APPENDIX 8

MATERIALS RELATED TO "CHAPTER 8 PRELIMINARY DESIGN OF STATION AND STATION PLAZA"

8.1 Preliminary Design of Station Facilities

8.1.1 Examination of the Outline Plan for Improvement of Monumento Station (LRT Line 1)

●Preliminary Plan of Facilities Improvement at Monumento Station

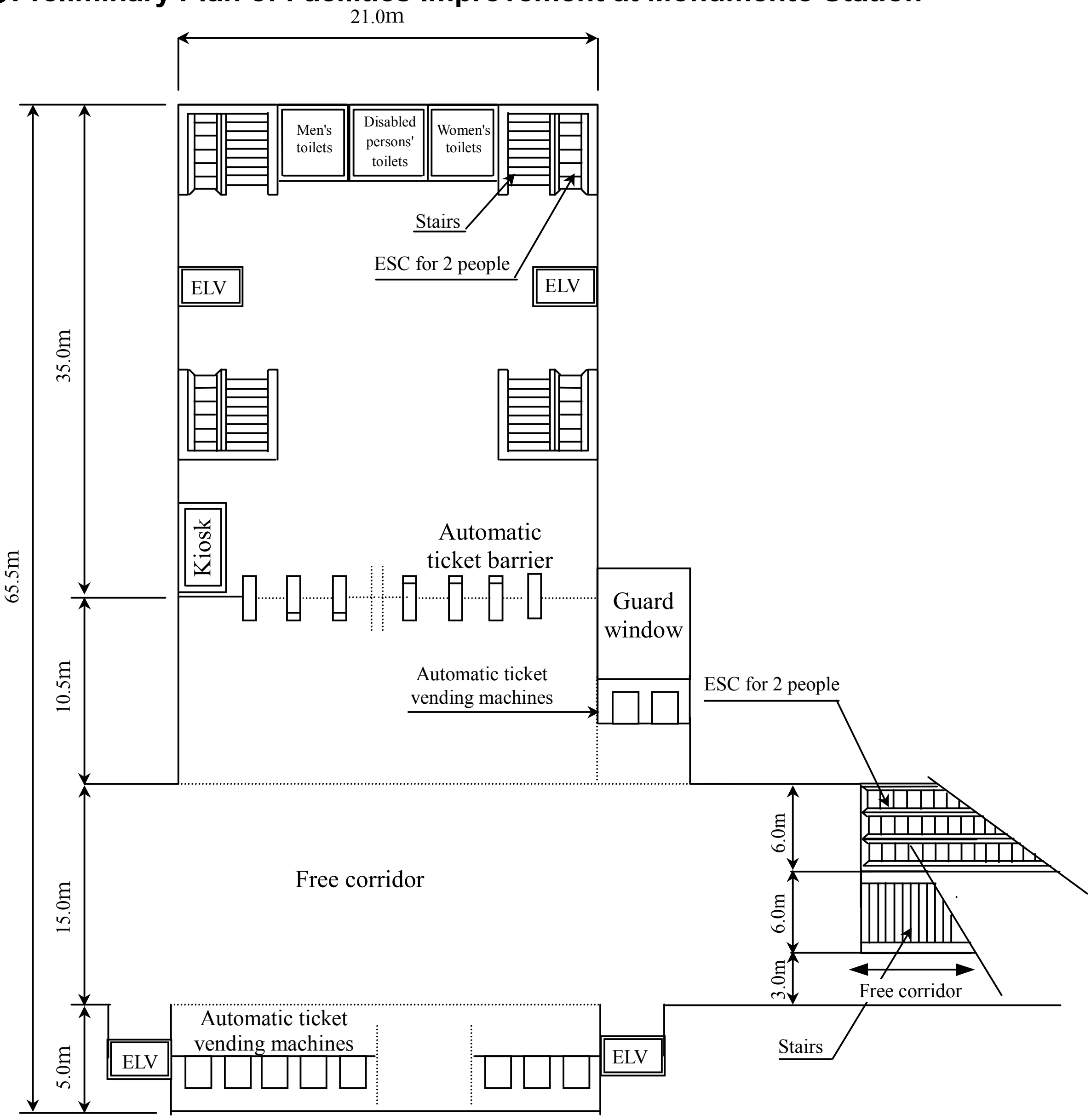


Fig. 8.1.1 Preliminary Plan of Facilities Improvement at Monumento Station

●Scope of Demolition at Monumento Station

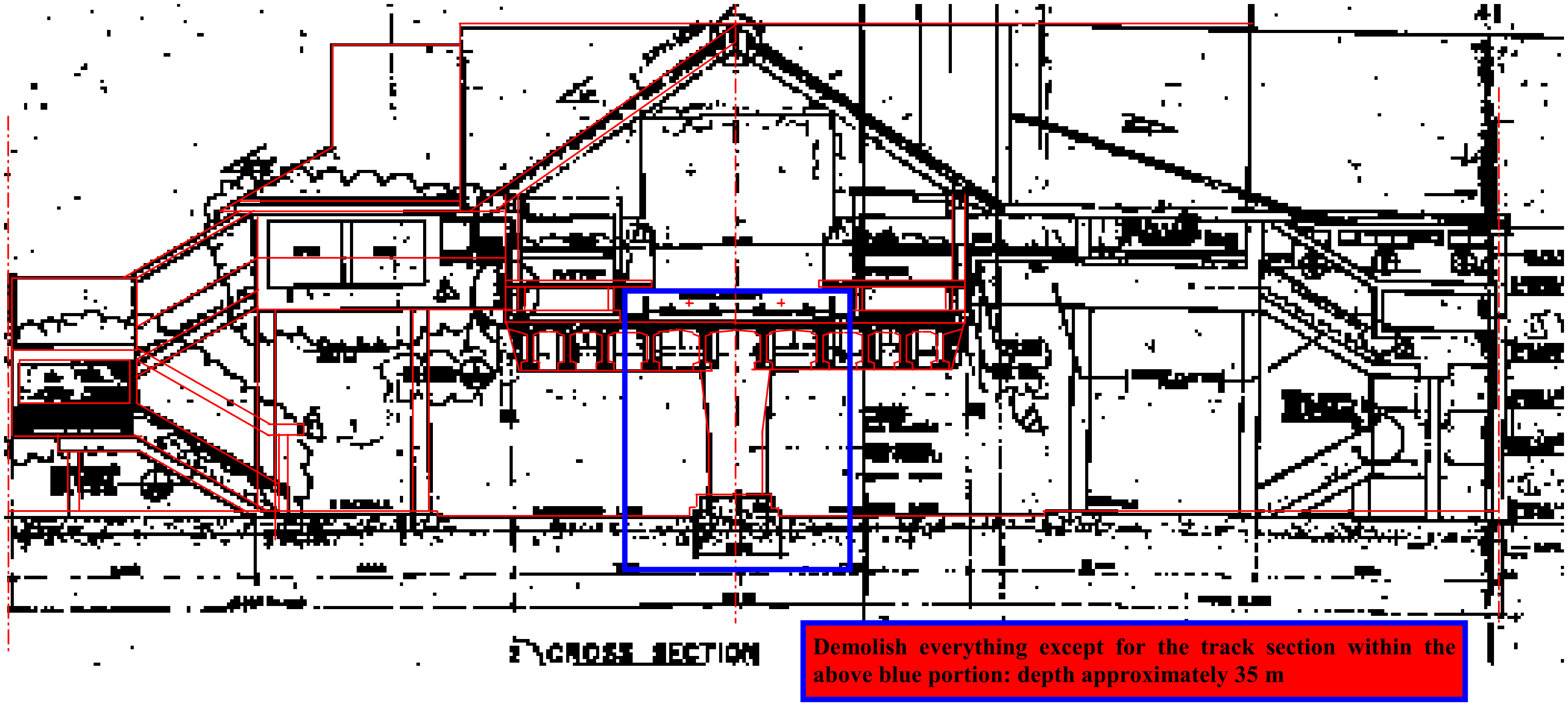


Fig. 8.1.2 Scope of Demolition at Monumento Station

●Monumento Work Procedure Drawing (present)

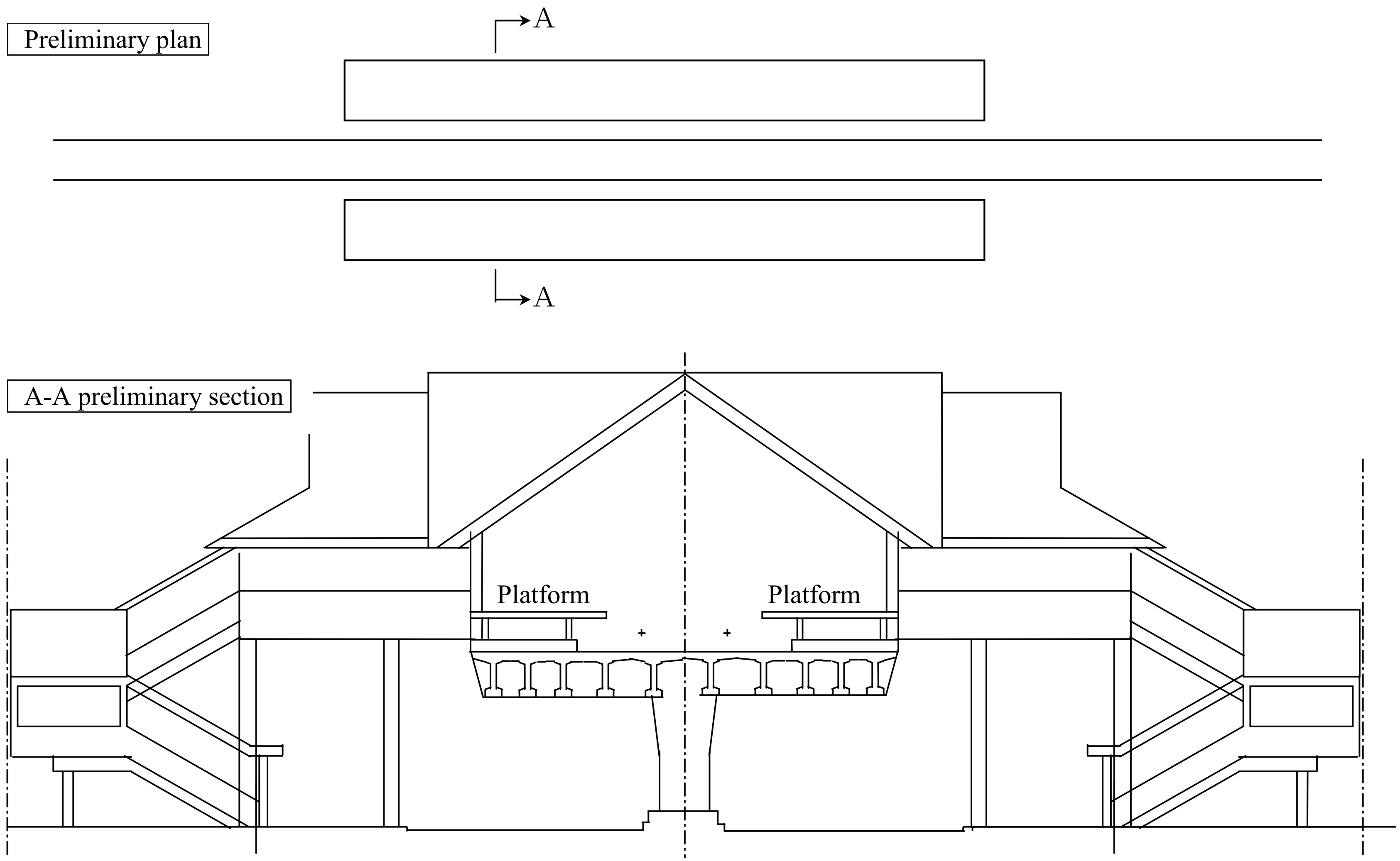
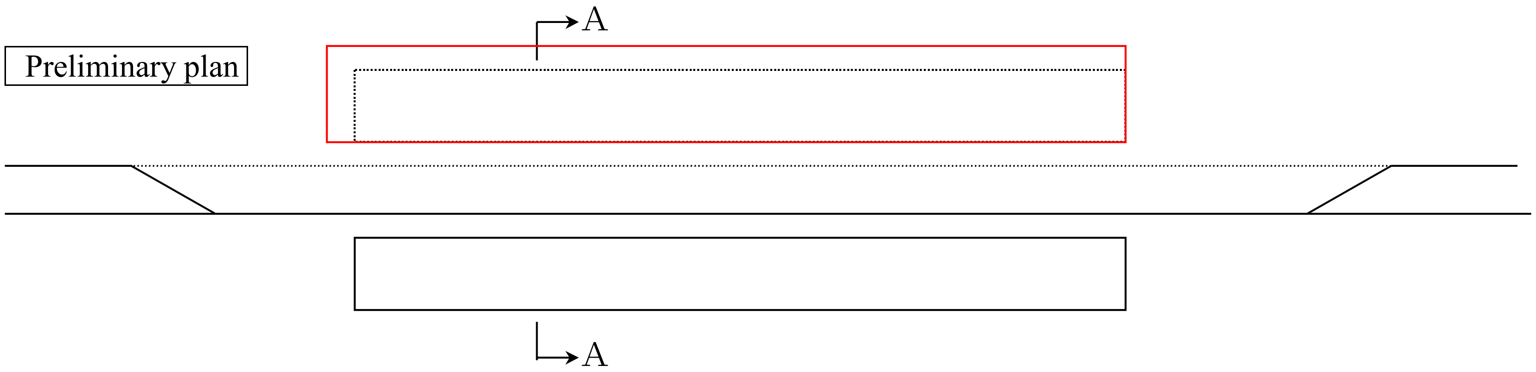


