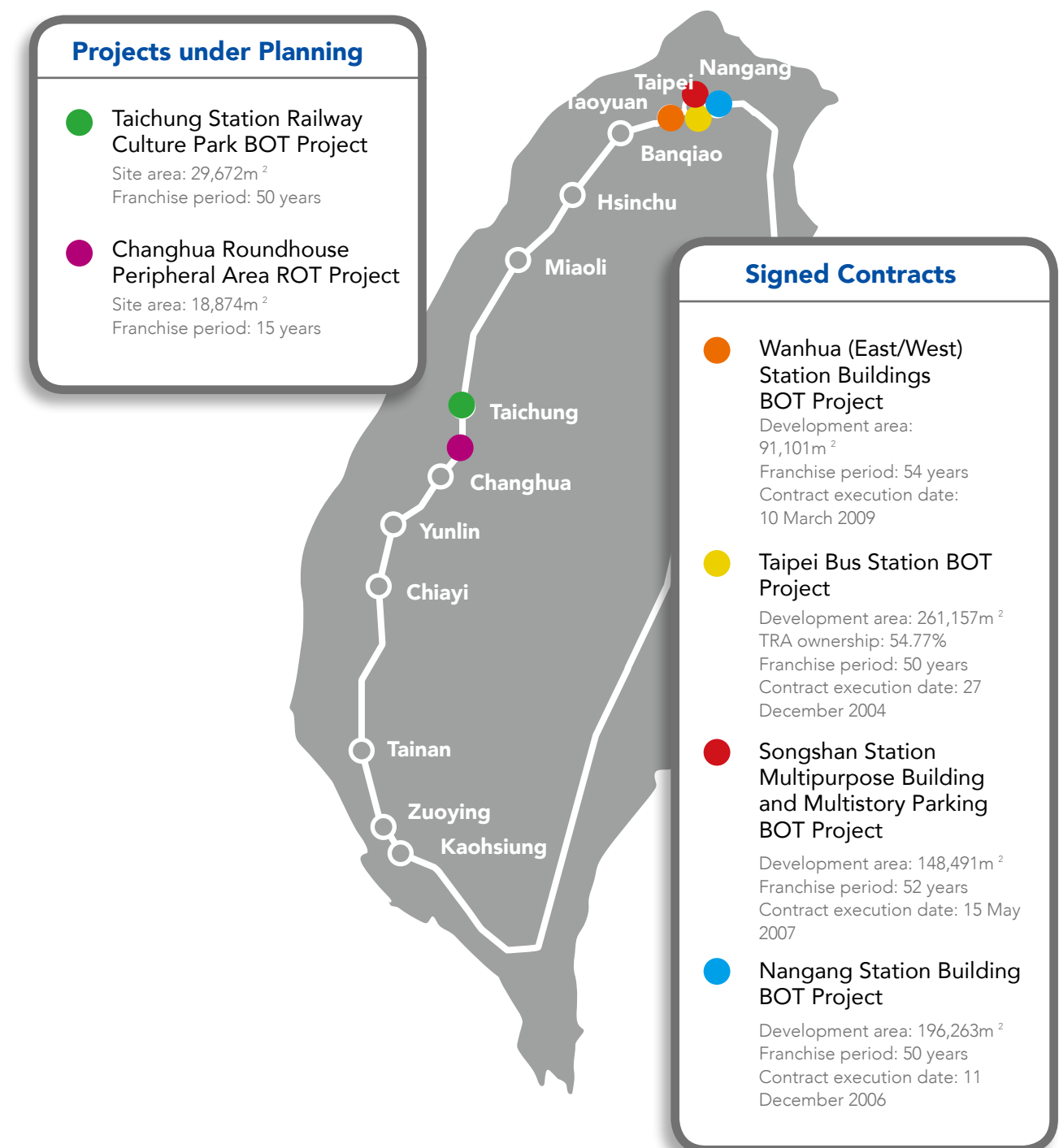
OPERATIONAL PERFORMANCE

II. Asset development

To cope with macro environment changes, we exploit the niche of infrastructure construction and asset development to maximize the benefit of infrastructure. Through asset development and affiliated business operations, we implement various development projects in accordance with the Act for Promotion of Private Participation in Infrastructure Projects, Urban Renewal Act, and National Property Act and in cooperation with the government's railway construction project, the Executive Yuan's urban renewal acceleration project, and the urban development plans of local governments.

In addition to signed contracts, we continued 2 private participation infrastructure projects, 7 government-planned urban renewal projects, 17 private urban renewal projects, and 4 superficies creation projects in 2016. In addition, to facilitate land revitalization and management, we implemented the pilot planning and assessment of 16 asset development projects. The figure below shows the major projects in progress:

Private Participation Infrastructure Projects



OPERATIONAL PERFORMANCE

Urban Renewal Projects (government planned)

Signed Contracts

- Nangang Marshalling Yard Urban Renewal Project**
 Site area: 54,405m²
 TRA ownership: 94.69%
 Contract execution date: 2 April 2015
- Hsinchu Station Rear Section Urban Renewal Project**
 Site area: 57,607m²
 TRA ownership: 78.29%
 Contract execution date: 26 February 2014

Projects under Planning

- Changhua Station Northern Section Urban Renewal Project**
 Site area: 10,181m²
 TRA ownership: 48.28%
- Yuanlin Station Peripheral Area Urban Renewal Project**
 Site area: 119,873m²
 TRA ownership: 41.33%

Projects under Planning

- Kaohsiung Station East Old dormitory Area Urban Renewal Project**
 Site area: 27,732m²
 TRA ownership: 98.60%
- Kaohsiung Port Station (renewal units 2, 3, 4) Urban Renewal Re-development Project**
 Site area: 89,374m²
 TRA ownership: 86.01%

Projects under Planning

- Taipei Station Special Zoning E1 and E2 Urban Renewal Project**
 Site area: 27,551m²
 TRA ownership: 91.47%
- Keelung Station Urban Renewal Project**
 Site area: 34,342m²
 TRA ownership: 53.09%
- Star of Yilan Urban Renewal Project**
 Site area: 19,831m²
 TRA ownership: 97.82%

Superficies Creation

Signed Contracts

- Superficies in Baoqing Section, Songhsan District, Taipei City**
 Site area: 1,601m²
 Franchise period: 70 years
 Contract execution date: 10 January 2014
- International Tourism Hotel Construction Project in Banqiao Station Special Zone II**
 Site area: 2,653m²
 Franchise period: 50 years
 Contract execution date: 23 August 2010

Signed Contracts

- Superficies on Jingxiu Road, Yuanlin Township, Changhua County**
 Site area: 761m²
 Franchise period: 50 years
 Contract execution date: 18 July 2013
- Superficies in Linyi Section, Zhongzheng District, Taipei City**
 Site area: 820m²
 Franchise period: 70 years
 Contract execution date: 1 July 2014
- Superficies in Fuhe Section, Zhongzheng District, Taipei City**
 Site area: 670m²
 Franchise period: 70 years
 Contract execution date: 28 December 2015

Projects under Planning

- Superficies of the dormitory on Hangzhou North Road**
 Site area: 1,806m²
 Franchise period: 50 years
- Superficies of the dormitory in Andong Street**
 Site area: 12,029m²
 Franchise period: 50 years
- Superficies of the dormitory in Lishui Street**
 Site area: 2,425m²
 Franchise period: 50 years
- Hualien 6th Re-development Hotel Zone BOT Project**
 Site area: 24,876m²
 Franchise period: 50 years

OPERATIONAL PERFORMANCE

III. Asset revitalization

(I) Station mall development

We revitalize assets in respect to the “Act for Promotion of Private Participation in Infrastructure Projects” to introduce abundant capital and creativity from the private sector, in order to turn stations into regional business centers, places for comprehensive transport and travel services, and perfect spots for fusing culture and gathering business opportunities. Based on macro environment changes and appropriate amendments of laws and regulations, we adjust our business strategy, diversify development, and expand market to increase the revenue of affiliated business.

By the end of 2016, six projects, including Taipei Station Building (G+2, G+1, U-1), Banqiao Station Building (U-1, G+1, G+2, G+24, G+25), Xinzuoing Station, Nangang Station Mall, Taipei Station East/West parking garage, and Banqiao Station parking garage, started operations to bring royalties amounting to over NT\$302.05 million.

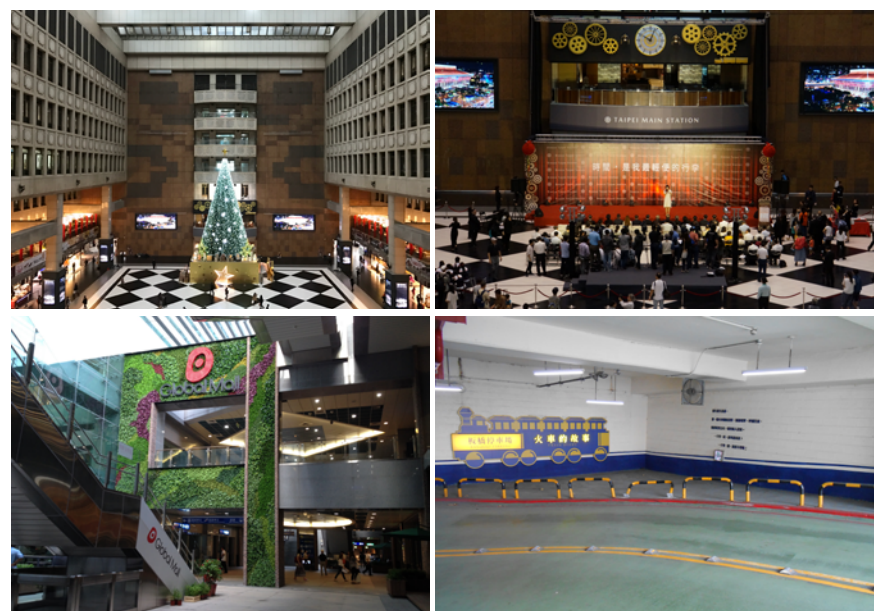
In addition, we aggressively plan the business solicitation by selection in the commercial areas of reconstructed and newly constructed stations, such as Keelung, Qidu, Xinwuri, Yuanlin, Pingtung, and Chaozhou stations, in order to introduce quality stores to provide quality transport and travel services and increase revenue.

Upper left
Mall ROT—Taipei Station
(Christmas Tree)

Upper right
Mall ROT—Taipei Station (Do-Do
Clock)

Lower left
Mall ROT—Nangang Station

Lower right
Banqiao Station parking garage



(II) Lease for youth entrepreneurship and cultural and creative industries

In support of the government’s promotion of “Youth Hometown Entrepreneurship” and “Taiwan Cultural & Creative Industries” to encourage youths to start their own business in their hometowns and

outstanding talents to engage in Taiwan’s cultural and creative industries, and thereby to shape local industrial features, we lease public property under TRA management for youth entrepreneurship and cultural and creative business entrepreneurs, in order to promote employment, thrive local economic development, and improve the competencies of Taiwan’s cultural and creative industries. By the end of 2016, we completed contract execution and notarization of 21 applications.

(III) Transforming warehouses and cultural assets into cultural and creative tourism attractions

To effectively maintain, manage, and use cultural assets (monuments, historical buildings, old buildings) under TRA management, we launch cooperation with local governments to renovate them into exhibition areas for art creations and new cultural landmarks for citizens to enjoy leisure. In 2016, we leased 127 premises for rental revenue of over NT\$67.33 million.



Left
Fangliao Railway Art Village

Right
Youth Entrepreneurship and
Cultural & Creative Project

(IV) Property lease

We check out all real property around each station along the line to diversify the operations, development, and uses of idle space, station buildings, housing, offices, land, and carparks along the railway without conflicting with their intended uses through integral planning. By the end of 2016, we have leased 678 premises and lots of land and 135 carparks at a rent over NT\$710.36 million. We also amended the specimen of all types of agreements/contracts in May 2016 to loosen the use limitation of premises and restrictions on advertisements when they are permitted by law in the future, in order to protect the integrity of the lessee’s right to use the premises.

(V) Lease of station and train advertising space

Without obstructing station and train order, train safety, and building structure, we carefully plan advertising space for lease. Train advertising space includes space for posters in the saloon and the train body. Station advertising space includes space for posters, lamp boxes, windows, and multimedia ads. In addition, we have invited service providers to provide 4K resolution multimedia equipment in Taipei Station to fuse advertisements with the station design in order to update and embellish the station. In 2016, we made over NT\$98.83 million from advertising space lease.

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Upper left
Advertising space lease—Train body
advertisements

Upper right
Advertising space lease—HD
multimedia in Taipei Station

Bottom
Photography and filming site lease:
Filming site catalogue

(VI) Photography and filming site lease

To support the cultural industry promotion policy, to improve TRA image, to revitalize TRA assets for drama, filming, documentary, and advertising, and to raise the lease intention of users, we voluntarily produced a catalogue of photography and filming sites in November 2016 for business owners to select suitable TRA sites and equipment for filming. In 2016, we accepted 53 applications, creating an income from rent of over NT\$1.11 million.

(VII) Lease of space for base stations

To facilitate transport and travel, improve telecommunications quality, and support the government's liberalization of telecommunications policy, we actively build base stations along the railway and allow telecommunications operators to set up base stations in TRA stations, real property, and land, provided that they will not affect train safety and communication quality. In 2016, we earned an income from rent of about NT\$16.84 million.

IV. Catering business

To enforce food safety and hygiene management, raise ingredient procurement contract requirements, and establish ingredient quality control processes and medium-term and long-term goals, we hire professional food hygiene and safety teams to guide our dining service unit to implement Hazard Analysis and Critical Control Points (HACCP) in the food safety management system, in order to provide the public with quality and hygienic foods.

V. Operations management

(I) Continuous promotion of Operational Performance and accountability

1. Establishing an operational accountability system to appraise financial improvements

To fairly assess the operational accountability of an operator in a fiscal year, we classify losses into attributable losses and non-attributable losses as instructed by the Ministry of Transportation and Communications (MOTC). Attributable losses include normal losses, such as losses from service-based routes and small stations, while non-attributable losses include losses not attributable to the current operator, such as the "pension fund under the old system", "interest of liabilities", and "amount of unrealized income from statutory discounted fares" not subsidized by the government. In addition, based on the assessment results, the MOTC requests TRA to plan and implement measures to cultivate income sources and cut unnecessary expenses and establish an operational accountability system to assess TRA's financial improvements.

2. Achievements

Achievements have been seen since the implementation of various improvement measures in recent years. The daily income of passenger transport has increased annually from NT\$39.89 million in 2007 to NT\$49.53 million in 2016, up by 24.1%. In addition, daily ridership increased from 465,000 persons in 2007 to 629,000 persons in 2016, up by 35.4%. Despite the challenges in the macro environment, our Operational Performance has been rising significantly. In addition, the 2016 loss at NT\$101.4 million is NT\$1.735 less than that of 2015 at NT\$274.9 million, down by 63.1%.

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(II) Organizing surveys to realize “customer first”

In response to the business need, we organized a series of surveys to review our service effectiveness and to provide a reference for the government to draw up the overall rail transport strategy and for TRA to improve overall service quality. These surveys included: “TRA Passenger Intent Survey”, “TRA Eastern Line Passenger Travelling Behavior Survey”, and “Passenger Intent over the TRA Hualien-Taitung Real-Name System Trial on Dragon Boat Festival Survey”.

VI. Procurement

(I) Statistics on procurement projects

In 2016, we implemented 662 procurement projects with a total awarded sum of over NT\$7.1717 billion, including 257 engineering service procurement projects, 265 labor service procurement projects, and 140 property procurement projects. The procurement included two railway engineering trains, 50kg-N PC switch sleepers, 60E1A1-60E1 compromise rails, unitary wheels for freight trains, and transmission temperature sensors for diesel multiple units (DMUs); construction of the ticket service core system, multiple contracts under the Train Operation Safety Improvement 6-Year Plan, Fugang Education and Training Center Construction Project, Badu-Hualien and Western Line (Qiding-Daqiao) 95cm² Overhead Lines Renewal Project, Keelung-Taoyuan and Tainan-Xinzuoying Signaling System Fiber Optics Construction Project, and Railway Smart Level Crossing Control System and Detector Development Project.