Fig. 8.1.3　Monumento Work Procedure Drawing

●Monumento Work Procedure Drawing (first stage)

Install turnouts at both ends of Monumento Station and conduct single track (single platform) operation. Remove the west side platform and stair sections, etc. and construct the new structures (red).

Preliminary plan



A-A preliminary section

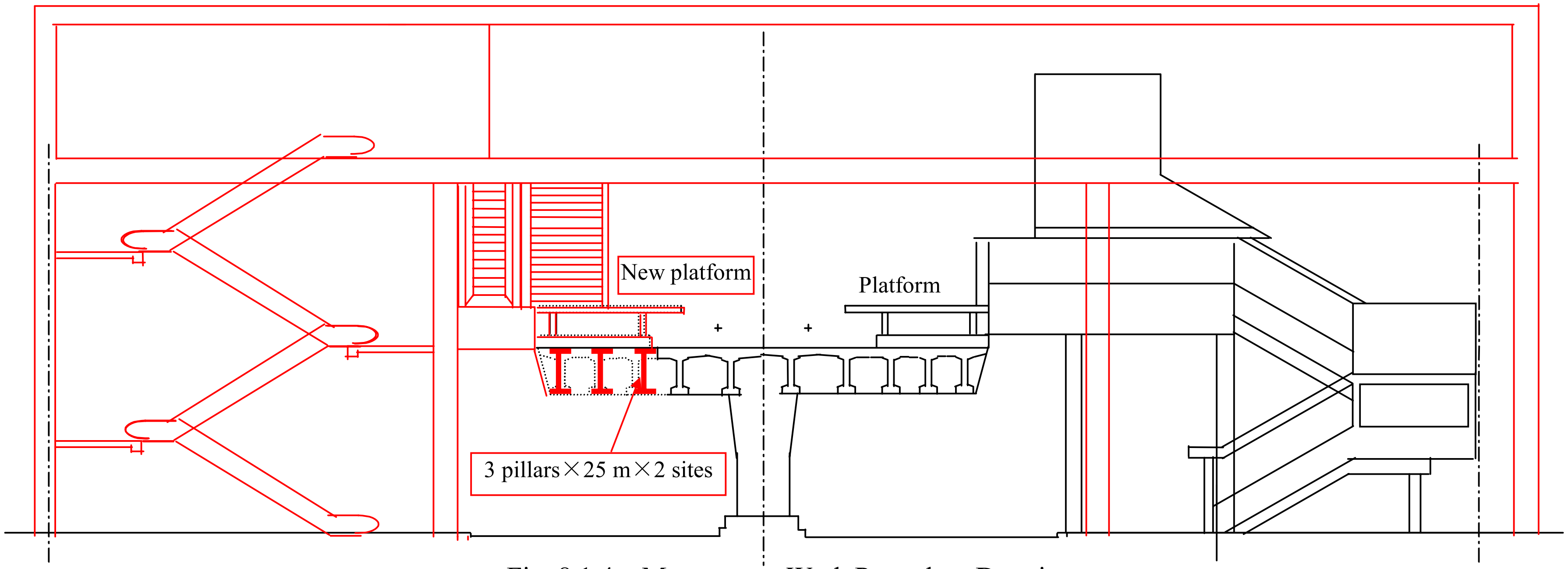


Fig. 8.1.4 Monumento Work Procedure Drawing

●Monumento Work Procedure Drawing (second stage)

Install turnouts at both ends of Monumento Station and run trains over the new structure single track (single platform) line (blue). Remove the east side platform and stair sections, etc. and construct the new structures (red).

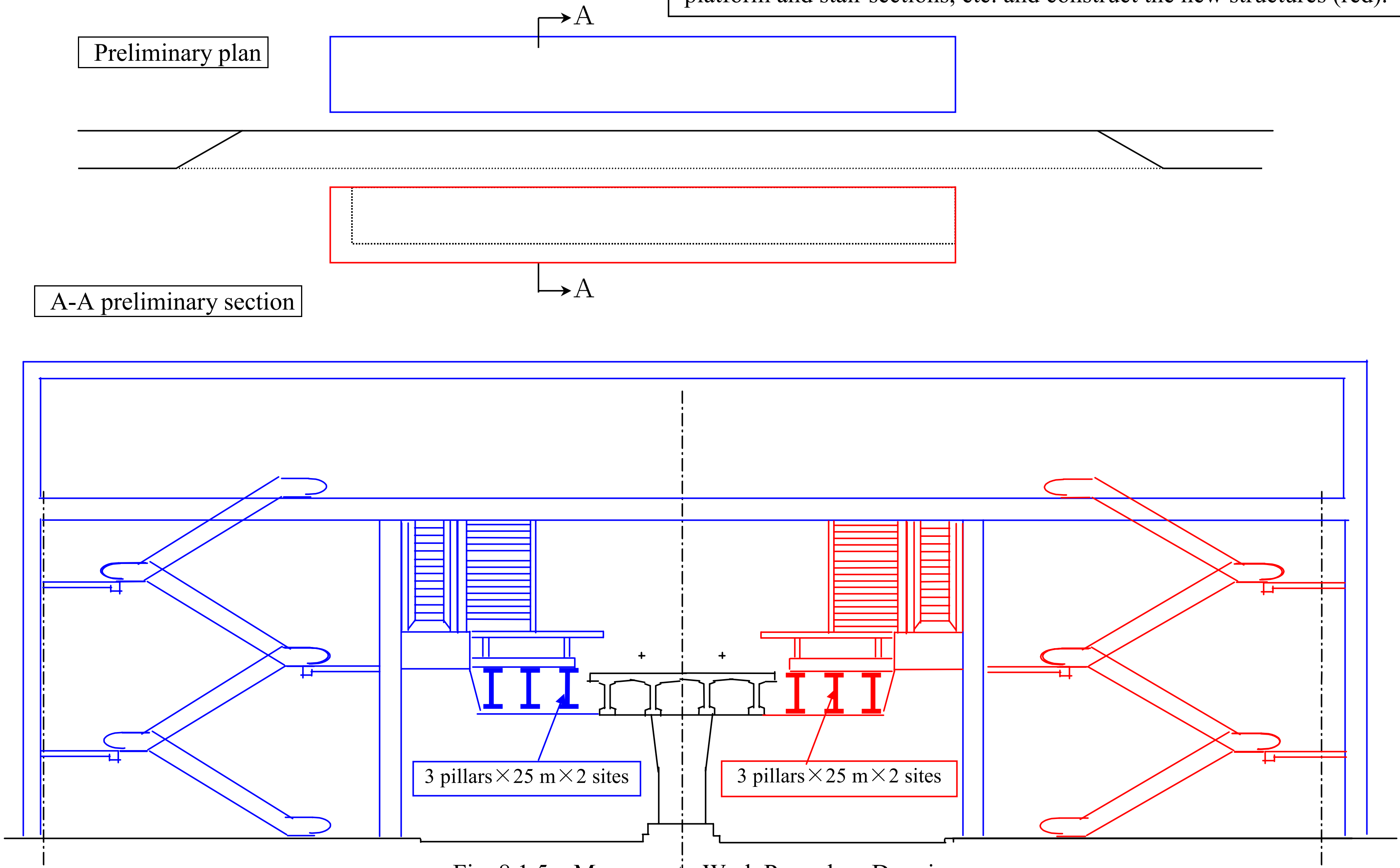


Fig. 8.1.5 Monumento Work Procedure Drawing

8.1.2 Plan for Construction of Magallanes Station (NR/MCX) (Platform: Island Type)

1. Particulars of Magallanes Station Construction Plan

In planning the station passenger facilities, calculation shall be carried out upon setting the particulars of each facility.

(1) Projection of Future Users at Magallanes Station

Based on various data such as future population in the area around the station, the projected number of users at Magallanes Station (in 15 years) is approximately 133,700 boarding and alighting passengers per day. Projected numbers of passengers traveling in each direction per hour during the rush hour are as shown below. Moreover, the rush rate shall be 13%.

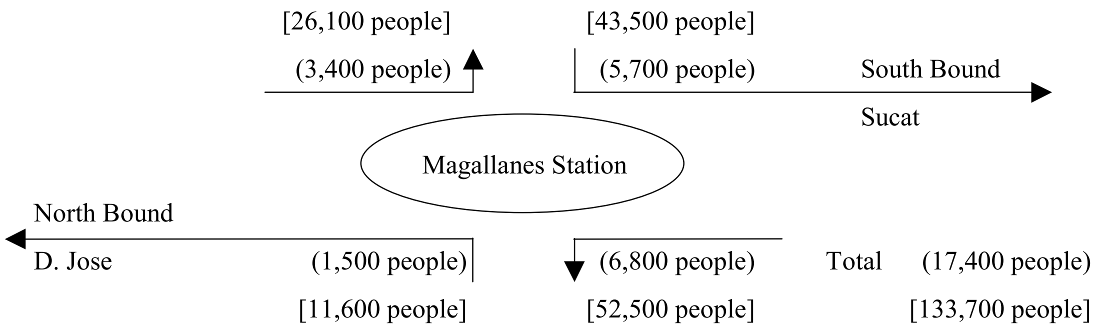


Fig. 8.1.6 Future Boarding and Alighting Passengers at Magallanes Station (hourly in rush hour) [per day]

(2) Future Operating Plan

The hourly number of trains during rush hour shall be 18 each in the southbound and northbound directions, and each train shall consist of 10 electric cars.

(3) Track Structure and Work Conditions

Track structure in the area of new Magallanes Station construction is indicated below.

1) Track gradient: level

2) Distance between track centers: 4.0 m or more

Work conditions: considering that the existing PNR Magallanes Station will keep operating while the new Magallanes Station is being constructed, insert simple turnouts before and after PNR Magallanes Station and adopt single track operation (single platform) around the station.

(4) Passenger Facilities

1) Station building : ground station
2) Platform : island type, platform length R. L. - 1,100 mm, distance between track center and platform edge 1,485 mm
3) Track and platform level : B1

(5) Outline Plan of Station Facilities

1) Calculation of platform width

Platform width shall be calculated based on future boarding and alighting passengers assuming that 10-car trains arrive and depart simultaneously in the southbound and northbound directions.

Therefore, required platform width = required platform width on the southbound side + required platform width on the northbound side.

① Required platform width on southbound side (Magallanes→Sucat)

- $B = B_1 + B_2 + \gamma$
  $= 0.2 \times (P_a/n)^{1/2} + 2P_b/31n + \gamma$

B : platform width
B_1 : width occupied by passengers waiting to board trains
B_2 : width occupied by passengers alighting from trains onto the platform
γ : necessary width for pillars and train refuge, etc.
Refuge width: 0.8 m Pillars: 0.7 m
$B_2 = 2P_b/31n$ (case of $P_b/n < 6.4$ ln) or $13n/3$ (case of $P_b/n > 6.4$ ln)
P_a : peak boarding passengers per train (assuming an average of 1 electric train per hour during rush hour)

5,700 people/18 trains 320 people

P_b : peak alighting passengers per train (assuming an average of 1 electric train per hour during rush hour)

3,400 people/18 trains 190 people

l : 1 train length = 20 m

n : cars per train = 10 cars

From the above $P_b/n = 190/10 = 19 < 6.4ln = 6.4 \times 20.0 \times 10 = 1{,}280$

Therefore: $B_2 = 2P_b/3ln$

$= 0.2 \times (320/10)^{1/2} + 2 \times 190/(3 \times 20.0 \times 10) + 0.8 + 0.7$ 3.3 m

② Required platform width on northbound side (Magallanes→D. Jose)

- $B = B_1 + B_2 + \gamma$

$= 0.2 \times (P_a/n)^{1/2} + 2P_b/31n + \gamma$

P_a = 1,500 people/18 trains 80 people

P_b = 6,800 people/18 trains 380 people

$P_b/n = 380/10 = 38 < 6.4ln = 6.4 \times 20.0 \times 10 = 1{,}280$

Therefore: $B_2 = 2P_b/3ln$

$= 0.2 \times (80/10)^{1/2} + 2 \times 380/(3 \times 20.0 \times 10) + 0.8 + 0.7$ 3.3 m

③ Required platform width = ①required platform width on southbound side + ②required platform width on northbound side

= 3.3 + 3.3 = 6.6 7.0 m

2) Calculation of platform width (calculation from structures on platforms, etc.)

In addition to the calculations indicated in 1), since platform width is also sometimes computed from the width of stairs and escalators on platforms and the distance between these structures and platform edges, examination of these items is carried out.

Required platform width:

- Distance with pillars on platforms shall be 1 m or more
- Distance with overpasses and underpasses, etc. shall be 1.5 m or more.

Therefore, on separate platforms, minimum distances will be as follows (see figure):

Platform width = 1.5m + maximum width of structures on platforms

However, from the viewpoint of wheelchair use and safety, a minimum distance of 2.0 m is desirable, in which case the following expression will be adopted:

Platform width = 2.0m + maximum width of structures on platforms

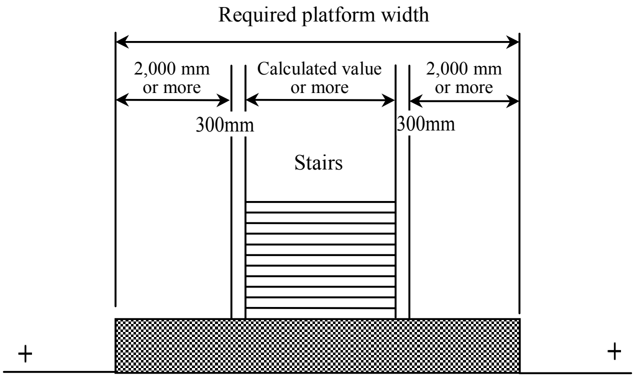


Fig. 8.1.7 Platform Width in Stairs Section

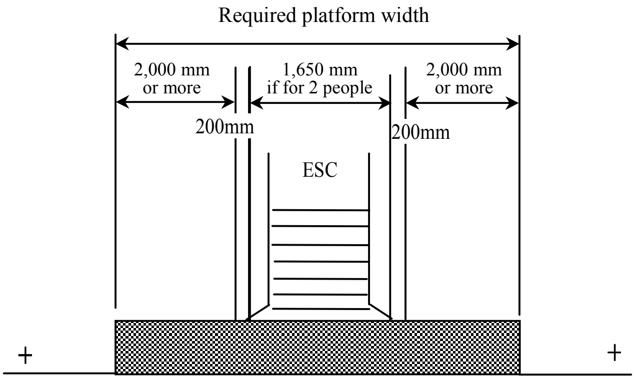


Fig. 8.1.8 Platform Width in ESC Section

① Maximum width of structures on platforms

a) Calculation of stair width and escalator width

i) Calculation of effective width of stairs and escalators

Calculate from the projected number of boarding and alighting passengers (per hour during rush hour) = 17,400 people. It shall be assumed that 1 stairs (also for use in emergencies) and 2 escalators (1200 type, for 2 people, one escalator each going up and down) are installed on the platform.

○ 2 escalators (1200 type, for 2 people, one escalator each going up and down)

Boarding and alighting passengers: Transportation capacity of escalators: 6,750×2 units = 13,500 people/hour

○ Stair width

Necessary stair width (17,400 - 13,500 people/hour)/1,500 people/hour = 2.6 m > Minimum width 1.5 m

ii) Stair walls, handrail walls, etc.   0.6 m

iii) Maximum width of structures on platforms (decided according to the stair section)

= Stair width + stair wall, handrail wall, etc.
= Stair width 2.6 m + 0.6 m = 3.2 m

iv) Platform width

Platform width = 2.0×2 + maximum width of structures on platforms
= 4.0 + 3.2 = 7.2   7.5 m

3) Calculation of platform length

Platform length = rolling stock length × number of cars + overrun allowance
= 20.0 m×10 cars + 10 m = 210 m

4) Required number of ticket barriers

Since passenger flow within stations often becomes blocked at ticket barriers, it is necessary to install enough ticket barriers to prevent this from happening.

The required number of ticket barriers is calculated from the number of boarding and alighting passengers and passing speed at the most congested time.

[Manned ticket barriers]

$$N = \frac{1}{T}\left(\frac{n_1}{P_1} + \frac{n_2}{P_2}\right) + A$$

N : number of ticket barriers
T : 1 hour (3,600 seconds)
n_1 : boarding passengers per hour at most congested time
n_2 : alighting passengers per hour at most congested time
P_1 : passing number of boarding passengers per unit hour (1.0 person/second)
P_2 : passing number of alighting passengers per unit hour (1.0 person/second)
A : standby barriers, 1 or more (depending on station conditions)

[Automatic ticket barriers]

$$N = \frac{n_1}{40 \times S} + \frac{n_2}{40 \times S} + A$$

N : number of automatic ticket barriers
n_1 : boarding passengers per S minutes at most congested time
n_2 : alighting passengers per S minutes at most congested time
40 : passing number of boarding passengers per one minute
S : More congested time (depending on line condition)
A : standby barriers (depending on station conditions)

Since automatic ticket barriers basically operate in a single direction, when calculating the required number of barriers, it is necessary to take other times into consideration.

Here, examination is based on the number of boarding and alighting passengers per hour during rush hour in consideration of the peak rate.

[Calculation]

Rush boarding passengers per hour 5,700 + 1,500 = 7,200 people
Rush alighting passengers per hour 3,400 + 6,800 = 10,200 people

Manned barriers Na = 1/3,600×(7,200/1.0+10,200/1.0)+1 = 4.9+1 6
Automatic barriers Nb = 7,200/(40×60)+10,200/(40×60)+1 = 3+4.3+1 9

Therefore: In case of manned barriers: 6 barriers
In case of automatic barriers: 4 in, 5 out, 9 in total are required

5) Ticket issue facilities

Ticket issue facilities are divided into ticket windows and automatic vending machines, etc. However, it is preferable that short distance boarding tickets (inexpensive tickets) be purchased from vending machines.

[Required number of automatic vending machines]

$$N = \frac{n}{0.0333 \times n + 667}$$

N : required number of vending machines

n : estimated total number of sold tickets

= daily number of boarding passengers (southbound 43,500 + northbound 11,600) × 0.5 (estimate here: purchase rate of tickets on the day)

= 55,100 × 0.5 27,600 tickets

= 27,600/(0.0333 × 27,600 + 667) 17.4 18 units

[Number of ticket windows]

$$N = \frac{n \times 1.5}{\text{Tickets sold per hour} \times \text{effective time}}$$

N : required number of ticket windows

n : estimated total number of sold tickets = 27,600 tickets

= 27,600 × 1.5/(200 × 16) 13 windows

Since the purchase rate of tickets on the day is 50% and the numbers of automatic ticket vending machines and ticket windows are high at 18 and 13 respectively, it will be necessary to take steps (utilization of season tickets and coupon tickets, etc.) to cut down on the sale of tickets on the day.

6) Calculation of width of free corridors, stairs and escalators

① Width shall be 1.5 m or more in order to avoid hindrance to the smooth flow of passengers.

② The basis for calculation of width shall be 1 m per 2,000 people/hour.

The future projection of boarding and alighting passengers is 17,400 people (per hour in rush hour), but it is imagined that the number of station users passing thpreliminary will be 10% of this figure. Moreover, the utilization rate of station front and rear entrances shall be 7:3.

Therefore, calculation of the number of front entrance users and width of the free corridor is carried out.

① Number of front entrance users

Front entrance users (per hour during rush) = future boarding and alighting passengers (per hour during rush)×use rate + number of people passing thpreliminary

= 17,400×0.7 + 17,400×0.1 13,900 people

② Calculation of free corridor width

Calculation of free corridor width = users (per hour during rush)/2,000 people/H/m

= 13,900 people/2,000 people/H/m 7.0=7.0 m

7) Ticket windows and ticket barriers plan, and calculation of concourse area

Concourse area (outside the inner compound) is calculated using the following expression by totaling the area in front of ticket windows and the flow area.

A = U + T

A : required area

U : area in front of ticket windows

T : flow area

① Area in front of ticket windows

Area in front of ticket windows is the space required for boarding and alighting passengers to purchase boarding tickets, etc. This is refuge area necessary for people waiting to purchase tickets.