(II) Revising procurement regulations to improve procurement effectiveness

1. Strengthening confidentiality protection by revising “Procurement Project Appraiser Selection Regulations”

On 11 January 2016, we promulgated the revised “Procurement Project Appraiser Selection Regulations” to specify the process for selecting procurement appraisers (reviewers), the formation and operating procedures of the procurement appraisal task force, and the non-disclosure measures of procurement appraisers for the reference of all TRA units.

2. Revising the “Points for Notice of the Tendering Opening Procedure for Tender Opening Hosts” to optimize tender opening work

To disperse and reduce the operational risk of personnel and to prevent mistakes and information leakage, we promulgated the “Points for Notice of the Tendering Opening Procedure for Tender Opening Hosts”

on 30 August 2016 to optimize tender opening work.

3. Revising the “TRA Procurement Project Division of Responsibility and Internal Control Mechanism Table” to simplify the approval procedure

To enhance procurement efficiency, we promulgated the revised “TRA Procurement Project Division of Responsibility and Internal Control Mechanism Table” on 26 September 2016 to abolish the budget disbursement approval level and change it to approval by the head of level 1 unit (consumption unit) for the approval of the invitation to tender (ITT) of engineering and labor service procurement contracts in order to simplify the ITT approval procedure for engineering and labor service procurement contracts 50% above the threshold for large procurement.

4. Revising the “TRA Large Procurement Operation and Operating Procedure” to ensure procurement quality

To ensure procurement quality, we promulgated the revised “TRA Large Procurement Operation and Operating Procedure” on 8 November 2016 to select qualified contractors with the most advantageous tender and establish specimens for the approval of most advantageous tenders in order to prevent operational negligence and enhance procurement efficiency.

(III) Organizing in-service training to strengthen professional procurement competencies

1. Between February and August 2016, we organized four sessions of TRA professional purchaser fundamental training on procurement and related laws and regulations for 213 TRA purchasers to improve their professional competencies.
2. Between June and August 2016, we organized six procurement operation seminars to promote two-way opinion exchange to have training meet actual needs by ways of pre-seminar question analysis and post-seminar survey, in order for participants to get familiar with procurement operation and share their experience.
3. Between October and November 2016, we organized three sessions of professional purchaser recurrent training for 123 purchasers on the performance management of engineering, labor service, and property

Left
2016 Procurement Seminar
(Yilan Area)

Right
2016 Procurement Seminar
(Hualien Area)



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procurement contracts with external instructors hired according to field practices, in order to improve the practical competencies of purchasers.

(IV) Enforcing material management

To audit if each unit has implemented material management according to relevant regulations, the material management audit team conducted unscheduled and unannounced audits on three material storage units: Taipei Workshop, Kaohsiung Electrical Engineering Branch, and Taitung Construction Branch between November and December 2016. These audits found that all audited units have established account management of materials in custody and enforced material placement management. The audit team also requested them to make improvements for audited defects.

Upper left
Placement management is enforced in warehouse management.

Upper right
Material ID tags are used in warehouse management.

Lower left
Materials for open-air storage are segregated by type and indicated by signs.

Lower right
Material management audit meeting



Left
28 January 2016
Gender Mainstreaming: *I Just Didn't Do It* film appreciation

Right
19 May 2016
Personal Information Protection: *Disconnect* film appreciation

(II) Rule of law education



Left
30 March 2016
A speech on "Exploring personal physical and mental health: A PTSD perspective" delivered by counselor Ming-Yu Hsieh of the Department of Rehabilitation, MOHW Keelung Hospital

Right
23 November 2016
Chinese herbal doctor Yi-Cheng Lin was invited to deliver a speech on "Stress Management in Traditional and Western Medicine: Including Tobacco Addiction, Alcoholism, and Food Addiction"

(III) Health talks



(IV) 2016 model civil servant ceremony

The MOTC held the 2016 Model Civil Servant Ceremony at 2 p.m. on Tuesday, 3 May 2016 in the assembly hall on the 5th floor of the MOTC. As the host of the ceremony, MOTC Minister Chien-Yu Chen commended 39 model civil servants. Director Cheng-Te Yang, Section Chief Chiu-Mei Chang (representative), Station Master Tsung-Hsien Huang of Yilan Transportation Branch, and Senior Engineer & Chief Fu-Hai Chen of Kaohsiung Rolling Stock Branch were awarded.

VII. Personnel management

(I) In-service training

Left
25 February 2016
Environmental education: Exploring Taiwan Ecology and Ancient Settlement Customs

Right
31 June 2016
2016 Employee In-Service Training—Core Competency Workshop: Service-Listening to the Customer



Minister Chen and TRA model civil servants.



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Minister Chen and TRA model civil servants.



(V) Gathering of single employees

To continuously support the government's fertility boost policy, we actively organize gatherings for single employees to promote virtuous interaction and emotional exchange between female and male employees, expand their social network, provide them with normal channels and socialization platforms to meet colleagues of the opposite gender and create harmonious and pleasant interpersonal relationships, and thereby promote marriage and boost fertility rate. On 16 July 2016, we organized the fifth "Happiness is Approaching, Romance at TRA" gathering for single employees in eastern Taiwan. The event attracted 38 employees. Through visiting the Atayal Life Museum and arranging craft DIY activities, picking spring onion at Congziliao Farm, and making unique Sanxing spring onion cakes, we hope to shorten the distance between employees of different genders, promote gender interaction, and leave them with good memories. Lastly, participants were asked to answer the satisfaction questionnaire and fill in the one that interests them. The gathering ended perfectly after taking the group photo.

Upper left
Participant registration counter
Meeting one another in the coach

Upper right
DIY ornaments

Lower left
Spring onion picking: No miss

Lower right
Group photo



Upper left
Deputy Director-General
Ching-Ta Chung addressed
at the opening ceremony

Upper right
The recreation team of 15
districts participated in the
opening ceremony.

Lower left
A sketch of the competition

Lower right
Photo of players

(VI) 2016 Director-General Cup Basketball Competition

To encourage employees to exercise, engage in proper leisure activities, and stimulate teamwork, we organized the 2016 "Director-General Cup" basketball competition during September 21-22. There were 15 teams in the men's category and 8 teams in the women's category, with a total of 274 players. Participants demonstrated the skills and compared notes. The competition ended smoothly through the cooperation and participation of employees and the crew. The men's champion team to the third runner-up were the Recreation Team of Hualien, the Recreation Team of Taipei Workshop, the Recreation Team of Keelung, and the Recreation Team of Changhua. The women's champion team to the third runner-up were the Recreation Team of Taipei Workshop, the Recreation Team of TRA Headquarters, the Recreation Team of Taipei, and the Recreation Team of Chiayi.



(VII) Family activities

To enforce the entertaining activity policy of the Executive Yuan, each unit planned and designed different forms of activities by the end of August 2016 to improve family ties and promote family harmony. A total of 1,924 employees and their family participated in those activities, which turned out to be a big success.

Left
Hualien Electrical Engineering Branch
and Hualien Workshop organized a
visit to the Taiwan Fertilizer D Park for
the "2016 Family Activity".

Right
Taipei Electrical Engineering Branch
organized a visit to the driving
simulator for the "2016 Family
Activity".



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The Train Duty Service Department of Catering Service Department arrange a visit to Nangang Station co-constructed with TRA, Taipei Metro, and TSHR and City Link showroom for the “2016 Family Activity”.



Kaohsiung Electrical Engineering Branch organized a visit to the Railway Archives and Historical Relics Museum as the “2016 Family Activity” for children to understand the history and evolution of railways in Taiwan.

VIII. Training

(I) Duty and mission

In order to provide the public with safe and punctual rail transport service and diversify the scope of business, it is necessary for TRA to actively train different types of professional talents to ensure the sustainable operations and development of TRA. Therefore, the Employee Training Center centralizes core technology training and management knowledge training for in-service employees and pre-service training for new employees.

To improve engineering quality and management performance, Public Construction Commission (PCC), Executive Yuan, accredited the Employee Training Center as a training institution to offer “Infrastructure Project Quality Management Training” in 2009. This training program aims to equip TRA engineering personnel with new knowledge in quality management and project defect prevention, in order to improve the construction quality of infrastructure projects. PCC will issue a certificate of pass to trainees who complete and pass the training. By 2016, a total of 604 employees were trained, and 568 were qualified, with a passing rate at 94%.

(II) Number of courses in 2016

In 2016, the Employees’ Training Center organized 119 courses for 5,064 persons over 57,218 man-days. Details are described as follows:

1. Rail professional technology training

A total of 23 courses for 928 persons over 35,838 man-days were organized as follows:

Transport course, operation course, dispatcher course, train driver course, train maintenance course, work train driver course, work train commander course, signaling security maintenance technology

course, route practice course, signaling technology elementary course, overhead line work train driver, overhead line work train commander, telecommunications technology elementary course, overhead line construction overseer course.

2. Management competency training

A total of 6 courses for 165 persons over 1,636 man-days were organized as follows:

Infrastructure project quality management courses (civil construction course and electrical and mechanical courses), infrastructure project QC recurrent training course, transport studies course, and value engineering training course.

3. Occupational safety and professional competency training

A total of 13 courses for 596 persons over 2,521 man-days were organized as follows: First-aid safety and health education and training course, risk management course, onsite commanding officer safety and health education training, category 3 OSH administrator training course, category 3 OSH administrator training course for construction industry, and category 1 OSH administrator training course.

4. Training for new employees recruited through special examination

In 2015 and 2016, we organized a total of 42 courses for 2,063 persons over 12,641 man-days: Elementary training for new employees recruited from railway special examination (TRA training), professional skill training (department training), and on-site operation training (branch training).

5. Personnel affairs and anti-corruption professional competency training

In 2016, we organized one course for 56 persons over 112 man-days: Railway ethics consensus camp & anti-corruption review meeting.

6. Affiliated business operational competency training

In 2016, we organized a total of three courses for 148 persons over 472 man-days: BOT project performance management course and TRA branded affiliated business operations course.

7. Procurement professional competency training

In 2016 we organized a total of seven courses for 338 persons over 3,379 man-days: Purchaser elementary training course and purchaser recurrent training course.

8. E-learning training

In 2016, we organized a total of ten courses for 298 persons over 149

About “man-day”

Individual training course man-day: The number of trainees of a course x the length of a course

Training category man-day: The number of trainees of all courses in each category x the sum of the length of all courses.

Annual total training man-day: The number of trainees of all courses in a year x the sum of the length of all courses.

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man-days on TMS system seed training course.

9. Classroom lending training

In 2016, we organized a total of 14 courses for 472 persons over 470 man-days on: Seminar on revising the Notice for Arrangement of Chief Auditor Training Course and Train Attendant Course, TRA MMIS Pre-Acceptance Education and Training.



Graduation class of the 38th
train driver training

IX. Occupational safety

(I) Strengthening safety culture

We hire experts and scholars to organize the "Zero Hazard—Hazardous Activity Anticipation" training, and co-organized in-service education and training with inspection organizations and on-site occupational hazard case study, in order to strengthen the "safety culture and safety management" concept, effectively raise the awareness of industrial safety of employees, and ensure occupational safety.

1. In 2016, we organized the "Zero Hazard—Hazardous Activity Anticipation" for 304 employees in northern Taiwan (August 11 and August 18), central Taiwan (July 28), southern Taiwan (September 1), and eastern Taiwan (September 8).
2. In 2016, we co-organized eight in-service training courses for 262 employees with inspection organizations.
3. In 2016, we gave five awareness education courses on occupational hazards for 195 employees.

(II) Promoting physical and mental health of employees

1. TRA Occupational Health Newsletter vol. 001-011.

2. Arranged health examinations for 1,046 employees of TRA Headquarters.
3. Monthly on-site occupational safety and health consultation, 12 times for 56 persons.

(III) Reinforcing occupational safety and education and training

In 2016, we organized one course on category 1 occupational safety and health administrator training for 49 persons; two courses on category 3 occupational safety and health administrator training for 81 persons; one course on category 3 occupational health and safety administrator for the construction industry for 36 persons; three first aid training courses for 152 persons, three risk management courses for 140 persons, one pre-service training course for 64 employees recruited from special examination; three safety and health training courses for 144 on-site commanding officers. Altogether, we organized 14 courses for 666 employees to improve their occupational safety and health competencies to enforce self-management and self-inspection work.

(IV) Continuous promotion of the occupational safety and health management system

(TOSHMS/CNS15506 standard)

We trained a total of 20 chief auditors, completed the re-inspection of five units, and completed the follow-up inspection of 33 units to enforce various cross-examinations on occupational safety and the lead auditor guided audit and assessment system; effectively develop systematic management; effectively control the hazards of various facilities and the environment; strengthen TRA's safety culture; and promote the physical and mental health of employees.

X. Disaster prevention preparedness

While railways are part of public transport, if it becomes a target of terrorist attacks, the public will certainly panic, and this will become a serious threat to public transport safety. In addition, as a result of vigorous global climate change, natural disasters such as earthquakes, typhoons, torrential rain, and debris flows occur more frequently, thus increasing disaster potential areas across Taiwan. As a thorough review and revision are required for the past concept, strategy, and practice for disaster prevention, it is necessary to achieve the goal of "plan for the worst, do the best, check in advance, and act ubiquitously" based on the strategy and practice featuring "prevention is better than cure and keep disasters away". In addition, it is necessary to adjust the pace of

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prevention and rescue based on the severity of disasters. All units should assess and analyze the scenarios of different types of disasters and take precautionary actions and countermeasures in time of normalcy. When an unexpected disaster occurs, it is hoped that drills and responsive measures implemented and planned in time of normalcy can help minimize the damage for TRA to recover normal service as quickly as possible.

(I) Rail safety drills—mobilization, disaster prevention, and counterterrorism

In 2016, five TRA joint mobilization offices conducted five large-scale integrated live drills with 865 employees on the emergency response to and rescue (recovery) of different types of railway disasters. In addition, the Alishan Forest Railway Management Department conducted on 27 May 2016 live drills with 105 employees on the emergency response to and rescue (recovery) of derailment and tunnel debris flows at Erwanping Station. On 21 July 2016, Construction Maintenance Headquarters conducted the “TRA Building Disaster Prevention Drill”, a live evacuation and disaster prevention drill with 380 employees, on areas above the 2nd floor.

No.	Unit	Date	Drill Location
1	Construction Maintenance Headquarters	105.07.21	TRA Building
2	Taipei Mobilization Office	105.05.19	Shulin Station
3	Taichung Mobilization Office	105.04.22	Fengyuan Station
4	Kaohsiung Mobilization Office	105.07.09	Xinying Station
5	Yilan Mobilization Office	105.05.12	Ruifang Station
6	Hualien Mobilization Office	105.05.17	Taitung Station
7	Alishan Forest Railway Headquarters	105.05.27	Erwanping Station

1.
Northern Region Environmental Incidents Specialist Team joined the Taipei Drill on 19 May 2016.
2.
33rd Chemical Warfare Corp of the Armed Forces joined the Taipei Drill on 19 May 2016.
3.
NTPD K-9 Unit performed the bomb search exercise in the Taipei Drill on 19 May 2016.
4.
Elevated section disaster prevention in the Taichung Drill on 22 April 2016.



5.
An 88-ton crane joined the rescue in the Taichung Drill on 22 April 2016.
6.
The Railway Police tracked down on criminals in the Taichung Drill on 22 April 2016.
7.
The bomb squad of Hualien-Taitung Defense Command joined the Hualien Drill on 17 May 2016.
8.
The Rolling Stock Branch performed an emergency repair in the Hualien Drill on 17 May 2016.
9.
Passenger evacuation and rescue in the Kaohsiung Drill on 9 July 2016.
10.
Casualty rescue in the Yilan Drill on 12 May 2016.
11.
Power supply emergency recovery in the Yilan Drill on 12 May 2016.
12.
Construction emergency recovery in the Kaohsiung Drill on 9 July 2016.
13.
High-mountain railway rescue in the Alishan Drill on 27 May 2016.
14.
Removal of fallen trees and route recovery in the Alishan Drill on 27 May 2016.
15.
Self-defense and fire extinguishing in the TRA Building Drill on 21 July 2016.