- $U = B_1 \times L_1$

B_1: total width of ticket windows

L_1: depth in front of ticket windows (3 m is assumed as standard)

a) Case of automatic ticket vending machines

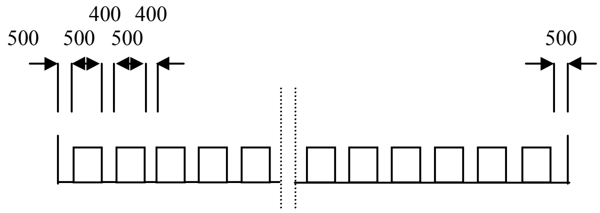


Fig. 8.1.9 Preliminary Plan of Automatic Ticket Vending Machines

B_1: required number of automatic ticket vending machines
= 18 (from (5) 5) ticket issue facilities)

$B_1 = 18 \times 0.5 + (18 - 1) \times 0.4 + (0.5 + 0.5) = 16.8 \quad 17.0$ m
$= 17.0 \times 3.0 = 51.0$ m^2

b) Case of ticket windows

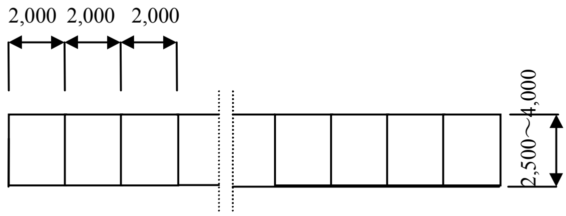


Fig. 8.1.10 Preliminary Plan of Ticket Windows

B_1: number of ticket windows
= 13 (from (5) 5) ticket issue facilities)

$B_1 = 13 \times 2.0 = 26.0$m
$= 26.0 \times 3.0 = 78.0$ m^2

② Flow area

Flow area is the concourse area required for the flow of boarding and alighting passengers.

- $T = B_2 \times L_2$

B_2 : flow width (however, minimum width shall be 4 m)
$B_2 = (L_3 \times N) + B_3$
L_3 : unit width of ticket collection windows
N : calculated number of ticket collection windows

In case of automatic passage from the required number of ticket windows in (5) 4), 4 entry, 5 exit = 9 total shall also serve as guard windows: $L_3 \times N$ = 1.0 m × 8 units + guard window 1.15 m　9.2 m

B_3 :　flow width correction value 2 m

= 9.2 m + 2 m = 11.2 m　12.0 m

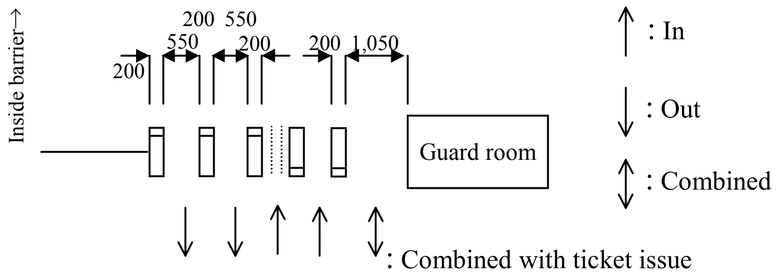


Fig. 8.1.11　Preliminary Plan of Automatic Barrier

L_2 : depth in front of ticket collection windows

L_2 shall be 3 m as standard, and depth in front of ticket collection windows shall be 0.5 B_2 or more.

3 m < 0.5 B_2 = 0.5 × 12.0 = 6.0 m

= 12.0 m × 6.0 m = 72.0 m^2

(Notes)

This examination of station facilities is based on the outline manual of station planning, and dimensions of facilities are calculated from generally adopted figures in Japan.

●Preliminary Plan of Magallanes (NR/MCX) Station Facilities

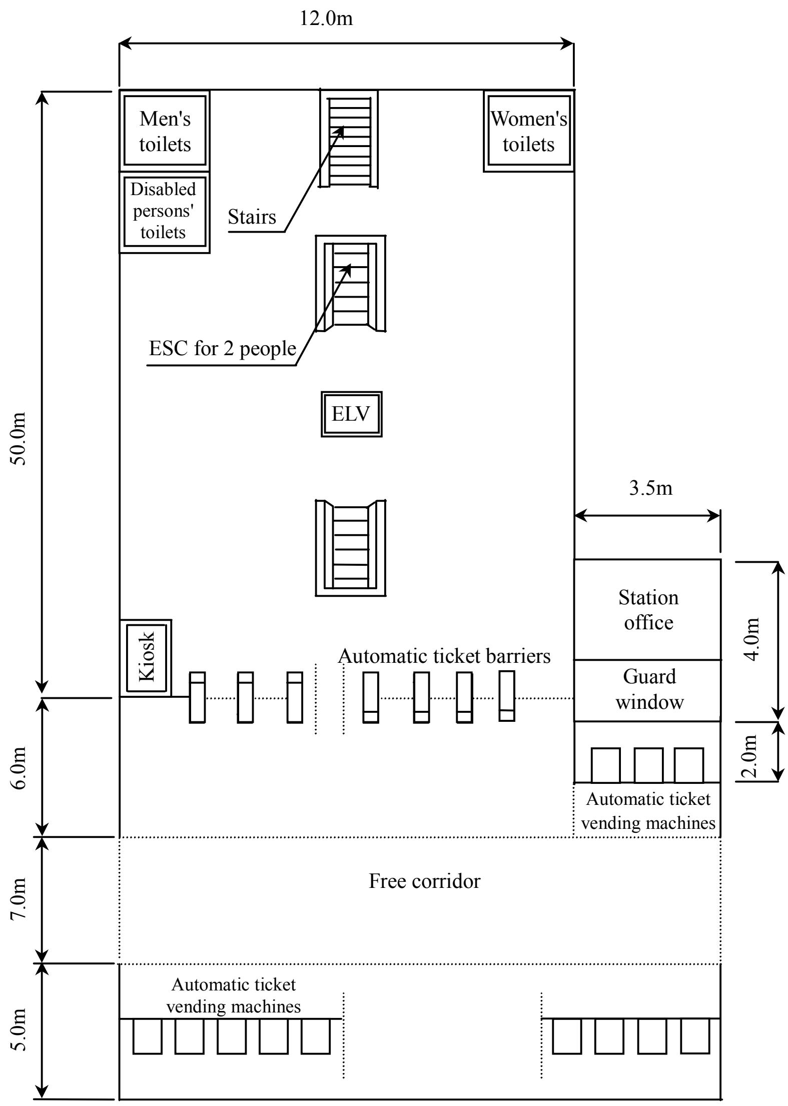


Fig. 8.1.12　Preliminary Plan of Magallanes Station Facilities

●Top View of PNR Magallanes Station

(The following diagram indicates preliminary dimensions, but the structure of foundations is unknown).

In the case where Magallanes Station is constructed underground (width 16.5 m) in the manner shown in the following diagram, in order to carry out sheathing works to enable excavation, there is a risk of interference with road bridge pillars (net interval 17.2 m). In future, detailed survey and design of the foundation structure will be necessary.

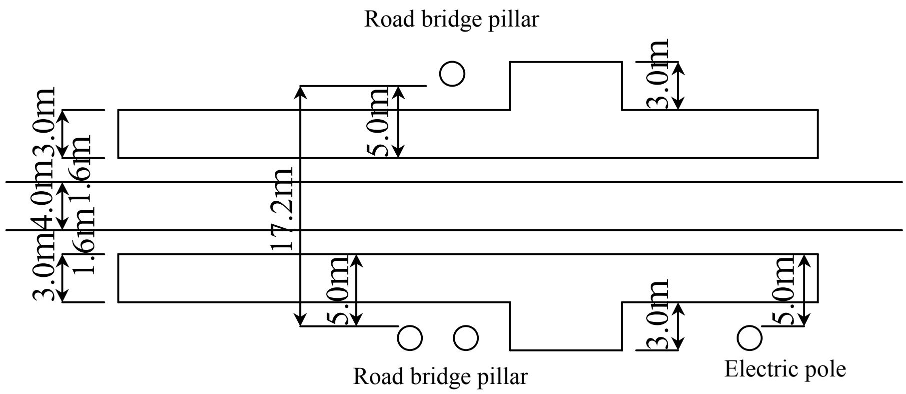


Fig. 8.1.13 Top View of PNR Magallanes Station

●NR/MCX Magallanes Station Work Procedure Drawing (first stage)

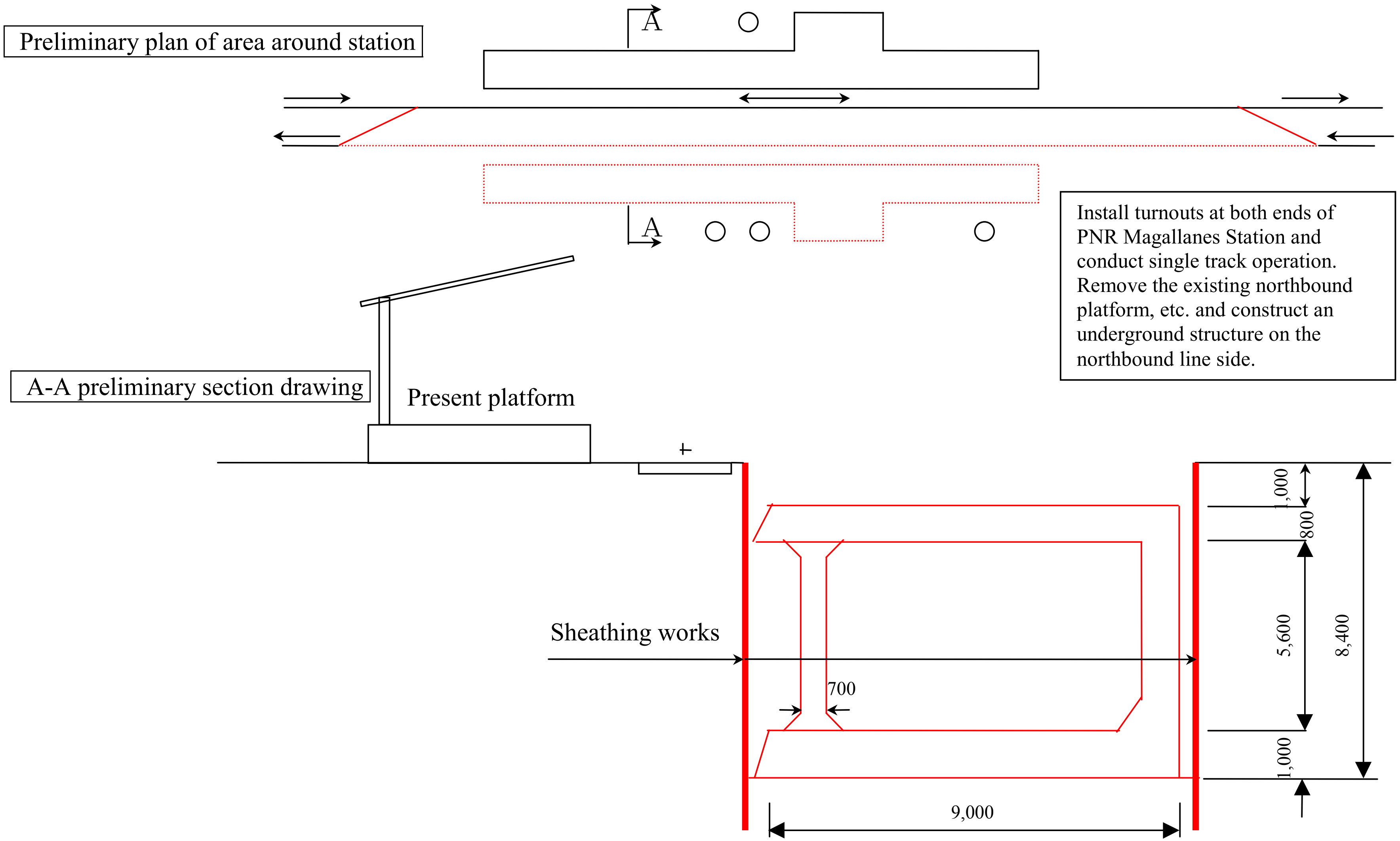
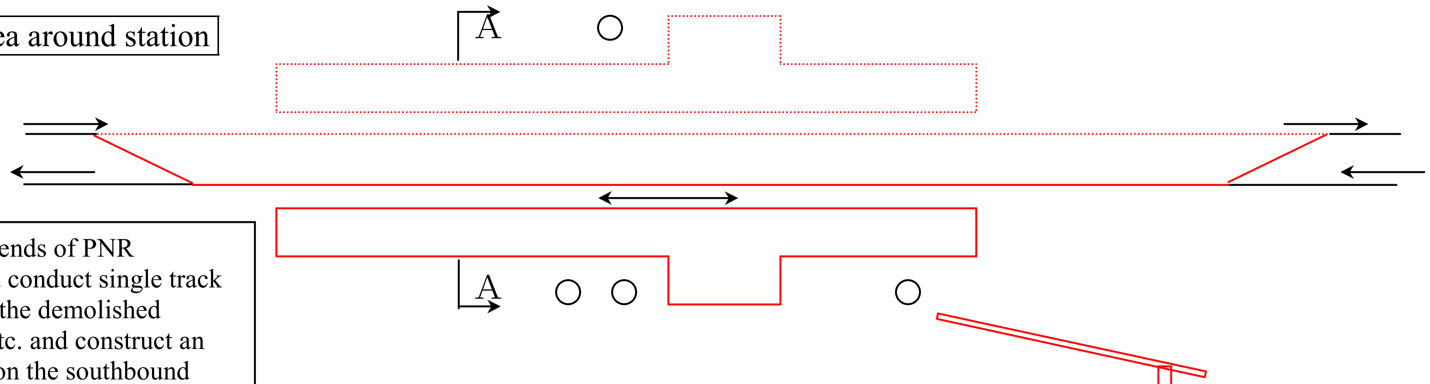


Fig. 8.1.14 NR/MCX Magallanes Station Work Procedure Drawing

●NR/MCX Magallanes Station Work Procedure Drawing (second stage)

Preliminary plan of area around station



Install turnouts at both ends of PNR Magallanes Station and conduct single track operation. Reconstruct the demolished northbound platform, etc. and construct an underground structure on the southbound line side.

A-A preliminary section drawing

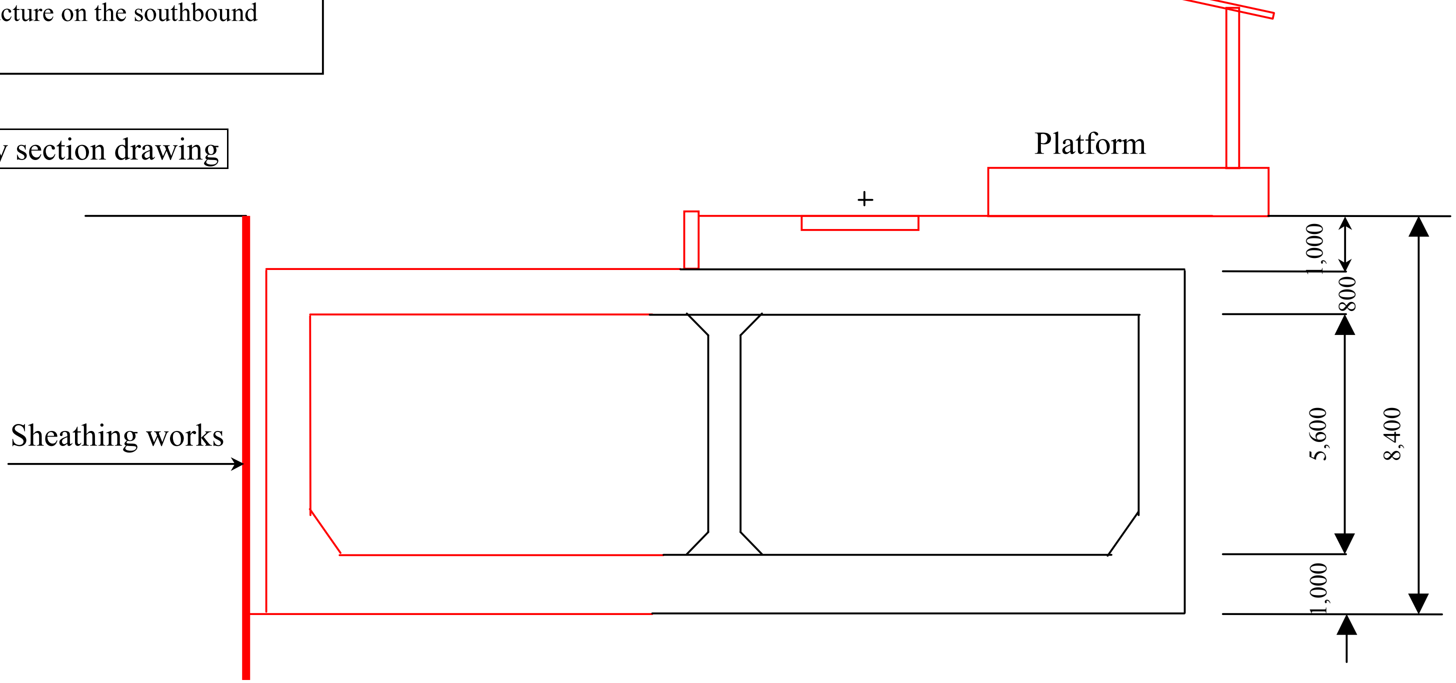


Fig. 8.1.15 NR/MCX Magallanes Station Work Procedure Drawing

●NR/MCX Magallanes Station Work Procedure Drawing (third stage)

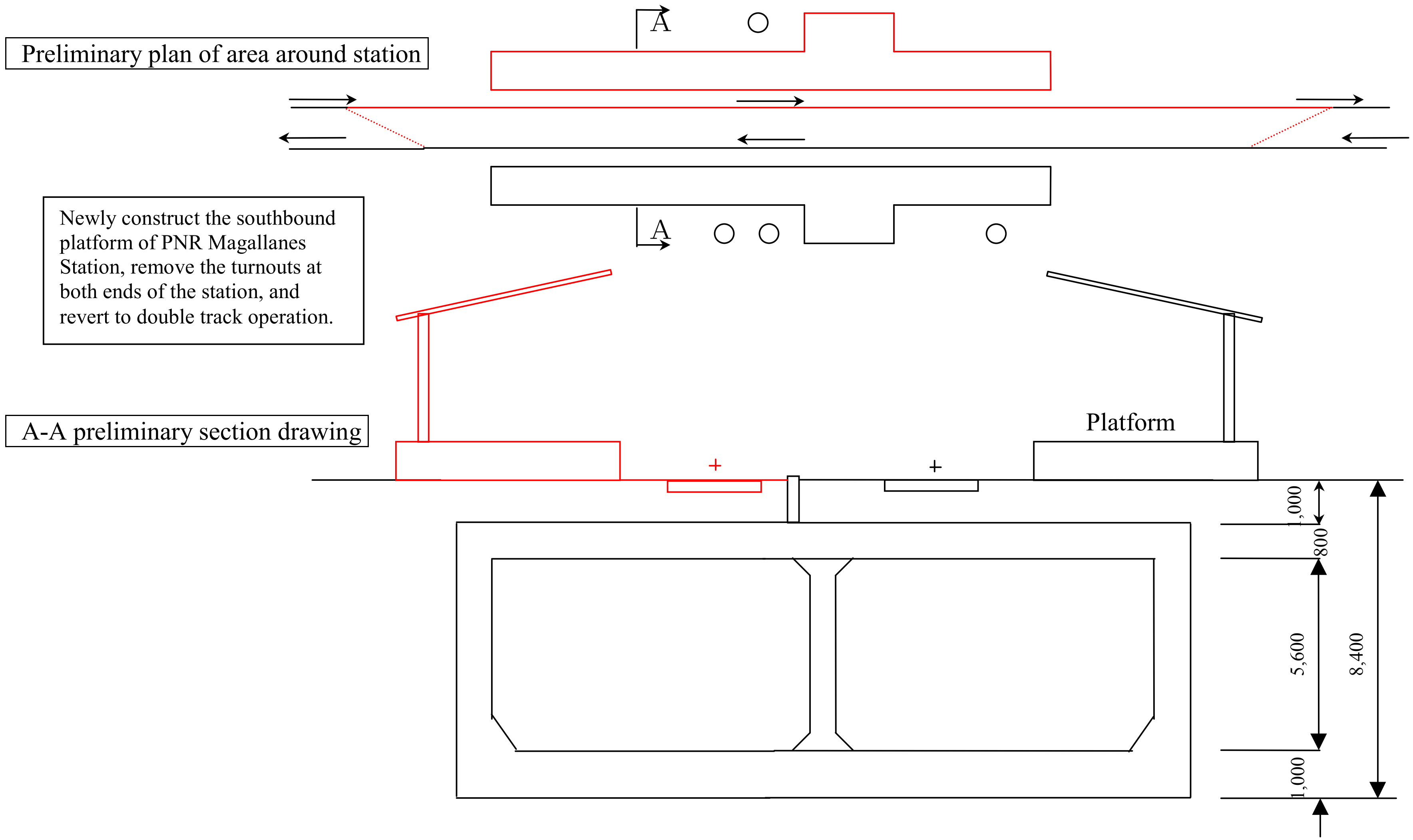


Fig. 8.1.16 NR/MCX Magallanes Station Work Procedure

8.1.3 Plan for Construction of Magallanes Station (NR/MCX) (Platform: Separate Type)

1. Particulars of Magallanes Station Construction Plan

In planning the station passenger facilities, calculation shall be carried out upon setting the particulars of each facility.

(1) Projection of Future Users at Magallanes Station

Based on various data such as future population in the area around the station, the projected number of users at Magallanes Station (in 15 years) is approximately 133,700 boarding and alighting passengers per day. Projected numbers of passengers traveling in each direction per hour during the rush hour are as shown below. Moreover, the rush rate shall be 13%.

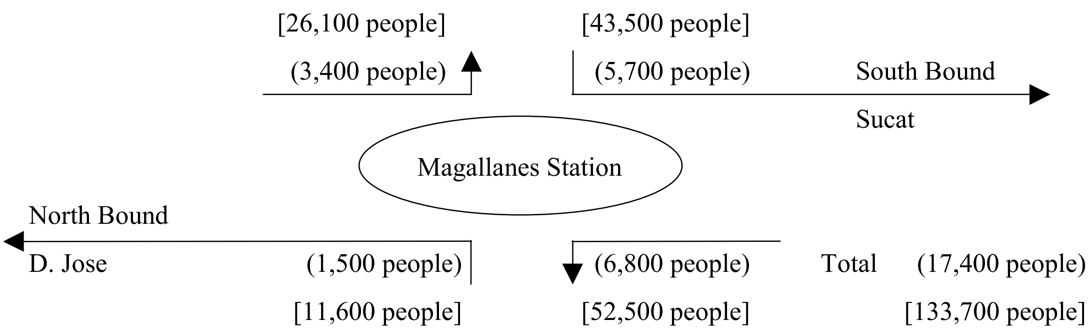


Fig. 8.1.17 Future Boarding and Alighting Passengers at Magallanes Station (hourly in rush hour) [per day]

(2) Future Operating Plan

The hourly number of trains during rush hour shall be 18 each in the southbound and northbound directions, and each train shall consist of 10 electric cars.

(3) Track Structure

Track structure in the area of new Magallanes Station construction is indicated below.

1) Track gradient: level

2) Distance between track centers: 4.0 m or more

(4) Passenger Facilities

1) Station building: ground station

2) Platform: separate type, platform length R. L. - 1,100 mm, distance between track center and platform edge 1,485 mm

3) Track and platform level: B1

(5) Outline Plan of Station Facilities

1) Calculation of platform width

Platform width shall be calculated based on future boarding and alighting passengers.