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(II) Flood preparedness

"Personal safety, train safety, and railroad safety" are the principles of TRA flood prevention. Since the onset of the flood season in March, all response teams had arranged disaster prevention awareness education, and thoroughly checked all equipment in accordance with the "Flood Check Record". In addition, these response teams conducted "flood drills" in accordance with the established Flood Drill Plan. In April, response teams formed a "spot check task force" to supervise the flood preparation of all response teams. The transportation, construction, mechanical engineering, electrical engineering, and special defense groups of TRA Headquarters formed the "joint supervision task force" to supervise and evaluate the flood preparedness of all response teams.

Currently, we have completed the customization of the Quantitative Precipitation Estimation and Segregation Using Multiple Sensor (QPESUMS) and promoted it to all response centers. With this system, the Central Weather Bureau (CWB) will provide us with real-time quantitative precipitation estimates of all rainfall monitoring points in important sections, bridges, construction maintenance sections at every 10 minutes. These estimates thus provide us with a reference for alerting or taking actions to the water level and rain volume of all monitoring points. Every quarter, the Construction Maintenance Division gathers the information submitted by individual construction branches and submits this to the CWB to make ad-hoc corrections.

Upper left
Routine route check and repair of the construction unit.

Upper right
The construction unit makes preparation on routes before typhoon comes.

Bottom
The construction unit repairs the subgrade damaged by typhoons or torrential rain.



(III) Auxiliary Military Service Corps training

Based on the "Guidelines for the Assembly and Training of Annual Auxiliary Military Service Corps", we organized the "Auxiliary Military Service Corps" training in 2016 in collaboration with the Armed Forces

Reserve Command. Two independent regional corps with 84 members participated in the training.

1. On 14 July 2016, the 2016 assembly and training of Auxiliary Military Service Corps (No. Z941101) was held in Kaohsiung Construction Branch.
2. On 12 August 2016, the 2016 assembly and training of Auxiliary Military Service Corps (No. Z951102) was held in the Taichung Construction Branch.

1. Registration of draftees.
2. Draftees in the military justice course.
3. Draftees in the professional knowledge course.
4. Draftees in repair training at an artificial ramp.
5. Draftees in rail inspection training.
6. Draftees observed the live emergency repair.



(IV) Routine training for civilian vigilance

Routine training for civilian vigilance enables civilians to understand the need for civil defense and improve the operability of civilian vigilance, in order to prepare for disaster prevention and rescue, counterterrorism, self-defense and self-rescue, and all-out defense, to effectively support military duty in war, and to ensure homeland security. In 2016, TRA and Alishan Forest Railway organized seven routine trainings for civilian vigilance, with 473 participants.

No.	Unit	Date
1	Construction Maintenance Headquarters	21 July, 2016
2	Taipei Mobilization Office	14 July, 2016
3	Taichung Mobilization Office	15 June, 2016
4	Kaohsiung Mobilization Office	19 July, 2016
5	Yilan Mobilization Office	23 June, 2016

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6	Hualien Mobilization Office	12 July, 2016
7	Alishan Forest Railway Headquarters	15 July, 2016



Left
Provide wagons for the security training of the Wei-An Police Special Services Commando, the Special Police 1st Headquarters

Right
Provide wagons for the training of NTPD K-9 Unit, and invite them to join our railway safety drill.



XI. Ethics

(I) Social participation

1. TRA continuously operate our Facebook fan page to promote anti-corruption through social networking sites. In addition, we disclose our anti-corruption achievements on the anti-corruption section of the TRA website and TRA Ethics Facebook site, and send them to the Judicial Weekly, TRA Newsletter, and the press.
2. Anti-corruption game: From March to May in 2016, we arranged 15 sessions of "Anti-corruption Game" at major stations during related festivities where crowds were gathered. There were 1,050 participants, and the game received heated feedback.



From March to May in 2016, we arranged the "Anti-corruption Game" at major stations during major festivities where crowds were gathered to promote anti-corruption education.

(V) Preparedness for security incidents

In view of TRA is a public transportation, it could be a target of security attacks, the public will panic, and this will become a serious threat to public transport safety. Therefore, we take the following precautionary actions to prevent security incidents:

1. Security workforce: Reinforce platform and train patrol, raise access control at boarding entrance, establish a security reporting system with shops in co-constructed or union stations, and establish a joint defense system with local military, police, and fire departments, local counties and cities, and healthcare systems.
2. Security facilities: Increase monitoring equipment in station, emergency intercom in wagons, equip batons in the conductor's room, and anti-explosion blankets in stations.
3. Awareness education for the public: Remind passengers not to carry dangerous items on the train and make it known to the public. Ask passengers to be aware of dangerous items and suspicious people, things, and events and remind them to immediately report to TRA station staff or the Railway Police (call 110) through station and train broadcasters.

3. To promote anti-corruption education from children, TRA plan a series of educational activities in northern, central, southern, and eastern Taiwan. Through creative and vivid activities, we educate the importance of anti-corruption through interactive teaching, in order to cultivate the anti-corruption concept in little citizens, start anti-corruption education from children and teenagers, and improve TRA's uncorrupt image. From March to June, 2016, we and our ethics office organized 23 campus anti-corruption activities for 1,288 participants.
4. In-train education and family activities: With stations located across Taiwan, TRA plan a series of round-the-island anti-corruption education activities and anti-corruption quiz for citizens to get familiar with our anti-corruption policy and measures to fulfill all-out anti-corruption. In 2016, TRA organized 9 in-train education activities and 1 event on the Hello Kitty painted train. In addition, TRA expanded the scale of anti-corruption education in line with TRA family activities. A total of 2,900 citizens participated in these activities.

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In March 2016, Ethics Office arranged quiz in each cars of the new Taroko Express—Hello Kitty to raise the public awareness of anti-corruption.



(II) Holding anti-corruption meetings

TRA held two anti-corruption meetings in 2016. Each meeting and the chairperson's remarks and assignments were sent to related units for management and evaluation. TRA also followed up the assignments given by the chairperson. In addition, TRA supervise 43 branch units to hold anti-corruption meetings in seven regional groups, and 12 regional anti-corruption meetings were held in 2016 and registered in the anti-corruption management system. The Ethics Office also gathered the outcomes of the anti-corruption meetings at the end of the year for reporting. The second anti-corruption meeting in 2016 was rated as a demo meeting in the northern region by Agency Against Corruption. This demonstrates our achievements in experience exchange among ethics employees, knowledge sharing expansion, and innovation.



Director-General Chieh-Shen Lu hosted the 2nd Anti-Corruption Meeting 2016 on 15 November 2016.

(III) Anti-corruption education and training

From January to December in 2016, TRA and relative organizations organized 13 courses related to the rule of law over a period of 14 hours for 688 employees. In addition, to enrich the knowledge about law and strengthen the law-abiding concept of all TRA employees, TRA invited lawyers, district prosecutors, or TRA ethics personnel to implement the "Promoting Rule of Law Education to Base Units" for base-level employees based on the theme of "Application for and Embezzlement of Petty Cash of Civil Servants" between April and August 2016. From June to August in 2016, fifteen sessions were organized with the participation of 2,033 base-level employees. The Employee Training Center also gave 30 courses over a period of 60 hours on anti-corruption and ethics and Anti-Corruption Act in the "procurement training course" and "pre-service training for new employees" to 1,881 persons.



Photo by Ching-Hao Chou



7

MAJOR CONSTRUCTION & INVESTMENT PROJECTS

MAJOR CONSTRUCTION & INVESTMENT PROJECTS

I. Round-the-Island Railway System General Safety Improvement Project

(I). Project contents

With a total budget amounting to NT\$14.949 billion and a project period from 1 January 2009 to 31 December 2012, the project was implemented with the approval of the Executive Yuan with Letter Yuan-Tai-Jiao-Zi No. 0980008163 issued on 27 February 2009. Major project contents included:

1. Renovation of train station architectures and service facilities: Re-constructing five stations: Shanjia, Hukou, Zhubei, Shalu, and Xinfeng into span-over stations; increasing stations for commuter trains between North Hsinchu and Rende and elevating tri-rail routes between Wudu and Xizhi to increase capacity; and roof renewal and overall fire system renewal of Taipei Station.
2. Tunnels and bridges improvement: Strengthening high-risk and vulnerable sections, general inspection and seismic assessment and retrofit of all bridges along the line; abutment renewal of Dajia River Bridge; alteration of Zengwen River Bridge, Yanshui River Bridge, Erren River Bridge, and South Taimali River Bridge; reinforcement of all old tunnels along the Jiji Line; and renewal of tunnels along the North-Link Line.
3. Station and rail reliability enhancement: Using the 50kg/m long rail for 121.2km and replacing the UIC-60KG steel rails for 11.1km.
4. E&M facility reliability improvement: Installing a remote monitoring system at 421 level crossings, replacing the catenary line between Keelung and Zhunan from 49.5mm² to 95mm², updating train E&M systems, enhancing transformer capacity and renewing switching devices of substations.

(II). Project outcomes

Project funds were retained in 2016 to continue project items, including the roof renewal and evacuation facilities and fire equipment improvement of Taipei Station.

1. Taipei Station roof renewal

The roof renewal of Taipei Station was completed on 21 July 2016. This sub-project also won Honorable Mention in the building category of the 16th Public Construction Golden Quality Award. One-piece ceramic components were used to deliver a shiny appearance with robust and waterproof functions, and lighting fixtures with changeable colors at different times were embedded in the eaves overhead the pedestrian space to present a new image of Taipei Station.

2. Taipei Station evacuation facilities and fire equipment improvement

Evacuation facilities and fire equipment improvement were all completed on 20 November 2016. This sub-project aims to improve primarily on fire extinguishers, automatic fire alarms, emergency PA systems, indoor fire hydrants, and the fire sprinkler system, in order to achieve fire equipment auto-linkage and maintain the public safety of Taipei Station.

Taipei Station after renewal



MAJOR CONSTRUCTION & INVESTMENT PROJECTS

II. Urban Railway Rapid Transit Systematization—Taoyuan Railway Tract Elevation Project

(I). Project contents

With a total budget amounting to NT\$30.845 billion and a project period from 1 January 2009 to 31 December 2017, the project was implemented with the approval of the Executive Yuan with Letter Yuan-Tai-Jiao-Zi-Taoyuan No. 0980008165 issued on 27 February 2009. Major project contents included:

1. A sinking section and an elevation totaling 15.95km, with expansion of the north of Taoyuan Station into a triple-track main line and the south of Taoyuan Station double-track main line.
2. Alteration of the Taoyuan, Neili, and Zhongli stations into elevated stations.
3. Addition of four commuter train stations: Fengming, Guoji Road, Yongfeng Road, and Chung Yuan Christian University stations.
4. Improvement of other facilities to remove 17 level crossings after completion.

(II). Project outcomes

1. After the Taoyuan City Government reported to the Ministry of Transportation and Communications to suspend the follow-up work of the urban planning change on 4 May 2015, the Executive Yuan approved on 2 October 2015 the suspension of the Taoyuan-Neili Section of the "Urban Railway Rapid Transit Systematization—Taoyuan Railway Tract Elevation Project" at our request.

2. The switch to the temporary trackwork of Taoyuan-Neili Section was completed on 28 December 2016.



Temporary trackwork of Taoyuan-Neili Section

III. Train Operation Safety Improvement 6-Year Plan (2015-2020)

(I). Project contents

With a total budget amounting to NT\$27.522 billion and a project period from 1 January 2015 to 31 December 2020, the project was implemented with the approval of the Executive Yuan with Letter Yuan-Tai-Jiao-Zi No. 1030058414 issued on 14 October 2014. Major project contents included:

1. Level crossing improvement: Implementing grade separation of three level crossings: Nanhe, Jiannong, and Taimali.
2. Fencing and acoustic barrier installation in dangerous section: Building fencing and acoustic barriers of 175km.
3. Bridge alteration and reinforcement in compliance with current legal requirements: Altering 15 bridges, such as Wencuobu River Bridge.
4. Construction of the earth slide/debris flow and strong wind warning system: Improving the slope area, subgrade, and drainage facilities at high-risk sections along the TRA lines and constructing a slope area disaster warning system.
5. Station facility renewal by law: Elevating of all platforms along the TRA lines and improving safety facilities in men's and women's toilets and accessibility facilities.
6. Rail facility renewal: Replacing 250km of 50kg steel rail, 60km of 50kg head hardened rail, and 600 sets of 50kg PC switch sleepers.

(II). Project outcomes

1. The toilet improvement project of 30 stations, such as Yingge, Tai'an, and Nan'ao, was completed on 7 August 2016 in compliance with the Building Act and gender equality requirements to provide passengers with a well-equipped toilet environment.
2. To build seamless transport and an accessible environment for the ageing society has always been a TRA goal. Accessible elevators were completed and started services in Liuying Station, Linfengying Station, and Huobi Station on 27 September 2016, 3 November 2016, and 24 November 2016 respectively to equip stations with more convenient passenger transport facilities, fulfill passenger requirements, significantly raise the public intention to take green transport, and provide pilot passenger transport facilities for seamless transport for

MAJOR CONSTRUCTION & INVESTMENT PROJECTS

future modernized stations.

3. Flood control improvement of the Lijia River Bridge and riverbed reinforcement: Completed on 15 June 2016, the project enhances bridge stability and safety to ensure train safety with groundsill works.



1. Flooring improvement of Taipei Station
2. New accessible elevators in Huobi Station
3. Acoustic barrier works in Zhuzhong Station
4. Public toilet improvement project (men's and women's)
5. Flood control improvement of the Lijia River Bridge and riverbed reinforcement project

IV. Construction & Maintenance Projects

(I). Route maintenance

In the 2016 full-line routes improvement project, the Construction Department replaced 23,112 sleepers, 56,388m of rail, and 21 sets of turnouts; and refilled 33,837m³ (approx. 173.067km) of ballasts.

(II). Shanjia Station Historical Monument Restoration Project

Shanjia Station Historical Monument Restoration Project

Built in 1903, the station was originally called "Shanzijiao Parking" and renamed "Shanzijiao Station" in 1920. In 1962, it was renamed "Shanjia Station". After renovation in 1928, the second-generation station building was a western wooden house structure with brick walls, reinforced concrete (RC) lintels, and a "safe tile" surface. It was then the first group of station buildings using mixed materials: bricks, RC, and wood structure. The Taipei County Government (now New Taipei City Government) listed it as a city historical monument in 2002 to mark out the cultural value of the station building and the historical trace.

After completion and operations of the new station building on 20 September 2011, we immediately started the survey and detailed design for monument restoration of the old Shanjia Station to plan the co-existence of both stations. The restoration project was commissioned to a professional contractor on 27 November 2015 at NT\$24.9 million and completed in October 2016. We hope that the restored old Shanjia Station can promote local tourism development and ensure the sustainability of historical monuments.



MAJOR CONSTRUCTION & INVESTMENT PROJECTS

Shanjia Station Historical
Monument Restoration Project



(III). Badouzi Station Observation Platform Construction Project

The Shen'ao Line toward Haikéguan (Museum Station) was re-opened in January 2014 for the opening of the National Museum of Marine Science and Technology.



Badouzi Station Observation
Platform Construction Project

In view of the spacious vista and gorgeous scenery of Badouzi Station in the southern tip, railway lovers recommended we renovate existing facilities to turn the station into the Duoliang Station in northern Taiwan as a viewing station.

We thus planned a budget amounting to NT\$10.82 million to reconstruct Badouzi Station in hope of increasing the tourism benefits of the Shen'ao Line by extending it to Badouzi Station and thereby restoring the fame of the most gorgeous coastal line. Badouzi Station re-opened on 28 December 2016. The aluminum railing in a wave image, the imitation wood flooring, and plastic wooden seats enable passengers to enjoy the gorgeous coastal line.

(IV). Spatial Revitalization and Façade Embellishment Project of Toucheng Station

As Toucheng Station is antiquated and unable to handle the increasing visitors and commuters, we have hired architects to plan and design the spatial revitalization and façade embellishment of the station to fuse with the local cultural heritage. Apart from improving the quality of station services, this can promote local tourism development.

A budget of NT\$28.45 million has been allocated to re-pave the driveway in front of the station square. As the station stands at the head of Toucheng Old Street, the continuous arch made of red bricks from Qingshui in the old street became a symbol to shape the entrance image together with the coastal scene backed by the mountains. The wooden grated ceiling extends the image of street houses in Shihshanhang. A foyer and boarding entrances were added in the station to disperse crowds at peak hours. Signs and the train schedule displays were also renewed. Other new friendly features include new toilets, accessible toilets, and breastfeeding rooms, and the station electricity and lighting systems were also improved.