① Required platform width on southbound side (Magallanes→Sucat)

• $B = B_1 + B_2 + \gamma$

$= 0.2 \times (P_a/n)^{1/2} + 2P_b/31n + \gamma$

B : platform width

B_1 : width occupied by passengers waiting to board trains

B_2 : width occupied by passengers alighting from trains onto the platform

γ : necessary width for pillars and train refuge, etc.

Pillars: 0.5 m

$B_2 = 2P_b/31n$ (case of $P_b/n < 6.4$ ln) or $13n/3$ (case of $P_b/n > 6.4$ ln)

P_a : peak boarding passengers per train (assuming an average of 1 electric train per hour during rush hour)

5,700 people/18 trains 320 people

P_b : peak alighting passengers per train (assuming an average of 1 electric train per hour during rush hour)

3,400 people/18 trains 190 people

l : 1 train length = 20.0 m

n : cars per train = 10 cars

From the above $Pb/n = 190/10 = 19 < 6.4ln = 6.4 \times 20.0 \times 10 = 1,280$

Therefore: $B_2 = 2P_b/3ln$

$= 0.2 \times (320/10)^{1/2} + 2 \times 190/(3 \times 20.0 \times 10) + 0.5$ 2.3 m

② Required platform width on northbound side (Magallanes→D. Jose)

- $B = B_1 + B_2 + \gamma$

  $= 0.2 \times (P_a/n)^{1/2} + 2P_b/31n + \gamma$

  P_a = 1,500 people/18 trains   80 people

  P_b = 6,800 people/18 trains   380 people

  $P_b/n = 380/10 = 38 < 6.4ln = 6.4 \times 20.0 \times 10 = 1{,}280$

  Therefore: $B_2 = 2P_b/3ln$

  $= 0.2 \times (80/10)^{1/2} + 2 \times 380/(3 \times 20.0 \times 10) + 0.5$ 2.3 m

2) Calculation of platform width (calculation from structures on platforms, etc.)

In addition to the calculations indicated in 1), since platform width is also sometimes computed from the width of stairs and escalators on platforms and the distance between these structures and platform edges, examination of these items is carried out.

Required platform width:

- Distance with pillars on platforms shall be 1 m or more
- Distance with overpasses and underpasses, etc. shall be 1.5 m or more.

Therefore, on separate platforms, minimum distances will be as follows (see figure):

Platform width = 1.5 + maximum width of structures on platforms

However, from the viewpoint of wheelchair use and safety, a minimum distance of 2.0 m is desirable, in which case the following expression will be adopted:

Platform width = 2.0 + maximum width of structures on platforms

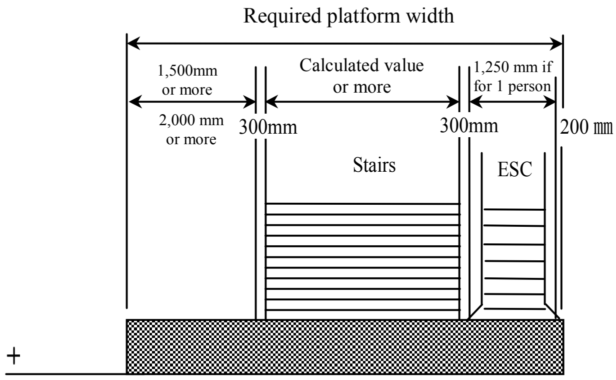


Fig. 8.1.18 Calculation of Platform Width

① Maximum width of structures on platforms

a) Southbound platform

i) Calculation of stair width and escalator width

Calculate from the projected number of boarding and alighting passengers (per hour during rush hour) = 9,100 people (boarding passengers 5,700 + alighting passengers 3,400). It shall be assumed that 1 stairs (also for use in emergencies) and 2 escalators (800 type, for 1 person, one escalator each going up and down) are installed on the platform.

〇 2 escalators (800 type, for 1 person, one escalator each going up and down)

Boarding passengers: Deficient capacity per escalator 5,700-4,500 = 1,200 people/hour

Alighting passengers: Transportation capacity of escalators: 4,500 > 3,400

〇 Stair width

Necessary stair width: 1,200/1,500 people/hour = 0.8 m < Minimum width 1.5 m

ii) Stair walls, handrail walls, etc. 1.0 m

iii) Maximum width of structures on platforms (decided according to the stair section)

= Stair width + stair wall, handrail wall, etc.
= Stair width 1.5 m + 1.0 m = 2.5 m

iv) Platform width

Platform width = 2.0 + maximum width of structures on platforms
= 2.0 + 2.5 = 4.5 5.0 m

b) Northbound platform

i) Calculation of stair width and escalator width

Calculate from the projected number of boarding and alighting passengers (per hour during rush hour) = 8,300 people (boarding passengers 1,500 + alighting passengers 6,800). It shall be assumed that 1 stairs (also for use in emergencies) and 2 escalators (800 type, for 1 person, one escalator each going up and down) are installed on the platform.

○ 2 escalators (800 type, for 1 person, one escalator each going up and down)

Boarding passengers: Transportation capacity of escalators: 4,500 > 1,500

Alighting passengers: Deficient capacity per escalator 6,300-4,500 = 1,800 people/hour

○ Stair width

Necessary stair width: 1,800/1,500 people/hour = 1.2 m < Minimum width 1.5 m

ii) Stair walls, handrail walls, etc. 1.0 m

iii) Maximum width of structures on platforms (decided according to the stair section)

= Stair width + stair wall, handrail wall, etc.
= Stair width 1.5 m + 1.0 m = 2.5 m

iv) Platform width

Platform width = 2.0 + maximum width of structures on platforms
= 2.0 + 2.5 = 4.5 5.0 m

3) Calculation of platform length

Platform length = rolling stock length × number of cars + overrun allowance
= 20.0 m × 10 cars + 10 m = 210 m

4) Required number of ticket barriers

Since passenger flow within stations often becomes blocked at ticket barriers, it is necessary to install enough ticket barriers to prevent this from happening.

The required number of ticket barriers is calculated from the number of boarding and alighting passengers and passing speed at the most congested time.

[Manned ticket barriers]

$$N = \frac{1}{T}\left(\frac{n_1}{P_1} + \frac{n_2}{P_2}\right) + A$$

N : number of ticket barriers
T : 1 hour (3,600 seconds)
n_1 : boarding passengers per hour at most congested time
n_2 : alighting passengers per hour at most congested time
P_1 : passing number of boarding passengers per unit hour (1.0 person/second)
P_2 : passing number of alighting passengers per unit hour (1.0 person/second)
A : standby barriers, 1 or more (depending on station conditions)

[Automatic ticket barriers]

$$N = \frac{n_1}{40 \times S} + \frac{n_2}{40 \times S} + A$$

N : number of automatic ticket barriers
n_1 : boarding passengers per S minutes at most congested time
n_2 : alighting passengers per S minutes at most congested time
40 : passing number of boarding passengers per one minute
S : More congested time (depending on line condition)
A : standby barriers (depending on station conditions)

Since automatic ticket barriers basically operate in a single direction, when calculating the required number of barriers, it is necessary to take other times into consideration.

Here, examination is based on the number of boarding and alighting passengers per hour during rush hour in consideration of the peak rate.

[Calculation]

Rush boarding passengers per hour 5,700 + 1,500 = 7,200 people
Rush alighting passengers per hour 3,400 + 6,800 = 10,200 people

Manned barriers Na = 1/3,600×(7,200/1.0+10,200/1.0)+1=4.9+1 6
Automatic barriers Nb = 7,200×(40×60)+10,200/(40×60)+1=3+4.3+1 9

Therefore: In case of manned barriers: 6 barriers
In case of automatic barriers: 4 in, 5 out, 9 in total are required

5) Ticket issue facilities

Ticket issue facilities are divided into ticket windows and automatic vending machines, etc. However, it is preferable that short distance boarding tickets (inexpensive tickets) be purchased from vending machines.

[Required number of automatic vending machines]

$$N = \frac{n}{0.0333 \times n + 667}$$

N : required number of vending machines
n : estimated total number of sold tickets
= daily number of boarding passengers (southbound 43,500 + northbound 11,600) × 0.5 (estimate here: purchase rate of tickets on the day)
= 55,100×0.5 27,600 tickets
= 27,600/(0.0333×27,600 + 667) 17.4 18 units

[Number of ticket windows]

$$N = \frac{n \times 1.5}{\text{Tickets sold per hour} \times \text{effective time}}$$

N : required number of ticket windows
n : estimated total number of sold tickets = 27,600
= 27,600×1.5/(200×16) 13 windows

Since the purchase rate of tickets on the day is 50% and the numbers of automatic ticket vending machines and ticket windows are high at 18 and 13 respectively, it will be necessary to take steps (utilization of season tickets and coupon tickets, etc.) to cut down on the sale of tickets on the day.

6) Calculation of width of free corridors, stairs and escalators

① Width shall be 1.5 m or more in order to avoid hindrance to the smooth flow of passengers.

② The basis for calculation of width shall be 1 m per 2,000 people/hour.

The future projection of boarding and alighting passengers is 17,400 people (per hour in rush hour), but it is imagined that the number of station users passing thpreliminary will be 10% of this figure. Moreover, the utilization rate of station front and rear entrances shall be 7:3.

Therefore, calculation of the number of front entrance users and width of the free corridor is carried out.

① Number of front entrance users

Front entrance users (per hour during rush) = future boarding and alighting passengers (per hour during rush) × use rate + number of people passing thpreliminary

= 17,400×0.7 + 17,400×0.1 13,900

② Calculation of free corridor width

Calculation of free corridor width = users (per hour during rush) /2,000 people/H/m

= 13,900 people/2,000 people/H/m 7.0 = 7.0 m

7) Ticket windows and ticket barriers plan, and calculation of concourse area

Concourse area (outside the inner compound) is calculated using the following expression by totaling the area in front of ticket windows and the flow area.

A = U + T

A : required area

U : area in front of ticket windows

T : flow area

① Area in front of ticket windows

Area in front of ticket windows is the space required for boarding and alighting passengers to purchase boarding tickets, etc. This is refuge area necessary for people waiting to purchase tickets.

- $U = B_1 \times L_1$

  B_1: total width of ticket windows
  L_1: depth in front of ticket windows (3 m is assumed as standard)

a) Case of automatic ticket vending machines

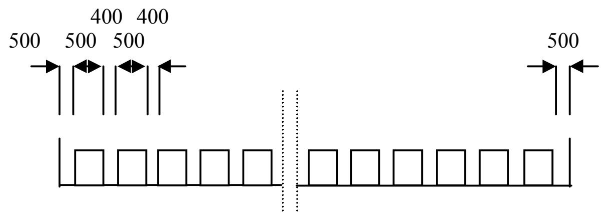


Fig. 8.1.19 Preliminary Plan of Automatic Ticket Vending Machines

B_1: required number of automatic ticket vending machines
= 18 (from (5) 5) ticket issue facilities)

$B_1 = 18 \times 0.5 + (18 - 1) \times 0.4 + (0.5 + 0.5) = 16.8 \quad 17.0$ m

$= 17.0 \times 3.0 = 51.0$ m^2

b) Case of ticket windows

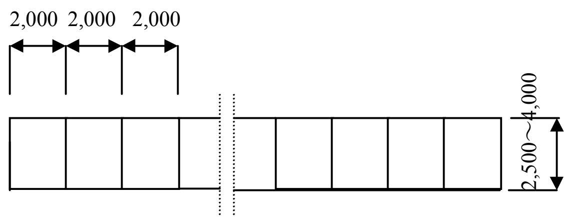


Fig. 8.1.20 Preliminary Plan of Ticket Windows

B_1: number of ticket windows
= 13 (from (5) 5) ticket issue facilities)

$B_1 = 13 \times 2.0 = 26.0$ m

$= 26.0 \times 3.0 = 78.0$ m^2

② Flow area

Flow area is the concourse area required for the flow of boarding and alighting passengers.

- $T = B_2 \times L_2$

B_2: flow width (however, minimum width shall be 4 m)

$B_2 = (L_3 \times N) + B_3$

L_3 : unit width of ticket collection windows

N : calculated number of ticket collection windows

In case of automatic passage from the required number of ticket windows in (5) 4), 4 entry, 5 exit = 9 total shall also serve as guard windows: $L_3 \times N$ = 1.0 m×8 units + guard window 1.15 m　9.2 m

B_3 : flow width correction value 2 m

= 9.2 m＋2 m = 11.2 m　12.0 m

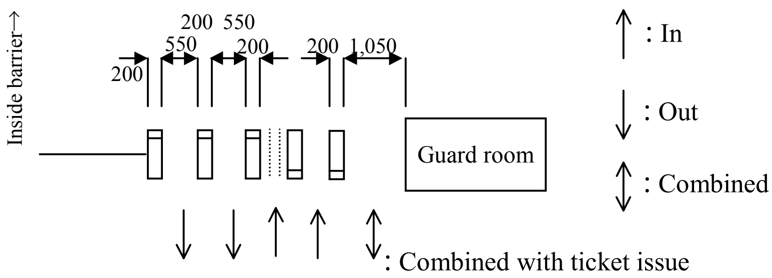


Fig. 8.1.21　Preliminary Plan of Automatic Barrier

L_2: depth in front of ticket collection windows

L_2 shall be 3 m as standard, and depth in front of ticket collection windows shall be 0.5 B_2 or more.

3 m < 0.5 B_2 = 0.5×12.0 = 6.0 m

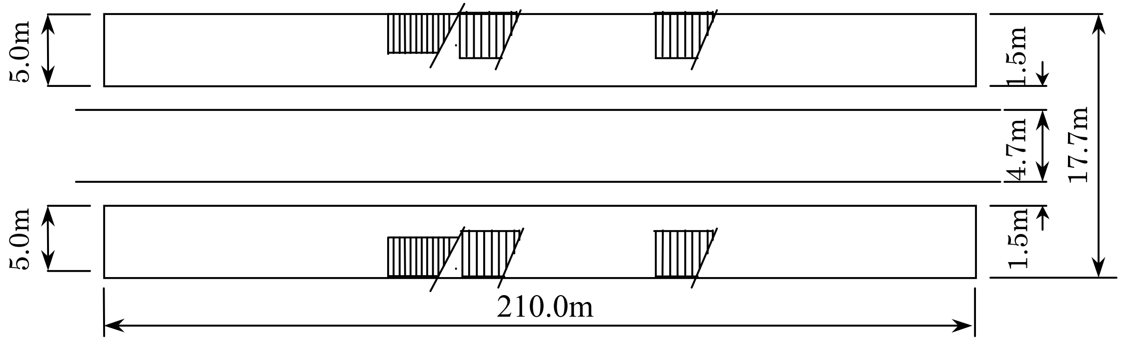
= 12.0 m×6.0 m = 72.0 m^2

(Notes)

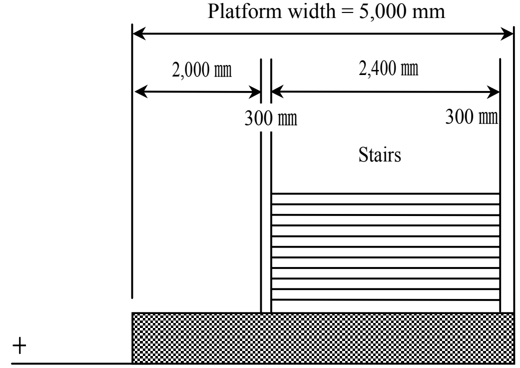
This examination of station facilities is based on the outline manual of station planning, and dimensions of facilities are calculated from generally adopted figures in Japan.

●Outline of Facilities at Magallanes (NR/MCX) Station

Preliminary plan of platform B1



Preliminary section of platform



Preliminary plan of station facilities (1F)

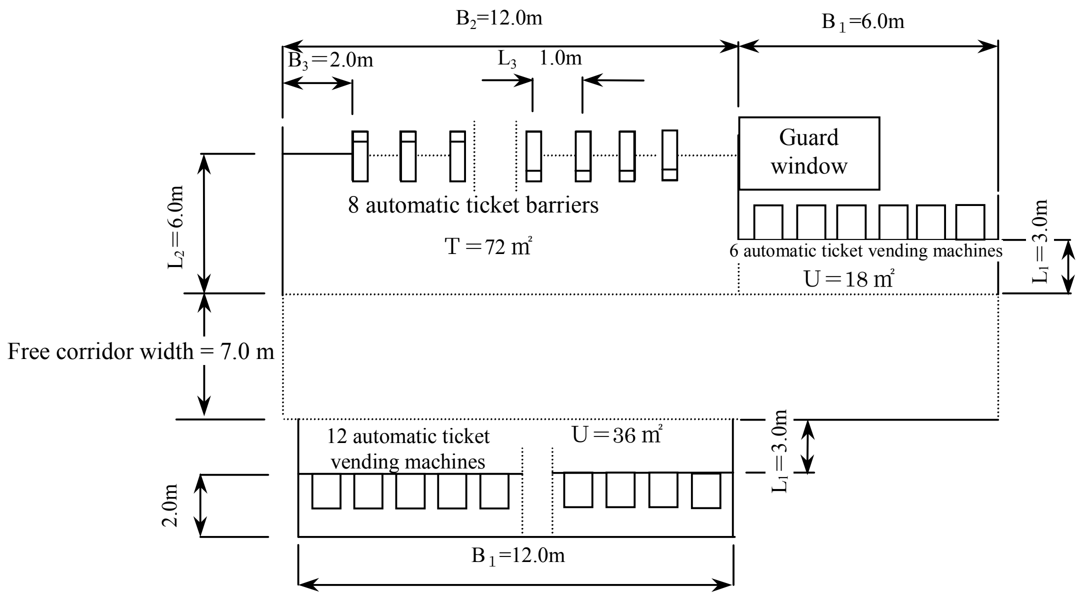


Fig. 8.1.22 Outline of Facilities at Magallanes Station

●**Preliminary Section of Magallanes (NR/MCX) Station**

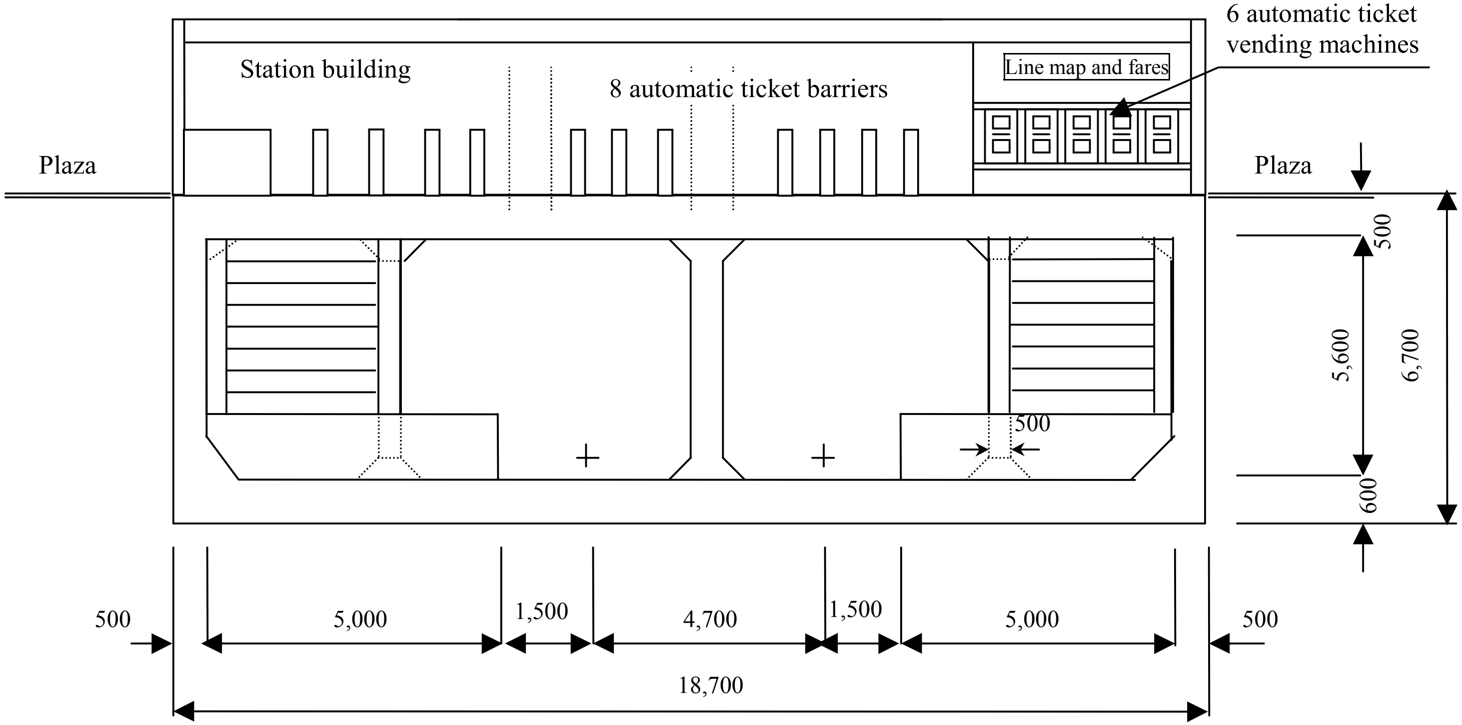


Fig. 8.1.23 Preliminary Section of Magallanes Station

●Preliminary Plan of Magallanes (NR/MCX) Station Facilities

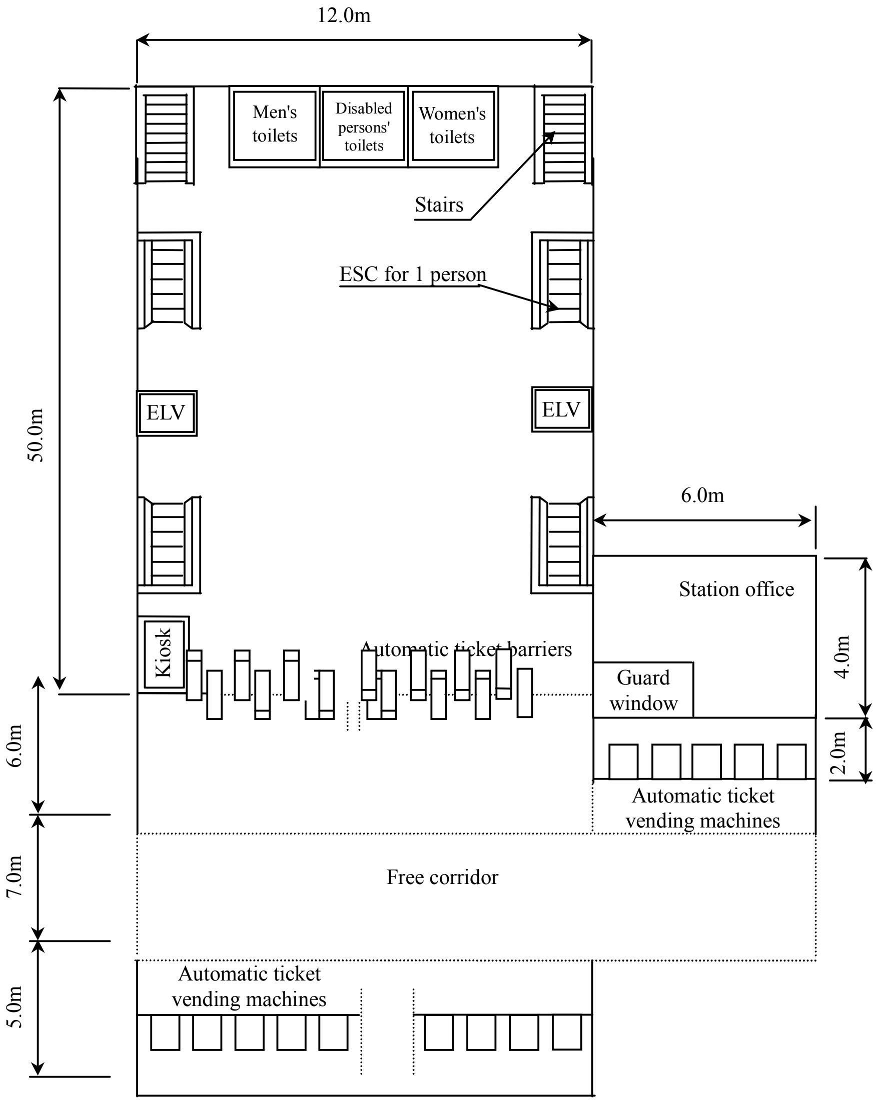


Fig. 8.1.24 Preliminary Plan of Magallanes Station Faeilities

●**Top View of PNR Magallanes Station**

(The following diagram indicates preliminary dimensions, but the structure of foundations is unknown).