Toucheng Station after
alteration

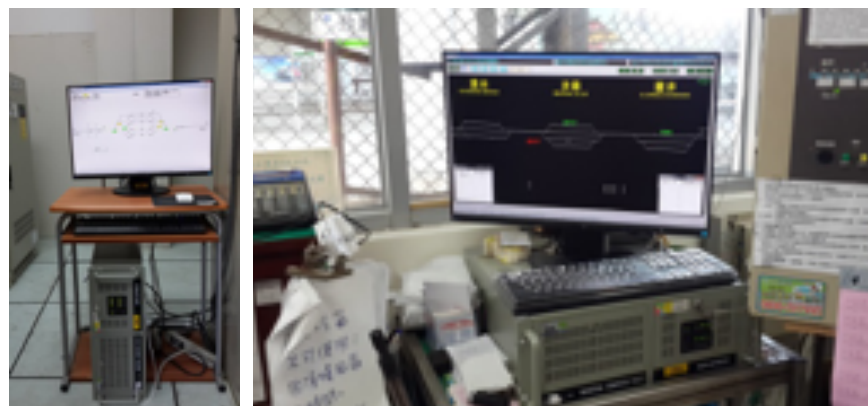
MAJOR CONSTRUCTION & INVESTMENT PROJECTS

V. Electrical Engineering Maintenance Projects

(I). Signaling facilities

1. Operation equipment renewal

In December 2016, we renewed the 86 sets of interlocking monitors, TIDs, and CVDU servers along Zhunan-Changhua-Tainan to effectively improve system reliability and improve Operational Performance.



CVDU server

2. CTC performance enhancement

In October 2016, we renewed the automatic route setting (ARS) server and the central traffic control (CTC) network system to effectively improve the CTC stability and enhance dispatch performance.

3. Level crossing monitoring device renewal

In November 2016, we renewed CMT at 30 level crossings between Zhunan and Tainan to facilitate maintenance personnel to capture the operation status of protective equipment at level crossings in real time



Direction indicator and
emergency button

4. New axle counters for branch lines

In November 2016, we installed new axle counters along the Hsinchu-Liujia-Neiwan line to effectively enhance train detection accuracy and system reliability.



Left: Counter unit
Right: Axle counter head

(II). Improving wireless communication quality for telecommunications equipment

1. After call quality optimization and the provision of a stable backup power supply in 2016, we have made the following important achievements:

(1) Train dispatch mobile radio system coverage test

A Handheld type

Areas with occasional noise: Enhanced call coverage from 99.83% to 100%.

Areas with no noise: Enhanced call coverage from 96.83% to 97.3%

B In-train type

Areas with occasional noise: Call coverage reached 100%.

Areas with no noise: Enhanced call coverage from 99.45% to 99.6%

(2) Connecting mobile radio system to the UPS of signaling system

In 2016, we completed the connection to the UPS of the signaling system at 19 locations in Greater Taipei area (accumulatively 84 locations) to enhance system reliability.

2. Fiber optics renewal

Although fiber optics can transfer large amounts of data, the quality of fiber optics will directly affect data transfer quality. Therefore, we began renewing fiber optics in 2016 with 96-core fiber optic cables to replace all kinds of 48-core fiber optics currently used, in order to enhance capacity and integrate existing fiber optics to save cable tray space. In

MAJOR CONSTRUCTION & INVESTMENT PROJECTS

Train dispatch mobile
radio system and signaling
connection drawing



96-core fiber optics



2016, we completed the fiber optics deployment up to 107km in the following areas:

Taipei: 35km (Badu-Sankeng, Hukou-Zhubei, Luodong-Su'aoxin, Banqiao-Yingge)

Changhua: 29km (Daqing-Changhua)

Kaohsiung: 27km (Gangshan-Pingtung)

Hualien: 16km (Heping-Xincheng)

(III). Electricity facilities

1. Overhead contact system (OCS) enhancement: To enhance the reliability of our electricity system and strengthen the OCS stability, we planned the "Badu-Hualien and Western Line (Qiding-Daqiao) 95mm² Catenary Renewal Project" to replace the old overhead lines. In that project, we replaced the cantenary from 49.5mm² to 95mm² for 200km to enhance capacity by 33% and tensile strength by 24%.
2. Purchasing OCS work trains: in September 2016, 3 catenary work trains were delivered to join OCS maintenance and emergency repair in order to raise maintenance and repair capacity.

Left
Replacing catenary from
49.5mm² to 95mm².

Right
Purchasing new OCS work
trains.



VI. New train procurement, renewal, and remodeling

(I). New train procurement

1. In 2016, we purchased 216 tilting EMUs, including 152 TEMU2000 (19 units) and 64 TEMU1000 (8 units).
2. In 2016, we also purchased 344 commuter EMUs, i.e., EMU800 (to be completed by the end of March 2017).

(II) Number of locomotives, passenger trains, and freight trains

1. Powered locomotives: 275

- (1) Electric locomotives: 91
- (2) Push-pull (PP) electric locomotives: 64
- (3) Diesel-electric locomotives: 104
- (4) Diesel hydraulic locomotives: 16

2. Passenger trains: 2,417

- (1) Tzu-Chiang Express EMUs: 285 (Taroko Express trains: 64, Puyuma Express trains: 152, other trains: 69)
- (2) Tzu-Chiang PP trains: 381
- (3) Commuter EMUs: 926
- (4) Tzu-Chiang diesel trains: 165
- (5) Diesel passenger trains: 46
- (6) Air-conditioned passenger trains: 512
- (7) Ordinary passenger trains: 48
- (8) Other trains: 54

3. Freight trains: 1,745.

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(III). Locomotive and wagon improvement

1. LED Passenger Information Display System and Emergency Intercom Project: They were installed on 340 EMU500 commuter trains by contractor Mercuries Data Systems Ltd. Acceptance was completed on 22 December 2016.
2. LED Passenger Information Display System and Emergency Intercom Project: They were installed on 381 PP Tzu-Chiang Express trains and 64 locomotives by contractor Mercuries Data Systems Ltd. Acceptance was completed on 27 December 2016.
3. Automatic Train Supervision System Auxiliary Equipment Project: 40 sets were installed on PP EMUs by contractor Mercuries Data Systems Ltd. Acceptance was completed on 31 October 2016.
4. Express Train Breastfeeding Room Improvement Project: Implemented by contractor Yuxiang Mechanical Engineering Ltd. Acceptance was completed on 18 January 2016.
5. Stainless Wagon Project: A total of 41 items were undertaken by China Steel Machinery Corporation and will be completed by the end of 2020.



Purchasing 16 new Taroko Express trains in February 2016



Sixteen "second-generation" EMU800, the Smile train, joined TRA services by the end of 2016.

VII. Special projects

(I). Urban Railway Rapid Transit Systematization & Regional Railway Follow-up Construction Plan (Keelung-Miaoli)

The project aims to effectively use existing transport resources to strengthen the commutation and shuttle services in urban areas for commuters by increasing the number of commuter stations, rail equipment, and route capacity. The scope of the project covers Keelung to Miaoli of the Western Line. The original project was approved by the Executive Yuan with Letter Yuan-Tai-Jiao-Zi No. 0940002035 on 27 January 2005. The first project amendment was consented to by the Executive Yuan with Letter Yuan-Tai-Jiao-Zi No. 0990072342 on 23 December 2010. The second project amendment was approved by the Executive Yuan with Letter Yuan-Tai-Jiao-Zi No. 1020071264 on 25 November 2013. The total budget was NT\$8.142 billion, and the project period was extended to the end of 2016. Major contents include:

1. Adding four rapid transit commuter stations (Fuzhou, South Shulin, Sanxingqiao, and Fengfuxin stations) between Keelung and Miaoli.
2. Improving 3 existing stations (Tanwen, Xiangshan, and Miaoli stations) between Keelung and Miaoli.
3. Expanding Xizhi to Nangang section into triple-track line.

Sanxingqiao Station opening ceremony



Fengfu Station opening ceremony



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4. Improving the landscapes and safety along the 140km of railway between Keelung and Miaoli.

5. Adding one EMU workshop.

(II). Taipei Workshop Relocation and Construction Project

In response to THSR operations, we need to hand over the south tunnel between Taipei and Songshan to THSR. As THSR rail will block the route for TRA locomotives and trains to enter Taipei Workshop for maintenance and repair, this will disturb and limit the operations of each other. After negotiations among related units, the MOTC recommended we relocate the Taipei Workshop to resolve the rail blocking problem. The first project amendment with a total budget amounting to NT\$17.014 billion and a project period from 1 June 2005 to 31 December 2015 was consented by the Executive Yuan with Letter Yuan-Tai-Jiao-Zi No. 0990093143 on 1 March 2010. The second project amendment with a total budget amounting to NT\$15.5109 billion was approved by the Executive Yuan with Letter Yuan-Tai-Jiao-Zi No. 1030034474 on 17 June 2014. The third project amendment with the same budget and a project period extended to the end of 2016 was approved by the Executive Yuan with Letter Yuan-Tai-Jiao-Zi No. 1050002874 on 18 January 2016. Major contents include:

1. Qidu Base: Qidu Maintenance Branch was relocated to Su'aixin Base, and a line improvement project was implemented on the emptied base.
2. Fugang Base: A new EMU workshop, rolling stock branch, Northern Region Supply Workshop, diesel-electric locomotives and electric locomotive workshop, northern Hukou entry line and station will be built in Fufeng Village, Yangmei District, Taoyuan City to become the largest train workshop in South East Asia.

(III). Kaohsiung Workshop Relocation to Chaozhou and Old Workshop Development Project

In support of the "Kaohsiung Metropolitan Area Railway Underground Project", this project aims to relocate the Kaohsiung Workshop, Southern Region Supply Workshop, and Kaohsiung Port Maintenance Sub-Branch to Chaozhou, in order to maintain smooth passenger and freight train maintenance and repair service and smooth accessories and materials repair and manufacture, ensure uninterrupted passenger and freight transport operations and train safety, fulfill EMU maintenance and repair after the underground project, and turn the new Chaozhou Base into the southern region train maintenance and repair center.

On 13 August 2013, the Executive Yuan generally consented the integrated project with Letter Yuan-Tai-Jiao-Zi No. 1020048414; on 3 October 2013, the Executive Yuan approved the financial plan with Letter Yuan-Tai-Jiao-Zi No. 1020060201; on 17 June 2014, the

Executive Yuan agreed to appropriate a sum of NT\$930 million from the Taipei Workshop Relocation Project to the Push-pull passenger train maintenance and repair workshop in the Chaozhou Base with Letter Yuan-Tai-Jiao-Zi No. 1030034474. Therefore, the total project budget became NT\$13.9 billion, and the project period is from 13 August 2013 to 30 June 2019. Major contents include:

1. Kaohsiung Workshop relocation and construction.
2. Southern Region Supply Workshop relocation and construction.
3. Kaohsiung Port Maintenance Sub-Branch relocation and construction.
4. Push-pull passenger train maintenance and repair workshop construction.

VIII. Ticket System Integration and Re-Engineering Project

(I). Overview

1. Background of project

TRA's ticket system affects the needs and expectations of citizens significantly. As the current system was built ten years ago, it is difficult to flexibly integrate the architecture to quickly keep pace with public needs. This project is promoted and implemented to fulfill the comprehensive needs of citizens, support the government's public policies, increase TRA overall revenue, and improve TRA service quality.

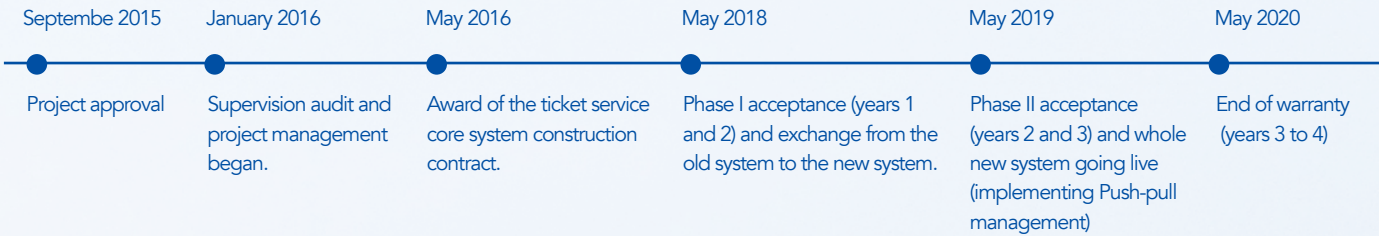
2.Objectives of project

- (1) To optimize the ticket booking process and interface.
- (2) To effectively resolve the transient traffic overload at peak booking hours.
- (3) To strengthen ticket information security and prevent robot software from grabbing tickets.
- (4) To improve the seat distribution model to enhance passenger seat availability.

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(II). Project period and phases

- 1. The project period is three years, divided into two phases.
- 2. Phase I will last for two years and is expected to be completed by the end of May 2018. After phase completion, customers can book tickets with the new system services, including passenger integrated portal, window service, voice service, mobile service, ticket service management, and station service management.
- 3. Phase II will go live by the end of May 2019. After phase completion, mechanisms including the “Operations Planning Decision Support” (station stop pattern decision assistance) and “Passenger Needs Prediction” (medium-term and long-term needs prediction).





8 CHRONOLOGY (MAJOREVENTS 2016)

January

1/4

Traffic dispersion on the New Year's long holiday

During the 5-day New Year's holiday in 2016 (31 December 2015 to 4 January 2016), we dispatched 246 additional trains on three major TRA lines (Eastern Line 133 trains, Western Line 97 trains, and South Link Line 16 trains) to transport up to 3.04 million passengers, creating revenue amounting to NT\$278,908,236. In particular, the one-day ridership on 31 December 2015 reached 866,987 persons, the highest over the five-day period.

1/13

Consultation meeting with industry, government and academia on own brand development

Hosted by Deputy Director General Ching-Da Chung, we invited Director Kuo-Chi Tseng of the Department of Private Participation Promotion (PPP), Ministry of Finance; Deputy Director-General Wayne Liu of the Tourism Bureau, Ministry of Transportation and Communications; Professional Specialist Patrick Su of National Kaohsiung University of Hospitality and Tourism; Associate Professor Hsiang-Sheng Lin of Chung Hua University; VP Chien-Yi Wang of WHY AND 1/2; Director Yao-Kuang Tsai of the Marketing Division of Hey Song Corporation; and Director Shu-Hui Chen of the Freight Service Department and about 18 subordinate unit heads to the meeting. With the practical experience of attendees, the meeting discussed how to enhance railway economic efficiency, improve the professional competencies of employees, and build different types of railway hotels with reference to the function and feature differences of 226 stations across Taiwan for the best use of railway economy and the characteristics of each station.

1/13

Director-General Yung-Hui Chou and delegation signed an MoU on industry-academia collaboration with NCKU

To support the government's industry-academia collaboration policy and deepen basic rail education, Director-General Yung-Hui Chou, Deputy Director-General Chieh-Shen Lu, Chief Secretary Lai-Shun Chu, and heads of the Transportation Department, Construction Department, Personnel Office, and southern region units visited National Cheng Kung University (NCKU) to sign a Memorandum of Understanding (MoU) on the "Rail Transport Talent Cultivation Strategic Co-operation Framework" with NCKU President Dr. Huey-Jen Jenny Su in hope of cultivating technological talents and vocational skills through industry-academia collaboration, in order to promote the development of Taiwan's rolling stock industry.

1/18

MGBahn Marketing and Sales Director Helmut Biner discusses cooperation with Alishan Forest Railway at TRA

Marketing and Sales Director Helmut Biner of Matterhorn Gotthard Bahn (MGBahn) of Switzerland visited TRA at 2 p.m. and discussed cooperation with Alishan Forest Railway at Conference Room II. Director-General Yung-Hui Chou hosted the meeting in the presence of Deputy Director-General Yi-Kuang Liao of the Forestry Bureau, Executive Yuan, and subordinates. At the meeting, both parties reached a consensus on the subject matter, term, and text of the cooperation agreement and were glad to see it happen.

1/18

Visit of IGR CEO Kikuchi and delegation

Deputy Director General Ching-Da Chung received a group of 5 including CEO Masayoshi Kikuchi of Iwate Galaxy Railway Company (IGR), Japan, and Director Ming-Min Chiu of Kawa Culture Foundation and others on their visit to TRA at 10 am. On the 19th, the delegation visited the Miaoli Railway Museum. On the 20th, they visited the Changhua Roundhouse. We arranged guides to provide guided tours for both visits.

1/21

MoU on new opportunities for railway technological cooperation with RTRI

To effectively improve technical standard of domestic railway engineers and actively promote international industry-academia and technological exchange, Director-General Yung-Hui Chou and Director San-Chi Chen of the Electrical Engineering Department signed a "Memorandum of Understanding on technological cooperation" (MoU) with Chief VP Hideyuki Takai of Railway Technical Research Institute (RTRI), Japan at RTRI headquarters in the witness of President Norimichi Kumagai. The conference held afterwards later marking the opportunity for railway technological cooperation between TRA and RTRI and symbolized a new milestone on Taiwanese-Japanese railway technological cooperation. It is hoped that the railway technological exchange can strengthen Taiwan's talent cultivation and improve our service quality.

1/26

Visit of Shizuoka Prefectural Councilman Taiichi Atsumi and CEO Motoyasu Ueta and others of Tenryu Hamanako Railroad

Director-General Yung-Hui Chou received a delegation of 14 including Shizuoka Prefectural Councilman Taiichi Atsumi, CEO Motoyasu Ueta and others of the Tenhama Line of Tenryu Hamanako Railroad on their visit to TRA at 4:20 pm. On the 27th, the delegation visited the Jiji Line and the Changhua Roundhouse. On the 28th, they visited the Neiwan Line and Alishan Forest Railway. On the 30th, they visited the Pingxi Line. TRA arranged guides to provide them with guided tours.

1/30

Inspection of the roof renovation of Taipei Station by EY Minister without Portfolio Chun-Yi Hsu

In the company of Director-General Yung-Hui Chou, Deputy Director-General Hsien-Lin Ho, Director Yung-Chang Li of the Construction Department, Executive Yuan Minister without Portfolio Chun-Yi Hsu inspected the roof and flooring renovation of Taipei Station and listened to the briefing at 9:30 am. In recognition of the efforts of the engineering team, Minister Hsu reminded engineering personnel to pay attention to working at height in order to achieve the "zero accidents" goal.

February

2/3

Launch of the "TRA Wanluan Pork Knuckle Boxed Meal" by integrating with Pingtung specialty

In response to the relocation of the Southern Region Coach Yard to Chaozhou in Pingtung, Catering Service Department launched the "TRA Wanluan Pork Knuckle Boxed Meal" by integrating with local specialty, Wanluan pork knuckle. The official launch was held at Taipei Station at 10 a.m. Apart from letting passengers to taste boxed meals with specialty foods of different places, the "TRA Wanluan Pork Knuckle Boxed Meal" has expanded TRA's boxed meal menu to fulfill the taste of different passengers. From February 3, the "TRA Wanluan Pork Knuckle Boxed Meal" is officially sold at Kaohsiung Station, Xinzuoing Station, and THSR Zuoying Station.

2/4

Maiden voyage of Puyuma Express for traffic dispersion on Spring Festival

To celebrate the maiden voyage and join the Chinese New Year traffic dispersion mission of the second new Puyuma Express unit (the image of the Year of the Monkey 2016), Director-General Yung-Hui Chou specifically presented the “Baifu to Fulong: Happiness and Joy” souvenir ticket and The Cultural and Creative Lifestyle of Railway magazine to passengers in person at train 408 and train 422 (new Puyuma Express between Taipei and Yilan) on 4 February to wish passengers good will and success, happiness and joy in a new year. Director-General Yung-Hui Chou also wished a new start of railway travel in the new year for the bright future of railway travel.

2/5

Traffic dispersion for Chinese New Year long holiday

During the 12-day long holiday of Chinese New Year (4-15 February, 2016), TRA increased a total of 529 trains for traffic dispersion, including the 388 trains for the Eastern Line (including the South-Link Line) and 141 trains for the Western Line to transport up to 8,128,888 person-times, creating revenue amounting to NT\$797,876,598. In particular, the one-day ridership on 10 February 2016 reached the high level of 845,911 persons, over the 12-day period.

2/6
2/7**Taiwan experienced earthquake in Tainan a day before Chinese New Year's Eve, TRA assisted THSR traffic dispersion**

A magnitude 6.4 earthquake hit southern Taiwan at 03:57 a.m. on 6 February, 2016,, two days before Chinese New Year, and disrupted THSR operations between Taichung and Kaohsiung. TRA immediately formed an emergency response task force to provide full support for passenger transport. Apart from increasing 34 trains, there were 140 trains rescheduled, stopping at Xinwuri Station to transport THSR passengers. Passengers from THSR were accepted to take TRA with THSR tickets or to withdraw their tickets according to the refund policy. Director-General Yung-Hui Chou even travelled to Taichung to supervise this emergency traffic dispersion mission that transported over 60,000 THSR passengers to return to their hometowns. The mission was a success and demonstrated TRA's outstanding emergency support capacity.

2/12

Director-General Yung-Hui Chou and related employees accompanied of MOTC Minister Chen on Hualien inspection

Director-General Yung-Hui Chou and Chief Chien-Li Chang and other employees of Hualien Transportation Branch accompanied MOTC Minister Chen to inspect the Chinese New Year traffic dispersion mission in Hualien and show concern for on-duty employees.

2/25

Director-General Yung-Hui Chou and delegation signed an agreement of friendship with JR Shikoku (Matsuyama Station)

On 23 February, Director-General Yung-Hui Chou took Director Chen-Chao Huang of Administration Department and Station Master Kuo-Huang Tseng of Songshan Station to visit Tobu Railway Co., Ltd., the operations office of the Tobu Railway main line and Kita-Kasukabe Station, and affiliate business Tokyo Skytree. On 24 February, they visited Shikoku Railway Company of Japan Railways Group (JR Shikoku) and then the Matsuyama Station and Matsuyama Transit Office to see the new 8600 series and Lyonada Monogatari train of JR Shikoku. On 25 February, Director-General Chou signed the “Friendship Railway” agreement with Chairman Masafumi Izumi of JR Shikoku and the “Friendship Station” agreement between TRA Songshan Station and JR Shikoku Matsuyama Station to symbolize the friendly understanding between both parties and the cooperation of co-marketing railway travel.

2/26

TRA Director-General Chou and Chairman Harada of Keikyu Corporation unveiled the “Taiwanese-Japanese Friendship Railway Gallery” in Haneda Airport

At the first anniversary of the TRA-Keikyu friendship railway agreement, the Tourism Bureau of Taiwan, TRA, and Keikyu Corporation co-organized the “Taiwanese-Japanese Friendship Railway Gallery” in Haneda Airport, Tokyo, to expand the scope of cooperation and promote exchange between both parties, symbolizing the Taiwanese-Japanese railway friendship and efforts of both parties to market and develop railway travel. At 10 am on that day, in the presence of Chairman Ming-Ching Chiang of Taiwan Visitors Association, Director-General Yung-Hui Chou and Chairman Kazuyuki Harada of Keikyu Corporation of Japan presided over the opening ceremony of the gallery in the Haneda Airport International Terminal Station of Keikyu Corporation.

March

3/14

Enoshima Electric Railway of Japan Friendship agreement with Enoshima Railway and visit of Chairman Amano Izumi and delegation

Director-General Yung-Hui Chou received a group of four from Enoshima Electric Railway of Japan led by Chairman Izumi Amano and Enoshima Line Director Masafumi Yamada on their TRA visit at 6 pm. At 10 am on 15 March, Director-General Chou and Chairman Izumi Amano signed a railway friendship agreement and a Memorandum of Understanding in the VIP room on the 1st floor of Taipei Station.

3/21

Launch of Hello Kitty Taroko Express in collaboration with EVA Air and Sanrio Taiwan

In support of the government's international tourism marketing policy, TRA, EVA Air, and Sanrio Taiwan co-launched the “Hello Kitty Painted Taroko Express”. The maiden voyage (Shulin-Taitung) of the “Hello Kitty Painted Taroko Express” set off on 21 March and became a lively and innovative marketing example of rail transport. “Hello Kitty Painted Taroko Express” is expected to significantly enhance Taiwan's international visibility, help develop Taiwan's international railway travel, and create additional economic benefits.

3/26

Joint disaster prevention drill in Taipei, New Taipei City, Keelung, Taoyuan and Taipei Station

In support of the “Taipei Station Specific Region Integrated Disaster Prevention and Rescue Drill” of the “2016 Taipei, New Taipei City, Keelung, and Taoyuan Disaster Prevention and Rescue Drill”, the drill was held at 00:45 to 02:30 under the direction of Taipei City Mayor Wen-Je Ko and Taoyuan City Mayor Wen-Tsan Cheng, in the presence and supervision of Deputy Director-General Hsien-Lin Ho. Drilling items included train accident rescue, handling bombs in the union area of TRA, Taipei Metro, and TSHR, handling toxic chemical substance disasters, and fire rescue in the TRA Building. 4 Blue Express trains pulled by 4 diesel locomotives and 77 TRA staff joined the drill to complete the stage mission of the joint disaster prevention and rescue drill.

3/27	<p>90th anniversary of Taitung Line and centenary celebration with New Yuli Station</p> <p>To celebrate the centenary of Yuli Station (operated since 1917), the new station started operations by altering the old station. The roof is a glass dome providing perfect lighting for the station entrance and platform entrance to save energy and fulfill the green building design for energy conservation and emissions reduction. The façade in the image of the yesteryear Yuli Township is an air-permeable wall surface to regulate indoor temperature and demonstrate the wonder of the illuminating stone at night. In addition, a platform souvenir ticket set featuring a contrast of the appearance of the old and new stations was issued to present the image of change from the old station into the new station, in order to mark the significance of time and express the remembrance of the old station and the celebration of the new station.</p>
3/29	<p>Re-opening of Banqiao Station parking in an innovative and revitalized image</p> <p>The opening ceremony of the parking garage after renovation of Banqiao Station was held on 29 March. The parking lot is operated on an OT contract by private enterprise Aoteyi with the latest Beacom micro-positioning technology to create a high-tech, smart, well-lighted, and safe parking lot with a cultural and art temperament. Apart from enabling car owners to find a parking space more efficiently, the parking lot is decorated with innovative artistic landscapes to embellish the parking environment, bringing Taiwan's parking facilities into the P2.0 era.</p>
April	
4/1	<p>Improving TRA clean image through anti-corruption awareness education for all</p> <p>To reinforce anti-corruption awareness education for the public and children, all branches (offices) organized related activities on Children's Day, Tomb Sweeping Day, and the Dajia Matsu Holy Pilgrimage in Hualien, Banqiao, Tainan, and Dajia stations and local elementary schools. With films on anti-corruption stories, games with different levels of difficulty, and quiz, we aimed to raise the awareness of anti-corruption in the public and children and improve TRA clean image.</p>
4/6	<p>Traffic dispersion for Tomb Sweeping holiday</p> <p>To disperse traffic during the 4-day-long holiday (2-5 April) for Tomb Sweeping Day, we dispatched 262 additional trains to transport up to 448,301 passenger-times, creating revenue amounting to NT\$430,343,359.</p>
4/7	<p>Premier Chang inspects Keelung Station accompanied by Director-General Chou</p> <p>Premier San-Cheng Chang inspected the transport facilities of the new Keelung Station in the company of Director-General Yung-Hui Chou.</p>

4/11	<p>Visit for potential investors of freight service for asset revitalization</p> <p>To revitalize TRA assets, improve passenger transport and freight services, develop station space, and for investors to better understand the current status of the revitalization of potential targets, Freight Service Headquarters invited interested investors (Prince Housing & Development Corporation and Cosmos Hotel) to visit the sites (Keelung, Xinwuri, and Yuanlin stations) planning for building railway hotels and gave them a presentation on the overall market planning and assessments, in order to raise investment intentions on November 11 and 14.</p>
4/13	<p>2016 Labor Day Commendation</p> <p>The 2016 Labor Day Celebration & Employee Commendation Ceremony hosted by Director-General Yung-Hui Chou and Chairman Sheng-Ming Hsieh of the Taiwan Railway Labor Union was held in the performing hall on the 5th floor of the TRA Building. In his address, Director-General Chou emphasized the need for TRA to rebuild the new railway safety spirit. MOTC Political Deputy Minister Dar-Jen Tseng and MOL Minister Hsiung-Wen Chen were invited to the ceremony. Director-General Chou and Minister Chen presented the certificate of model employee to commend 66 model employees.</p>
4/16	<p>TRA and RRB co-organized the Railway Cup Softball Tournament 2016</p> <p>TRA and Railway Reconstruction Bureau (RRB) of MOTC co-organized the 5th Railway Cup Softball Tournament 2016 in Chonglin Baseball Field in Xinzhuang District, New Taipei City. Former premier Chi-Kuo Mao and MOTC Minister Chien-Yu Chen were invited to co-host the event in the presence of Director-General Yung-Hui Chou and TRA top management officers. All TRA employees did their best and won second prize.</p>
4/17	<p>New Taipei City Railway Relay—Running Holidays 2016</p> <p>To promote and develop railway tourism, TRA invited the public and thousands of runners to join the New Taipei City Railway Relay - Running Holidays 2016 and to run after the train via four stations Mudan, Fulong, Shuangxi and Gongliao to enjoy the fun of railway relay in the "handbell" sound with a strong railway image. Director-General Yung-Hui Chou led the TRA team personally throughout the relay in hope of inheriting traditional culture with the relay and promoting railway tourism.</p>
4/21	<p>TRA, TNPH and NMH co-launch "Taroko National Park Painted Train"</p> <p>To promote railway travel, TRA, Taroko National Park Headquarters (TNPH) and National Museum of History (NMH) co-launched the "Taroko National Park Painted Train". In the morning at 10:15, Director-General Yung-Hui Chou and NMH Director Yui-Tan Chang co-signed the authorization agreement in the VIP room at Taipei Station as well as celebrated the maiden voyage of the painted train, Beauty of Taroko by Pai-Sui Ma.</p>
4/27	<p>ČHŽ Chief Ales BILEK and delegation of Slovak visited TRA</p> <p>Deputy Director-General Chieh-Shen Lu received Chief Ales BILEK led a delegation of Čiernohorská železnica (ČHŽ, Čierny Hron Railway, a forest railway) on their visit to TRA at 2 pm. Both parties discussed the cooperation and exchange between ČHŽ and the Alishan Forest Railway.</p>

May

- 5/3** **“Taiwan Railways of Popular Science—Taiwan on the Go” with NTNU**
TRA and National Taiwan Normal University (NTNU) co-organized the “Taiwan Railways of Popular Science—Taiwan on the Go” activities. At 9 am in the foyer of the Taipei Station, Director General Shyh-Jye (Jerry) Jou of the Department of International Cooperation & Science Education, Ministry of Science and Technology; and Professor Mei-Hung Chiu of the Graduate Institute of Science Education, NTNU, attended the opening ceremony hosted by Director-General Yung-Hui Chou of this activity to strengthen science education for all generations. The train travelled around Taiwan on a four-day tour from 3-6 May. In addition to combining science experiments with railway transport, TRA invited local groups to explore science and technology in daily life in the station through experiments, hoping to let more people understand and find interest in science.
- 5/5** **Happy Cute Boxed Meals: “Guanyin Across Taiwan—Train of Happiness” on Mother’s Day**
To celebrate 2016 Mother’s Day, TRA joined the “Guanyin Across Taiwan—Train of Happiness” event and invited Yung-Han Kung, the diet expert and author of bestseller *Jiuniang Heart: Let’s Start with Jiuniang of Happiness in Military Dependents’ Village*, to develop two “TRA Heart, Mother’s Love: Happy Cute Boxed Meals”. In addition, TRA invited artist Chi-Sung Hung to design the cute version of Guanyin for passengers to enjoy boxed meals of great taste with cute artworks. These two boxed meals were sold in limited supplies at TRA Restaurants at the same time.
- 5/6** **Cooperation MOU with MGBahn & Sister Railway MOU between AFR and MGBahn/GGB**
The three-party cooperation and sister railway MOU signing ceremony among TRA, Alishan Forest Railway (AFR) of Forest Bureau, and Matterhorn Gotthard Bahn (MGBahn) of Switzerland its affiliate Gornergrat Bahn (GGB) was held in the foyer of Taipei Station. Director-General Yung-Hui Chou, MGBahn CEO Fernando Lehner, and Forestry Bureau Director Tao-Sheng Lee signed the three-party MOU. In addition, Premier San-Cheng Chang and Representative Rolf Frei of the Trade Office of Swiss Industries were invited to witness the ceremony. It is hoped that the MOU could set a new milestone in the international railway exchange between both countries.
- 5/6** **Traffic dispersion on 2016 Mother’s Day long holiday**
To disperse traffic during the 4-day long-holiday (6-9 May) for Mother’s Day, TRA dispatched 97 additional trains with 260 additional cars to transport up to 2,827,820 passenger-times, with a daily ridership of 706,955 person-times, down by 3.29% YoY. The service created revenue amounting to NT\$252,022,541, with a daily average of NT\$63,005,635, down by 3.3% YoY.
- 5/10** **“On-line Boxed Meal Ordering” service**
On 10 May, TRA launched the “On-line Boxed Meal Ordering” service piloted on seven Puyuma Express trains and one Taroko Express train, totaling eight trains. With this service, passengers could order TRA boxed meals at the same time after successfully booking tickets on-line. Two available choices included Pork Chop Boxed Meal and Vegetarian Boxed Meal at NT\$80 each.

icash joins TRA multi-card system

5/11

TRA multi-card e-ticket service started in June 2008 has earned public praise for its convenience and smooth e-ticket service. icash Corporation joined our e-ticket service on 11 May with is “icash Card 2.0” to become a new member of TRA’s multi-card system for passengers to take TRA more conveniently.

Opening ceremony of “Nangang Station Upgrade & Railway Economy—Railway Lifestyle 3.0”

5/12

On 12 May, Director-General Yung-Hui Chou hosted the “Nangang Station Upgrade & Railway Economy—Railway Lifestyle 3.0” opening ceremony in Nangang Station. Honorable guests included Legislator Yen-Hsiu Lee; Director Shin Nakamura of the Train Operation Department, Keikyu Corporation; and others. In the future, Nangang Station will become a union station by integrating with Taipei Metro and THSR. By combining the transport hub and daily life functions, various BOT, OT, and ROT projects will be promoted in the station site in order to bring new energy to Nangang District. In addition, to promote Taiwanese-Japanese railway tourism and friendly understanding, TRA arranged the maiden voyage of eight EMU700 local express trains painted in red appearance of the Keikyu train at the Nangang Station Upgrade celebration. Therefore, the blue TRA train and red Keikyu train will run on the railways of each country, hoping to promote Taiwanese-Japanese railway travel.

MOTC Administrative Deputy Minister Meng-Fen Wu led the PPP supervision team to inspect Changhua Roundhouse and Taichung Railway Culture Park Construction Project in the accompaniment of Deputy Director Ching-Da Chung

5/13

In the accompaniment of Deputy Director Ching-Da Chung and related officers, MOTC Administrative Deputy Minister Meng-fen Wu and the PPP supervision team inspected the “Changhua Roundhouse Historical Monument Preservation Area and Neighboring Area BO Project” and the “Taichung Railway Culture Park BOT Project”.

Convenient transport for Taipei Station passengers with the “EZ GO” app

5/13

On 13 May, TRA officially launched the “TRA EZ GO” floor navigation system to guide passengers travelling in and out the station and taking trains without “getting lost” with the floor position identification stickers and the smartphone app. Currently, the system is effective on the first floor and basement one (B1) of Taipei Station. In the future, the system coverage will be extended to the second floor of Taipei Station, Taoyuan Metro, Taipei Metro, and the Taipei City Mall. By further combining with the mall information and extension to the union station of TRA, Taipei Metro, and THSR, the app will turn Taipei Station into a smart station to significantly improve convenience for passengers.

Director Shin Nakamura of the Train Operation Department and delegation of Keikyu Corporation visited the Rolling Stock Branch of Qidu Station

5/13

At 10 a.m., a group of four including Director Shin Nakamura of the Train Operation Department, Assistant Manager Akiyoshi Nakamura and Assistant Manager Shohei Yoshida of the Vehicle Section, and Assistant Manager Taichi Takahashi of the Group Strategy Office of Keikyu Corporation visited the Rolling Stock Branch of Qidu Station in the accompaniment of Chief Chang-He Tsai of the branch.

5/15	<p>111th anniversary celebration of Taichung Station: “From Past to Future” and “TRA Elevation for a New Era”</p> <p>To celebrate the 111th anniversary of Taichung Station and the forthcoming opening of the new station, Director-General Yung-Hui Chou hosted the celebration at 9 a.m. in front of the station, in the presence of Taichung City Mayor Chia-Lung Lin, Legislator Li-Chan Lin, and Legislator Kuo-Shu Huang. In support of the opening of the new station for TRA Elevation in Taichung region and the celebration of the 111th anniversary of Taichung Station (a historical monument), TRA arranged a static exhibition of the national treasure-grade steam locomotives CK124 and DT668. This comprehensive exhibition matches the TRA's core value: Adhering Public for Innovation. At the ceremony, we also initiated the “TRA Elevation for a New Era” to start a new era of passenger services.</p>
5/17	<p>Discussion of “TRA Train Procurement 10-Year Plan” at 2016 Anti-Corruption Conference</p> <p>Chaired by Director-General Yung-Hui Chou, the “TRA Train Procurement 10-Year Plan” was discussed at the first 2016 anti-corruption meeting to improve the fleet's overall service quality. Experts and scholars were also invited to express their opinion on the plan for the reference of future plan execution, in order to fulfill public expectations. The meeting was attended by 74 persons, including the heads of all offices and departments, employees of the external workshops, Dining and Travel Service Headquarters, Freight Service Headquarters, and external consultants.</p>
5/19	<p>Director Ming-Ching Chiang of the Tokyo Affairs Office, Taiwan Visitors Association, led Chairman Yoichi Minami of Taiwan Visitors Association and Japan Travel and Tourism Association to visit TRA</p> <p>At 11:30 a.m., Director-General Yung-Hui Chou and department and office heads received Director Ming-Ching Chiang of the Tokyo Affairs Office, Taiwan Visitors Association, and Chairman Yoichi Minami of Japan Travel and Tourism Association on their visit to TRA.</p>
5/19	<p>Visit of Keikyu Corporation delegation</p> <p>At 2 p.m., Director-General Yung-Hui Chou and department and office heads received a group of three including CEO Tsuneo Ishiwata and Director Yoshiaki Shimada of the Group Strategy Office of Keikyu Corporation, and Representative Tzu-Hsuan Chang of Taiwan Travel Promotion Department of Keikyu Group on their visit to TRA.</p>
5/20	<p>9th Taiwan-Japan Tourism Forum</p> <p>Director-General Yung-Hui Chou and Section Chief Yu-Mou Chen of the Transportation Department attended the “9th Taiwan-Japan Tourism Forum” organized by the MOTC in Yilan City Hall to discussed issues relating to the international tourism and travel business and railway tourism of both countries.</p>
5/25	<p>Visit of Mt. Fuji Japan Shizuoka Prefecture Taiwan Office and Tenryu Hamanako Railroad</p> <p>At 3 p.m., Chief Secretary Lai-Shun Chu and heads of the Transportation Department and Administration Department received a group of three including Director Teizo Miyazaki of Mt. Fuji Japan Shizuoka Prefecture Taiwan Office, and Sales Director Takamitsu Sawai and Chief Ting-Hui Wang of Tenryu Hamanako Railroad on their visit to TRA. On 26 May, Chief Chen-Lin Su of Taichung Transportation Branch accompanied them on their visit to the Jiji Line.</p>

June

6/1	<p>Real name booking system in Hualien and Taitung</p> <p>To ease the booking difficulty for Hualien and Taitung citizens, TRA piloted the “real name booking system” in Hualien and Taitung counties during Dragon Boat Festival in 2016. Whenever there is a long holiday for three or more days, some trains must be booked with the real name of passengers returning to their hometowns before the holiday and returning to work after the holiday. The pilot program was available for Hualien and Taitung citizens, i.e. the citizen ID card number begins with “U” or “V”. The policy was extended to the long-holiday for Mid-Autumn Festival for citizens in these two counties. In the future, TRA will open four trains for real-name booking for three-day long holidays, six trains for four-day long holidays, and eight trains for Chinese New Year Holiday.</p>
6/1	<p>Sister railway agreements with IGR and Santetsu</p> <p>The signing ceremony of the sister railway agreement between the TRA Mountain Line and TRA Coastal Line and Iwate Galaxy Railway Company (IGR) Sanriku Railway Company (Santetsu) was held in the foyer of Taipei Station. MOTC Deputy Minister Chih-Ku Fan, Taichung City Mayor Chia-Lung Lin, and Chairperson Se-Chen Lai of Taiwan Visitors Association were invited to witness the ceremony. It was the first-time cooperation between TRA and the local government of Japan. By promoting business and technological exchange between TRA and IGR and Santetsu through this sister railway agreement, TRA hopes to revitalize railway lines, promote exchange between Taiwanese and Japanese passengers, and thrive local development.</p>
6/7	<p>129th anniversary celebration</p> <p>9 June was both the Taiwan Railways anniversary and Dragon Boat Festival. For smooth traffic dispersion, TRA advanced the 129th anniversary celebration to 7 June hosted by Director-General Yung-Hui Chou in the performing hall of Taipei Station. Chairman Masafumi Izumi of JR Shikoku and Chairman Victor Liu of Taiwan High Speed Rail Corporation were invited to address at the ceremony. Other guests included 41 representatives from ten railway companies: JR Shikoku, East Japan Railway Company of Japan Railways Group (JR East Japan), Keikyu Corporation, Tobu Railway, Seibu Railway, Enoshima Electric Railway, Sanyo Electric Railway, and Isumi Railway. TRA wished “Long live TRA through concerted efforts of all” to create a better future together. At the celebration, we commended senior and outstanding employees, TRA Friends, and outstanding volunteers. In the afternoon, we arranged a half-way railway tour for guests by taking the Hello Kitty Painted Train to the Changhua Roundhouse.</p>
6/7	<p>Puyuma Boxed Meal for 129th anniversary</p> <p>To celebrate the 129th anniversary of TRA, we specifically launched the creative Puyuma (red quinoa pine nut) Boxed Meal in limited edition. The exterior package of the boxed meal is a tissue case in a cute version of the head of Puyuma Express. After finishing the meal, passengers can use it as a tissue case containing eco-friendly and practical value. The meal came with a paper bag with the Puyuma Express totem was sold after its launch on that day.</p>

6/8	Opening ceremony of “TRA-JR Shikoku Exchange Hall” To celebrate the anniversary of the agreement of friendship between TRA and JR Shikoku, both parties expanded the scope of cooperation to promote further exchange. At 2:30 p.m., Deputy Director-General Chieh-Shen Lu and Chairman Masafumi Izumi of JR Shikoku attended the opening ceremony of the “TRA-JR Shikoku Exchange Hall”, which is Songshan Station, to symbolize the friendship between both railways and to promote railway tourism and travel together. After the ceremony, Chairman Masafumi Izumi led a delegation of 13, including Director Masuo Saito of the Passenger Promotion Strategy Office, Sales Department, visited the governor's and prince's wagons during the colonial period at the Qidu Rolling Stock Branch the accompaniment of Chief Chang-He Tsai of the branch.
6/8	Traffic dispersion for 2016 Dragon Boat Festival long holiday To disperse traffic during the six-day long-holiday (8-13 June) for Dragon Boat Festival, TRA increased 212 trains with 678 cars to transport 4,197,630 passenger-times, with a daily average ridership of 699,605 person-times, up by 5.13% YoY. The service created revenue amounting to NT\$405,684,546, with a daily average of NT\$67,414,091, up by 8.33 YoY.
6/17	Maiden voyage of Ryomo Express painted in Puyuma Express To reinforce friendly cooperation with Tobu Railway, Tobu Railway introduced a Ryomo Express painted with the “2016 Year of the Monkey Sign” of the Puyuma Express on 17 June. To celebrate the maiden voyage of the Ryomo Express x Puyuma Express painted trains, Chief Engineer Jen-Tsai Hsu took a TRA delegation to Asakusa District, Tokyo, to attend the maiden voyage ceremony. That train will be in service until 2020. In addition, Tobu Railway posted a bill that read “TRA-Tobu Railway Friendly Understanding” on the train to symbolize the friendship between Taiwan and Japan. The train on three Tobu tourism lines: Tobu Isesaki Line, Tobu Kiryu Line, and Tobu Sano Line have earned critical acclaim. It is hoped that this event can revive railway travel.
6/20	Chairman Akira Torizuka and delegation of Isumi Railway Co., Ltd. visited Kaohsiung Workshop Chairman Akira Torizuka of Isumi Railway Co., Ltd. led a delegation of 20 to visit Kaohsiung Workshop on 20 June for the seventh time of the “Taiwan Railway In-depth Tour”. Director Chin-Kun Hsieh of Kaohsiung Workshop received the delegation and provided them with a guided tour.
6/28	New milestone for multi-card services On 28 June, TRA completed the last phase of the e-ticket service implementation project in 35 stations between Ji'an and Jialu stations in Hualien and Taitung, and the multi-card service is now available on all mainlines. From then on, passengers can take TRA with different supported e-tickets and transit to other public transport with a fare discount to encourage citizens to take public transport. This has marked a new milestone for TRA's convenient service.

6/29	Opening ceremony of Sanxingqiao Station In support of the government's Urban Railway Rapid Transit Systematization policy, the opening ceremony of Sanxingqiao Station was held at 10 a.m. hosted by Deputy Director-General Chieh-Shen Lu in the presence of MOTC Political Deputy Minister Kuo-Tsai Wang and Hsinchu City Mayor Chih-Chien Lin. Sanxingqiao Station is located in an area with many communities and centralized population. In addition, it neighbors the Xiangshan Industrial Park and many schools, including Xiangshan Senior High School, Yuanpei University of Medical Technology, Hsuan Chuang University, and Chung Hua University. After the service begins, it will make the life of local citizens and students more convenient, disperse local traffic, and promote the prosperity and development of southern Hsinchu.
6/29	Industry-academia collaboration with Feng Chia University In support of the government's industry-academia collaboration policy and deepened Taiwan's fundamental rail education, Director-General Yung-Hui Chou and heads of the Transportation Department, Personnel Office, and Central Region units visited Feng Chia University to sign an industry-academia collaboration agreement with President Bing-Jean Lee. Apart from equipping students with technology and vocational skills, TRA hopes to develop Taiwan's rolling stock industry through industry-academia collaboration.
6/30	Inspection of Hualien and Taitung by MOTC Minister Tan Hochen. Director-General Yung-Hui Chou and related employees accompanied MOTC Minister Tan Hochen to inspect the railway construction, the scene of the Fuyuan North II level crossing, and the transit stations in Guangfu area in Hualien and Taitung. After listening to the presentation on rail temperature detection by the construction branch, MOTC Minister Hochen instructed the improvement and optimization of related items.
July	
7/1	MOTC Minister Tan Hochen personally hosted the pening ceremony of Round-Island E-Ticket Connection & iPass and EasyCard Multi-Card System At 1 p.m. in the foyer of Taipei Station, MOTC Minister Tan Hochen presided on the opening ceremony of the Round-Island E-Ticket Connection & iPass and EasyCard Multi-Card System. Legislator Bi-Ling Kuan, Director Chi-Kuo Lin of the Department of Railways and Highways, Director-General Hsing-Hua Chao of the Directorate General of Highways, Deputy Taipei City Mayor Chin-Jun Chen, Deputy Kaohsiung City Mayor Li-Ming Hsu, and Director-General Yung-Hui Chou were invited to cut the ribbon together. According to Minister Hochen, tickets of Taiwan's two leading e-ticket companies, iPass and EasyCard can be used interchangeably on KMRT and Taipei Metro. Apart from creating a new milestone in passenger services, this enables passengers to take TRA, KMRT, and Taipei Metro more conveniently to realize “across Taiwan with one card”.
7/6	Visit of Chairman Kihachiro Ikeda of Gujo Tourism Federation At 4 p.m., Deputy Director-General Ching-Da Chung and related officers received a delegation of eight led by Chairman Kihachiro Ikeda of the Gujo Tourism Federation affiliated to Nagaragawa Railway Co., Ltd. and Chief Koji Mishima of Tourism Section III, Gujo City Office, on their visit to TRA.

7/7	Groundbreaking ceremony of Fugan Base Education & Training Center At 9:30 a.m., Director-General Yung-Hui Chou presided on the groundbreaking ceremony of the Education & Training Center Building Construction Project in Fugang Base in the presence of Chairman Sheng-Ming Hsieh of the Taiwan Railway Labor Union, Director Chan-Huang Liu of the Rolling Stock Department, Director Shih-Fang Huang of the Project Construction Department, and Deputy Chief Engineer Hui-Yuan Hsu. The building was built to provide employees with a quality venue for training and experience sharing to integrate education and training with practical experience, in order to achieve the goal of from learning to practice. The building will be completed in February 2018.
7/18	Visit of Choshi Electric Railway delegation At 10 a.m., Chief Secretary Lai-Shun Chu received a delegation of five from Choshi Electric Railway Co., Ltd. led by Chairman Katsunori Takemoto and Director Takashi Kurosawa of the Promotion Department on their visit to TRA.
7/21	Completion of the roof renewal project of Taipei Station
7/22	Inspection of MOTC Minister Tan Hochen At the inspection of MOTC Minister Tan Hochen, Director-General Yung-Hui Chou and heads of offices and departments gave a presentation on the actual operations and future business policy in Conference Room 1. Apart from exchanging opinion with TRA department heads, Minister Hochen encouraged TRA employees to continue their efforts to ensure train safety and passenger service quality, in order to improve Operational Performance.
7/26	Northern Taiwan station shopping area is completed, Nangang Global Mall opens The station mall is an important model that overturns station spatial uses. At the opening ceremony of Nangang Global Mall in Nangang Station hosted on July 26 by Chairman Yu-Shan Ma of Guanhua Life Corporation, Deputy Director-General Ching-Da Chung, Director Shu-Hui Chen of the Freight Service Department, and heads of related business units were invited to the event. Upholding the belief in service innovation and sustainable operations, TRA will continue to transform stations into station malls, such as Breeze Center in Taipei Station, Global Mall in Banqiao Station, and Ruentex Songshan Station Complex. Together with Nangang Global Mall, the station mall shopping area in northern region has thus formed. As a union station of Taipei Metro, TRA, and THSR, Nangang Station is currently the most potential and highlighted station mall and expected to create revenue up to NT\$700 million.
7/27	Visit of Nichinan City deputy mayor and delegation At 1:30 p.m., Director-General Yung-Hui Chou and related offices received a delegation of seven led by Deputy Mayor Ri Ohno of Nichinan City, Miyazaki Prefecture, and Mr. Masahiro Uonaga of the Cruise Guide Office, Sports Section, on their visit to TRA.

125th anniversary of Taipei Station and opening ceremony of the landscaping project

Deputy Director-General Ching-Da Chung hosted the “125th Anniversary & Opening Ceremony of Landscaping Project” of Taipei Station in the presence of guests including Station Master Hideki Tetsuo of Osaka Station, Director Yuki Oda of the Creation Department, and Takanobu Korekawa of the Integrated Planning Department, JR West Japan; Executive Director Ichiro Oka of Breeze Center Corporation; past Taipei Station masters, former Director-General Te-Pei Chen, and former Director Chin-Sung Tsou of the Transportation Department. In the afternoon, the delegation of Osaka Station from JR West Japan visited the Pingxi Line in the accompaniment of Deputy Chief Chuan-Hsin Wang of the PR Office.

August

2nd Formosa Railroad Bento Festival 2016 for “Railway Lifestyle, Happiness of Taiwan”

To promote “Railway Lifestyle, Happiness of Taiwan”, TRA organized the “2nd Formosa Railroad Bento Festival 2016” with 12 exhibitors from Taiwan, South Korea, and Japan during the 2016 Taiwan Culinary Exhibition. Vice Premier Hsi-Yao Lin and MOTC Political Deputy Minister Kuo-Tsai Wang co-hosted the opening ceremony. Based on the theme “Happiness, Way”, TRA invited bento makers of Japan and South Korea to participate in the event. Apart from sharing railway bentos that are different from that of Taiwan and with an exotic flavor, the event enabled citizens to taste famous foreign railway bentos (boxed meal) including the “E7 Series Shinkansen Bento”, “Japanese Omotenashi Bento”, and “Fukagawa-Meshi Bento”, share railway dietary culture, feel the atmosphere of happiness, and raise the brand awareness of TRA bento.

Increasing trains for “booking and bento ordering” and improving collection convenience

The on-line bento (boxed meal) ordering service for two more Puyuma Express trains (111 and 136) on the Western Line began on August 8, making up to ten in total. In addition, ticket collection was also made available from convenience stores and post offices.

2016 Business Integrity Awareness Education & Procurement Business Reformation Seminar

To reach a consensus to promote ethical management and anti-corruption between the public and private sectors, TRA held the “Business Integrity Awareness Education & Procurement Business Reformation Seminar” hosted by Director-General Yung-Hui Chou at 2 p.m. in Conference Room 1. Managing Director Yi-Chang Yeh of Transparency International Chinese Taipei was invited as the instructor. 70 participants, including unit heads, related employees, and suppliers, attended the event. Apart from promoting the concept of business integrity, the seminar provided an important reference for TRA to reform its procurement operation through experience acquisition and sharing.

8/23	TRA-DB Engineering & Consulting Seminar At the "Rail Business and Operation Strategy Experiences from Deutsche Bahn(DB)" forum held in Conference Room 1 by and between TRA and DB Engineering & Consulting GmbH, Deputy Director-General Ching-Da Chung and department heads invited Director Yu-Fen Hung of the Accounting & Statistics Office and Research Fellow Pei-Fen Chen of the Institute of Transportation of MOTC were invited. Business Consulting Director Dirk Slodzinski of DB Engineering & Consulting GmbH was the speaker to discuss topics including railway operations strategy, improvement of ticket system, and railway innovation/smart technology development. By learning from the experience, knowledge, and technological experience of DB, we hope to provide a reference for the future operations, quality improvement, and image enhancement of TRA.
8/23	Visit of East Japan Railway Company(JR-EAST) and a delegation of magistrates of seven northeastern Japan prefectures At 9:45 a.m., Director-General Yung-Hui Chou and Deputy Director-General Chieh-Shen Lu received a delegation of 14 led by Chairman Satoshi Seino of JR-EAST and magistrates of seven northeastern Japan prefectures, including Aomori, Iwate, and Miyagi prefectures on their visit to TRA. They also visited Taiwan Railway Shop to see the sales of bentos collaborated with JR-EAST.
8/27	Sister railway agreement with Tenhama Line At Checheng Station, Deputy Director-General Ching-Da Chung, Chief Secretary Lai-Shun Chu, and Director Chin-Sung Chang of the Transportation Department represented TRA to sign sister railway agreement with Shizuoka Prefectural Councilman Heita Kawakatsu and Chairman Motoyasu Ueta of the Tenhama Line of Tenryu Hamanako Railroad for the TRA Jiji Line and Tenhama Line of Tenryu Hamanako Railroad in Shizuoka Prefecture. Nantou Magistrate Ming-Chen Lin, Foreign Relations Promoter Takashi Mita of Shizuoka Prefecture, and Hamamatsu City Mayor Yasutomo Suzuki were invited to the ceremony. In addition, to further mutual cooperation, the "free 1 day pass redemption" activity between both lines from the day of execution until 31 December 2017 was launched to promote railway travel and tourism between both lines.
8/29	Visit of Shizuoka Prefectural Councilman Heita Kawakatsu, Chairman Motoyasu Ueta of the Tenhama Line of Tenryu Hamanako Railroad, Foreign Relations Promoter Takashi Mita of Shizuoka Prefecture and delegation At 10:30 a.m., Director-General Yung-Hui Chou and Deputy Director-General Ching-Da Chung received a delegation of 13, including Shizuoka Prefectural Councilman Heita Kawakatsu, Chairman Motoyasu Ueta of the Tenhama Line of Tenryu Hamanako Railroad, Foreign Relations Promoter Takashi Mita of Shizuoka Prefecture, on their visit to TRA.
8/29	Announcement of the list of successful candidates of 2016 Railway Employment Qualification Exam In the 2016 Railway Employment Qualification Exam, a total of 799 candidates were accepted, including 585 eligible candidates and 214 additional candidates. In addition, a total of 1,158 candidates were accepted for the second round, physical strength test, of assistant dispatch, mechanical engineering, mechanical inspection engineering, and roadway maintenance engineering personnel examination.

September

9/5	New approach to historical TRA tickets in moveable type Sales of the new book <i>Crafting Train Tickets: A Cultural History of Taiwan Railways</i> began at 10 am on September 5 in all Taiwan Railway Shops (Songshan, Taipei, and Kaohsiung) and TRA Bento Store of Catering Service Department. As one of the "A Cultural History of Taiwan Railways" series, <i>Crafting Tickets</i> describes the past and present of all types of TRA tickets in Chinese and English illustrated with wonderfully reprinted photos to re-present the glorious past of TRA. The book is an ideal collectible for citizens to explore TRA tickets. At specific TRA ticket offices, the origin and the process, machine, and technology for manufacturing of the Edmondson railway ticket were illustrated and explained to record the evolution and cultural heritage of TRA tickets. Through all sales channels of Catering Service Department, we hope the public can buy the book to explore how TRA tickets played a part in Taiwan's economic development and cultural heritage.
9/8	2016 Selected Autumn And Winter 2-day and 1-night Cruise-style Express Tours 8 cruise-style express tours were launched for October to December 2016. In addition to the original popular spots including Lushui Trail, Li Chuan Aquafarm, Xiaoyeliu, and National Museum of Prehistory, we added new spots including Taroko Platform Trail, Wuhe Tourist Tea Plantation, Chinshang Pastoral Farm Resort, Jiadong Settlement, Dafu Station, Qingshui Station, Black-Faced Spoonbill Watching Area, Purple Butterfly Valley (Ecology Park), Duona High Drawbridge, Danayiku Ecology Park, Eryanping Trail, Yilan-Happiness Transit Station, Maobitou, and Guanshan Sunset to provide citizens with more options for LOHAS tours.
9/10	Opening ceremony of Fengfu Station In support of the government's seamless transport policy and for passengers to enjoy smooth transit at THSR Miaoli Station, Fengfu Station was opened. Deputy Director-General Ching-Da Chung hosted the opening ceremony and invited MOTC Deputy Minister Chih-Ku Fan, Miaoli Magistrate Yao-Chang Hsu, Legislator Chih-Jung Hsu, and THSR CEO Kung-Yeun Jeng to cut the ribbon. From then on, passengers only need a two-minute walk from Fengfu Station to THSR Miaoli Station. It is hoped that the convenience of TRA and THSR together can promote economic development of nearby areas.
9/19	Traffic dispersion for 2016 Mid-Autumn Festival long holiday and non-reserved tickets were available for all Puyuma Express and Taroko Express trains to enhance transport for typhoon Meranti During the 6-day long holiday (September 14-19) for Mid-Autumn Festival in 2016, we dispatched 197 additional trains with 729 additional cars to transport up to 2,854,612 passenger-times, with a daily average ridership at 570,922 passengers, creating revenue amounting to NT\$281,827,862, with a daily average revenue at NT\$56,365,572. As typhoon Meranti also hit Taiwan during the holiday, non-reserved tickets were available for all Puyuma Express and Taroko Express trains. As a result, trips reduced this year, with a daily average revenue reduced by 4.74% and daily average ridership increased by 0.57% YoY.
9/24	Inspection of TRA Hsinchu Station by Premier Chuan Lin Led by MOTC Deputy Minister Chih-Ku Fan and accompanied by Acting Director-General Chieh-Shen Lu, Chief Shih-Yen Ku of Taipei Transportation Branch, and Station Master Yung-Chuan Lu of Hsinchu Station, Premier Lin inspected Hsinchu Station and Hsinchu Park Regeneration Project.

9/26	iPASS small-amount payment for convenient service at Kaohsiung TRA Restaurant In response to the consumption habit change of citizens, Kaohsiung TRA Restaurant piloted the small-amount payment mechanism of iPASS for the first time on September 26 to provide citizens with more convenient services and organized a celebration event.
October	
10/3	Maiden voyage of TRA Push-Pull Tze-Chiang Limited Express painted in Spacia Express of Tobu Railway After painting the Keikyu 800 EMU in red on the anniversary of the TRA-Keikyu Corporation Agreement of Friendly Cooperation on 12 May 2016, TRA painted the Push-pull Tze-Chiang Limited Express in the shiny golden appearance of Tobu Railway's Spacia Express to further Taiwanese-Japanese railway exchange. The maiden voyage started Nangang Station on October 3 after Director-General Chieh-Shen Lu and Chairman Junjiru Nezu of Tobu Railway cut the ribbon. Apart from maintaining the agreement of friendship signed between both parties on 18 December 2015, this event started a one-year free ticket exchange scheme. To attract more Japanese visitors to visit Taiwan, Director-General Lu announced the expansion of the scope of the free ticket exchange scheme to any one of the three TRA branch lines (Pingxi, Neiwan, and Jiji), hoping to promote friendship and tourism between both parties.
10/4	MOTC 2016 Business Solicitation Conference The MOTC 2016 Business Solicitation Conference held on the 5th floor of the MOTC was organized by TRA represented by Director-General Chieh-Shen Lu under the supervision of MOTC Political Deputy Minister Kuo-Tsai Wang. The conference aimed to aggressively market and quickly and effectively match public-private partnership. Guests included Director-General Kuo-Chi Tseng of the National Property Administration, Director-General Hsiang-Lin Hu of Bureau of High Speed Rail, VP Shao-Liang Chen of Taiwan International Ports Corporation, Ltd., Director Yu-Ping Lien of the Department of Investment Services, and private enterprises including Want Want Group, CECI Engineering Consulting, Inc., and Breeze Center Corporation.
10/7	New highlight in Taipei Station: Do-Do Clock creates an image of travel with time To present the core values of safety, punctuality, service, and innovation, TRA installed an installation art called "Do-Do Clock" in the foyer of Taipei Station. Sponsored by Breeze Station Development Corporation, this clock-themed installation art was unveiled by Director-General Chieh-Shen Lu, Deputy Director-General Ching-Da Chung, Chairman Henry Liao of Breeze Station Development Corporation, and musician Eric Chen. Attractions of TRA stations were broadcast and local styles and characteristics were linked by the clock. By combining with the creativity and vigor of fashion, the clock became an attraction in the station foyer to create a warm atmosphere for travelers to keep this beautiful memory for life.
10/11	Traffic dispersion for National Day long holiday To disperse traffic during the five-day long-holiday (7-11 October 2016) for National Day, TRA increased 151 trains with 414 cars to transport 3,422,533 passenger-times, with a daily average ridership of 684,507 person-times, down by 4.25% YoY. The service created revenue amounting to 313,772,837, with a daily average of NT\$62,754,567, down by 4.52% YoY.

10/16	Opening ceremony of five elevated stations in central region with President Tsai At 10 a.m., President Ing-Wen Tsai attended the opening ceremony of five stations in the central region, including Taichung, Fengyuan, Tanzi, Taiyuan, and Daqing stations, after elevation. Director-General Allan Hu of the Railway Reconstruction Bureau and Director-General Chieh-Shen Lu of TRA hosted the ceremony in the presence of Vice President Chi-Chang Tsai of the Legislative Yuan, MOTC Minister Tan Hochen, Taichung City Mayor Chia-Lung Lin, and legislators Kuan-Heng Yen, Tzu-Yung Hung, Wan-Chien Chang Liao, Shiow-Yen Lu, Kuo-Shu Huang, Hsin-Chun Ho, Chi-Chen Chiang, Ching-Yi Lin, and Yung-Ming Hsu. To celebrate the service inauguration of the phase I of the "Taichung Metropolitan Area Railway Elevation and Rapid Transit Systematization Project, TRA issued 1,200 sets of souvenir tickets for the project service inauguration.
10/19	Visit of outstanding employee training group from East Japan Railway Company(JR-EAST) At 9 a.m., Director Chen-Chao Huang of the Administration Department received a training group of 28 outstanding employees from JR-East on their visit to TRA. After discussing and exchanging opinions, the training group visited the General Transport Dispatcher Office and Taipei Station. At noon, the group took Tze-Chiang Express train 123 to visit Hsinchu Station, a sister station of Tokyo Station.
10/20	Visit on Qidu Rolling Stock Branch of outstanding employee training group from East Japan Railway Company(JR-EAST) At 10 a.m., Chief Chang-He Tsai of Qidu Rolling Stock Branch gave a presentation to a training group of 28 outstanding employees from JR-East on their visit to the branch. Chief Tsai also explained to them related facilities in the branch and had lunch with them in the employee canteen for them to experience the real work environment of TRA employees.
10/22	Sister station agreement with TRA Hexing Station and Kofuku Station in Hokkaido At 11 a.m., in Hexing Station, Chairman Chen-Jung Chang of Hsin-Chu Industrial Society and Chairman Akio Soga of Tokachi Taiwanese-Japanese Friendly Association signed the "TRA Hexing Station and Hokkaido Kofuku Station Sister Agreement" at the signing ceremony hosted by the Hsinchu County Government in the presence of Chief Shih-Yen Ku of Taipei Transportation Branch, Hsinchu Magistrate Ching-Chun Chiu, and Obihiro City Mayor Norihisa Yonezawa to promote Taiwan-Japan exchange and spread the warmth of love and happiness.
10/25	Inspection of Shen'ao Line and Pingxi Line station projects by Director-General Chieh-Shen Lu At 9 a.m., Chief Hung-Nan Wu of Yilan Transportation Branch, Chief Yen-Tung Lo of Yilan Construction Branch, and Station Master Yi-Chung Chen of Ruifang Station accompanied Director-General Chieh-Shen Lu to inspect the overall planning of the waiting space in Badouzi and Ruifang stations of the Shen'ao Line, the Shifen station platform improvement projects, and traffic dispersion of the Pingxi Line.

10/31	<p>Inspection of the business and projects of Taichung Transportation Branch by Director-General Chieh-Shen Lu</p> <p>At 9 a.m., Chief Chen-Lin Su of Taichung Transportation Branch, Chief Chin-Liang Chang of the Taichung Construction Branch, and Manager Shuang-Jung Chang of Taichung Freight Service Office accompanied Director-General Chieh-Shen Lu to inspect the new and old access after the Taichung Railway Elevation Project, the old Changhua Railway Hospital, and the related business of all stations within branch jurisdiction.</p>
10/31	<p>Banqiao Station wins the Innovation Award for creativity and revitalization</p> <p>The Banqiao Station parking garage was an OT contract concluded in accordance with the Act for Promotion of Private Participation in Infrastructure Projects. The parking garage won the Eminent Contribution Award for its innovative operational model, software and hardware equipment improvement (smart parking guide system, cultural landscape, environment beautification, optimization of the security and fire surveillance systems, paperless operations, energy conservation and emissions reduction measures, etc.), and human concerns combining railway culture and homeless guidance program. Apart from achieving the operational goals and customer satisfaction and providing the public with quality parking services, the parking garage has improved the overall service quality and image of TRA, thus deserving the award.</p>
November	
11/2	<p>Taipei Station Multimedia wrap-up presentation</p> <p>TRA and Linkooh Technology co-organized the "Taipei Station Multimedia" wrap-up presentation hosted by Director-General Chieh-Shen Lu and VP Fang-Ming Lu of Foxconn Technology Group at the foyer Taipei Station. It was the first time to plan multimedia advertising space using 4K screens and augmented reality (AR) technology on the foyer columns, wall surface, hallways, and B1 area of Taipei Station. It is hoped that this will impress citizens with a different station image and shape different travel memories and feelings.</p>
11/5	<p>"2016 Asia-Pacific Culture Day" at Taipei Station</p> <p>The Ministry of Foreign Affairs (MOFA) organized the "2016 Asia-Pacific Culture Day" in the foyer of Taipei Station. Vice President Chien-Jen Chen presided on the opening ceremony in the presence of Foreign Minister David Lee, Minister without Portfolio Chen-Chung Deng of the Executive Yuan, TRA Director-General Chieh-Shen Lu, and Taipei Station Master Jung-Hua Huang.</p>
11/5	<p>Handshake ceremony for friendly exchange with Tobu Railway</p> <p>A delegation of 15 first-line employees of Tobu Railway Co., Ltd. visited TRA to maintain friendly exchange between both parties. The handshake ceremony took place at 4:30 pm in the foyer of Taipei Station. Taipei Station Master Jung-Hua Huang and Asakusa Station Master Shinji Ohaku made an address, exchanged souvenirs, and promote level crossing safety together.</p>
11/7	<p>Visit of outstanding employee training group from East Japan Railway Company(JR-EAST)</p> <p>At 9 a.m., Director Chen-Chao Huang of the Administration Department received a training group of 29 outstanding employees from JR-East on their visit to TRA. After discussing and exchanging opinions, the training group visited the integrated dispatch office and Taipei Station. At noon, the group took Tze-Chiang Limited Express train 123 to visit Hsinchu Station, a sister station of Tokyo Station.</p>

11/8	<p>Visit on Qidu Rolling Stock Branch of outstanding employee training group from East Japan Railway Company(JR-EAST)</p> <p>At 10 a.m., Chief Chang-He Tsai of Qidu Rolling Stock Branch gave a presentation to a training group of 29 outstanding employees from JR-East on their visit to the branch. Chief Tsai also explained to them related facilities in the branch and had lunch with them in the employee canteen for them to experience the real work environment of TRA employees.</p>
11/8	<p>Sales Chief Hideki Fukui of Railway Business Headquarters of Sanyo Electric Railway Co., Ltd. and Mr. Hideyuki Hashimoto and Mr. Akira Iwane visited TRA</p> <p>Director Chin-Sung Chang of the Transportation Department and personnel of related business received the Sales Chief Hideki Fukui of Railway Business Headquarters of Sanyo Electric Railway Co., Ltd. and Mr. Hideyuki Hashimoto and Mr. Akira Iwane on their visit to TRA to discuss the future cooperation and exchange between both parties.</p>
11/10	<p>Traffic dispersion for the Dr.Sun Yat-sen's Birthday long holiday</p> <p>To disperse traffic during the 5-day long-holiday (10-14 November 2016) for Dr.Sun Yat-sen's Birthday, TRA increased 68 trains to transport 3,593,323 passenger-times, with a daily average ridership of 718,647 person-times. The service created revenue amounting to NT\$294,488,696, with a daily average of NT\$58,897,739.</p>
11/11	<p>Hualien business inspection of Director-General Chieh-Shen Lu</p> <p>At 10 a.m., Senior Executive Officer Jun-Yao Lin and Hualien Transportation Chief Chien-Li Chang accompanied Director-General Chieh-Shen Lu to inspect the projects, business, and traffic dispersion of units in the Hualien region jurisdiction.</p>
11/11	<p>CEO Toshiomi Sakai and delegation of West Japan Railway Company(JR-West) visited TRA</p> <p>At 2 p.m., Taipei Station Master Jung-Hua Huang and employees received a delegation of 16 led by CEO Toshiomi Sakai of JR-West Japan. After a guided tour of Taipei Station, both parties exchanged opinions.</p>
11/15	<p>2nd Anti-Corruption Conference of 2016</p> <p>To reach a consensus to promote ethical management and anti-corruption between the public and private sectors, TRA held the "2nd Anti-Corruption Conference of 2016" hosted by Director-General Chieh-Shen Lu at 2 pm in Conference Room 1 to aggressively promote the concept of business integrity and ethical management, and to urge employees to abide by law and assume responsibilities.</p>
11/16	<p>Maiden voyage of painted train for awareness education of level crossing safety</p> <p>To promote level crossing safety, TRA painted an EMU700 Local Train (Alfred) for awareness education. The maiden voyage of painted train was held on platform 4 of Taipei Station on November 16. On that day, CTS anchor Yu-Chieh Chuang was invited to be the one-day conductor of maiden voyage. Lovely kindergarten students were also invited to be the guests of the voyage and participated in the quiz of the "Level Crossing Safety Education".</p>

11/17	UK-Taiwan Railway Forum Lord Faulkner, UK Prime Minister's Trade Envoy to Taiwan, led representatives of the Railway Industry Association (RIA) visited TRA and held the UK-Taiwan Railway Forum hosted by Director-General Chieh-Shen Lu in Conference Room 1, and heads of departments, such as the Rolling Stock Department also attended the forum to discuss the future development of Taiwan railways and exchanged opinions on the technological exchange and cooperation in the repair and maintenance of rolling stock, trackwork, electricity supply, and level crossings. By sharing technology and information, we hope to create a win-win situation for the cooperation and development of the railway industry between both countries.
11/25	Annual inspection of Committee on Transportation and Procurement Affairs of Control Yuan Control Yuan President Dr. Po-Ya Chang led eleven members of the Committee on Transportation and Procurement Affairs to conduct the annual inspection of the business performance of MOTC units, Nangang Station, and the Nangang Mall. The group also listened to the business briefing presented by MOTC Minister Tan Hochen. Director-General Chieh-Shen Lu and Chief Secretary Lai-Shun Chu attended the inspection.
11/26	Employee group wedding by EWC The TRA Employee Welfare Committee (EWC) organized the "2016 Group Wedding" in the multifunctional performing hall of Taipei Station for 31 couples, and nine couples of them were TRA employees. In the ceremony, Director-General Chieh-Shen Lu was the witness, Deputy Director-General Ching-Da Chung was the officiator, and Chairman Wen-Cheng Chang of the Taiwan Railway Labor Union was the matchmaker. New couples were given presents including a "golden shovel" and a "penetration stone" to wish them "success in pregnancy", "have a dear child soon", and starting a new life.
11/28	Visit of Isumi Railway delegation on Hualien Rolling Stock Branch At 9:30, Chairman Akira Torizuka of Isumi Railway Co., Ltd. led a delegation of 20 to visit Hualien Rolling Stock Branch for the Hualien Rolling Stock Branch. It was the eighth time of the "Taiwan Railway In-depth Tour". time of the "Taiwan Railway In-depth Tour". Chief Chi-Tsai Lai of Hualien Rolling Stock Branch received the delegation and explained to them the operation of the branch.
11/29	Visit of Shikoku Railway Company(JR-Shikoku) delegation on TRA At 10 a.m., Chief Secretary Lai-Shun Chu and staff of the Transportation Department, Rolling Stock Department, and Catering Service Department received a delegation of three led by Director Masuo Saito of the Passenger Promotion Strategy Office and Director Morita of JR-Shikoku in the Conference Room 2. Both parties to discuss the related affairs of the "Taiwan-Japan Tourism Forum" held in Shikoku, Japan, in June 2017, in order to promote the railway business and develop railway tourism strategies together.
11/30	Inspection of transport and tourism infrastructures in Kaohsiung of Legislator Kun-Tse Lee MOTC Minister Tan Hochen, RRB Director-General Hsiang-Lin Hu, TRA Director-General Chieh-Shen Lu, Chief Wen-Chuan Chen of Kaohsiung Transportation Branch, and Kaohsiung Station Master Hui-Chu Shang Kuan accompanied Legislator Kun-Tse Lee of the Transportation Committee, Legislative Yuan, on his inspection of the transport, railway underground project, and tourism infrastructure in Kaohsiung.

December	
12/5	Visit of outstanding employee training group from East Japan Railway Company(JR-EAST) At 9 a.m., Director Jung-Chin Wu of General Transport Dispatcher Office received a training group of 29 outstanding employees from JR-East on their visit to Integrated Dispatch Headquarters on their visit to Integrated Dispatch Headquarters. At 11, Taipei Station Master Jung-Hua Huang received the group on their visit to Taipei Station. After explaining related business to them, TRA took the group visit Hsinchu Station, a sister station of Tokyo Station.
12/6	Visit on Qidu Rolling Stock Branch of outstanding employee training group from East Japan Railway Company(JR-EAST) At 10 a.m., Chief Chang-He Tsai of Qidu Rolling Stock Branch gave a presentation to a training group of 29 outstanding employees from JR-East on their visit to the branch. Chief Tsai also explained to them related facilities in the branch.
12/8	Director-General Chieh-Shen Lu attended 2016 CIT Conference The 2016 CIT Conference organized by Chinese Institute of Transportation was held in Farglory Hotel Hualien. MOTC Minister Tan Hochen delivered the keynote speech. MOTC Deputy Minister Chih-Ku Fan hosted the plenary session "Hualien & Taitung Rail Transport—Operations", Director-General Chieh-Shen Lu presented a report on behalf of TRA.
12/8	Visit of Keikyu Corporation delegation At 10:30, Deputy Director Kun-Yen Peng of the Transportation Department and staff of the Transportation Department, Catering Service Department, and General Affairs Department received a delegation of four led by Chairman Ninju Akita and Ms. Chizuko Kumatani of Keikyu Corporation on their visit to TRA. Then, they discussed the joint marketing and publicity strategies.
12/13	Visit of Kintetsu Group Holding Co.,Ltd. delegation At 2 p.m., Director-General Chieh-Shen Lu and department heads received a delegation of four from Kintetsu World Express, Inc. (KWE), including Managing Director Yoneda Akimasa, President Kouichi Sakamoto, AM Toshihiro Hirao, and General Affairs Yi-Hsien Fang.
12/15	Visit of Ichibata Electric Railway delegation At 10 a.m., Director-General Chieh-Shen Lu and department heads received a delegation of six led by CEO Nobuyoshi Yoshida and Acting Transport Section Chief Manabu Kato of Ichibata Electric Railway and CEO Masumi Takeda of Ichibata Park on their visit to TRA. In the following day, they visited Ershui Station of the Jiji Line. Taichung Transport Section Chief Hsien-Tang Lin gave them a full guided tour.
12/21	Express trains increase on-line booking with bento ordering service on Western Line and South-Link Line To improve train and service quality, TRA increased 40 express trains for on-line booking with bento ordering service. From December 21, apart from the original 10 express trains running on the Eastern Line, we provided the service for 40 trains running on the Western Line and South-Link Line to serve up to 50 trains every day. In addition, the on-line booking with bento ordering service was also available at convenience stores to make service more convenient for travelers.

12/27

Inauguration of elevated tracks 1 and 4 of phase III of the Shoufeng Station Railway Elevation Project

After the dual-track elevation between Shoufeng Station and Nanping Station on 26 August 2015, travel time was shortened by 3-5 minutes, and route capacity raised by 4.5%. Phase III of the elevation project, tracks 1 and 4 of Shoufeng Station, was completed and started operations on December 27, becoming the first elevated station in the Hualien and Taitung areas, raising the route capacity of the Taitung Line, reducing flooding in nearby areas, and balancing development of the front and rear sides of the station.

12/27 Extension of "Do-Do Clock" in Banqiao, Nangang, and Xinzuoing stations

After the success in passenger attraction of installation art "Do-Do Clock" in Taipei Station foyer, we launched further cooperation with the contractor to install the "Do-Do Clock" in Banqiao, Nangang, and Xinzuoing stations in the concept of "travel around the clock", and all clocks were inaugurated on December 27. By linking the charm and characteristics the local attractions of TRA stations, the clock enables travelers to keep the warm atmosphere of TRA stations and a beautiful memory in life.

12/28 Opening ceremony of New Badouzi Station

"Duoliang in the south and Badouzi in the north" are the most beautiful stations spreading across the internet. At 10 a.m., Deputy Director-General Hsien-Lin He hosted the maiden voyage in Ruifang Station in the presence of Legislator Shih-Ying Tsai and Keelung City Mayor Yu-Chang Lin. The 4.7km-long Shen'ao Line links Haikeguan Station and Badouzi Station. Badouzi is an unattended station equipped with the multi-card system to facilitate passenger uses. In addition, we issued 1000 sets of Badouzi Station Souvenir Ticket in limited edition.

12/30 Opening ceremony of Toucheng Station after reconstruction

The reconstruction of Toucheng Station was completed and the opening ceremony was held on December 30. At 11 a.m., Director-General Chieh-Shen Lu hosted the ceremony in the presence of MOTC Minister Tan Hochen, Legislator Ou-Po Chen, Yilan Magistrate Tsung-Hsien Lin, and head of Toucheng Town Chien-Shun Tsao. The reconstruction features a brick archway and the arch bridge image of the station front driveway for citizens to feel the yesteryear charm of Toucheng Old Street. The expanded foyer and new accessible toilets and breastfeeding room even upgrade the service quality of Toucheng Station.



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