In the case where Magallanes Station is constructed underground (width 18.7 m) in the manner shown in the following diagram, road bridge pillars (net interval 17.2 m) will be interfered with.

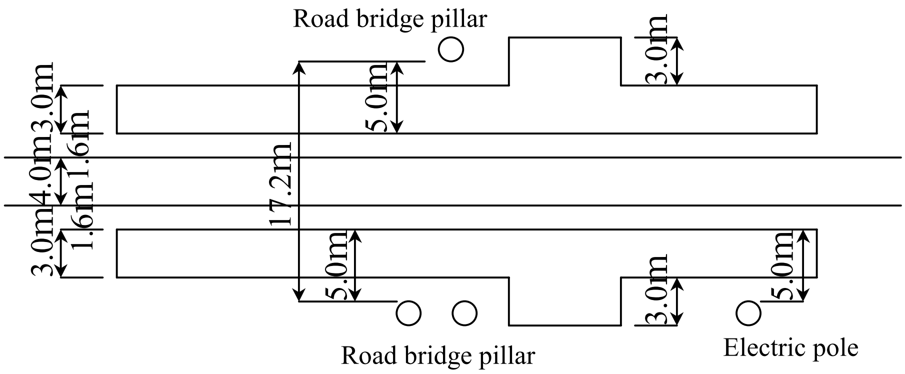


Fig. 8.1.25 Top View of PNR Magallanes Station

8.1.4 Outline Plan for Improvement of Magallanes Station (LRT Line 3)

1. Particulars of Magallanes Station Construction Plan

   In planning the station passenger facilities, calculation shall be carried out upon setting the particulars of each facility.

   (1) Projection of Future Users at Magallanes Station

   Based on various data such as future population in the area around the station, the projected number of users at Magallanes Station (in 15 years) is approximately 131,900 boarding and alighting passengers per day. Projected numbers of passengers traveling in each direction per hour during the rush hour are as shown below. Moreover, the rush rate shall be 13%.

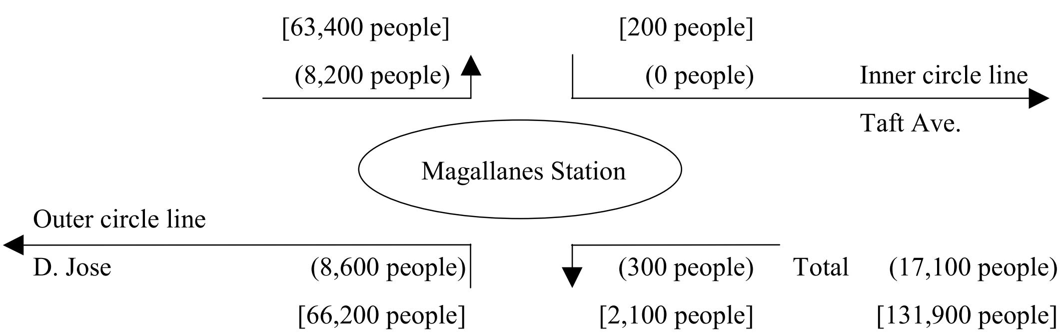


Fig. 8.1.26 Future Boarding and Alighting Passengers at Magallanes Station (hourly in rush hour) [per day]

   (2) Future Operating Plan

   The hourly number of trains during rush hour shall be 24 each on the inner circle and outer circle lines, and each train shall consist of 4 electric cars.

   (3) Track Structure (existing)

   Track structure in the area of new Magallanes Station construction is indicated below.

   1) Track gradient: level
   2) Distance between track centers: 3.4 m or more

(4) Passenger Facilities(existing)

Station building	:	elevated station
Platform	:	separate type, platform width 4.0-5.7 m, platform length 127 m, platform height R. L - 900 mm, distance between track center and platform edge 1,380 mm
Track and platform level	:	2F
Free corridor	:	3F

(5) Outline Plan of Station Facilities

1) Calculation of platform width

Platform width shall be calculated based on future boarding and alighting passengers.

① Required platform width on inner circle line (Magallanes→Taft Ave.)

• $B = B_1 + B_2 + \gamma$

$= 0.2 \times (P_a/n)^{1/2} + 2P_b/31n + \gamma$

B : platform width

B_1 : width occupied by passengers waiting to board trains

B_2 : width occupied by passengers alighting from trains onto the platform

γ : necessary width for pillars and train refuge, etc.
Here, bench: 0.4 m

$B_2 = 2P_b/31n$ (case of $P_b/n < 6.4$ ln) or $13n/3$ (case of $P_b/n > 6.4$ ln)

P_a : peak boarding passengers per train (assuming an average of 1 electric train per hour during rush hour)
0 people/24 trains = 0 people

P_b : peak alighting passengers per train (assuming an average of 1 electric train per hour during rush hour)
8,200 people/24 trains   340 people

l : 1 train length = 26.5 m (average)

n : cars per train = 4 cars

From the above $P_b/n = 340/4 = 85 < 6.4$ ln $= 6.4 \times 26.5 \times 4$ 678

Therefore: $B_2 = 2P_b/3ln$

$= 0.2 \times (0/4)^{1/2} + 2 \times 340/(3 \times 26.5 \times 4) + 0.4$ 2.1 m

< The existing platform width of 4.0 m is sufficient.

② Required platform width on outer circle line (Magallanes→Shaw Blvd.)

- $B = B_1 + B_2 + \gamma$

$= 0.2 \times (P_a/n)^{1/2} + 2P_b/31n + \gamma$

P_a = 8,600 people/24 trains 360 people
P_b = 300 people/24 trains 10 people
P_b/n = 10/4 3<6.4ln = 6.4×26.5×4 678
Therefore: $B_2 = 2P_b/3ln$

$= 0.2 \times (360/4)^{1/2} + 2 \times 10/(3 \times 26.5 \times 4) + 0.4$ 2.4 m
< The existing platform width of 4.0 m is sufficient.

2) Calculation of platform width (calculation from structures on platforms, etc.)

In addition to the calculations indicated in 1), platform width is also sometimes computed from the width of stairs and escalators on platforms and the distance between these structures and platform edges. However, since stairs and escalators are not installed on the existing platform, examination of these items is not necessary here.

3) Calculation of platform length

Platform length = rolling stock length × number of cars + overrun allowance
= 26.5 m × 4 cars + 10 m = 116 m
< The existing platform length of approximately 127 m is sufficient.

4) Required number of ticket barriers

Since passenger flow within stations often becomes blocked at ticket barriers, it is necessary to install enough ticket barriers to prevent this from happening.

The required number of ticket barriers is calculated from the number of boarding and alighting passengers and passing speed at the most congested time.

[Manned ticket barriers]

$$N = \frac{1}{T}\left(\frac{n_1}{P_1} + \frac{n_2}{P_2}\right) + A$$

N : number of ticket barriers
T : 1 hour (3,600 seconds)
n_1 : boarding passengers per hour at most congested time
n_2 : alighting passengers per hour at most congested time
P_1 : passing number of boarding passengers per unit hour (1.0 person/second)
P_2 : passing number of alighting passengers per unit hour (1.0 person/second)
A : standby barriers, 1 or more (depending on station conditions)

[Automatic ticket barriers]

$$N = \frac{n_1}{40 \times S} + \frac{n_2}{40 \times S} + A$$

N : number of automatic ticket barriers
n_1 : boarding passengers per S minutes at most congested time
n_2 : alighting passengers per S minutes at most congested time
40 : passing number of boarding passengers per one minute
S : More congested time (depending on line condition)
A : standby barriers (depending on station conditions)

Since automatic ticket barriers basically operate in a single direction, when calculating the required number of barriers, it is necessary to take other times into consideration.

Here, examination is based on the number of boarding and alighting passengers per hour during rush hour in consideration of the peak rate. Moreover, because ticket barriers are installed separately for the inner and outer circle lines, examination is performed for each direction.

① Inner circle line

Rush boarding passengers per hour	0 people
Rush alighting passengers per hour	8,200 people

Manned barriers Nas = 1/3,600×(0/1.0+8,200/1.0)+1 2.3+1 4
Automatic barriers Nbs =0/(40×60)+8,200/(40×60)+1 0+3.4+1 5
Therefore, in case of manned barriers: 4 barriers

In case of automatic barriers: 1 entry, 4 exit = 5 barriers in total are necessary

< Since existing facilities consist of 1 entry and 2 exit barriers, it is necessary to install two new automatic barriers for exit use.

② Outer circle line

Rush boarding passengers per hour 8,600 people
Rush alighting passengers per hour 300 people

Manned barriers Nan = 1/3,600×(8,600/1.0+300/1.0)+1 2.5+1 4
Automatic barriers Nbn = 8,600/(40×60)+300/(40×60)+1 3.6+0.1+1 5
Therefore, in case of manned barriers: 4 barriers

In case of automatic barriers: 4 entry, 1 exit = 5 barriers in total are necessary

< Since existing facilities consist of 1 entry and 2 exit barriers, it is necessary to install two new automatic barriers for exit use

5) Ticket issue facilities

Ticket issue facilities are divided into ticket windows and automatic vending machines, etc. However, it is preferable that short distance boarding tickets (inexpensive tickets) be purchased from vending machines.

Since ticket issue facilities are separately installed for the inner circle and outer circle lines, examination is carried out for each direction.

① Inner circle line

[Required number of automatic vending machines]

$$N = \frac{n}{0.0333 \times n + 667}$$

N : required number of vending machines
n : estimated total number of sold tickets
= daily number of boarding passengers (inner circle line 200)× 0.5 (estimate here: purchase rate of tickets on the day)
= 100 tickets

= 100/(0.0333×100 + 667)   0.1   1 unit

[Number of ticket windows]

$$N = \frac{n \times 1.5}{\text{Tickets sold per hour} \times \text{effective time}}$$

N : required number of ticket windows

n : estimated total number of sold tickets = 100

= 100×1.5/(200×16)   1 window

< Since three ticket windows already exist, these existing facilities are sufficient.

② Outer circle line

[Required number of automatic vending machines]

n : estimated total number of sold tickets = daily number of boarding passengers (outer circle line 66,200)×0.5 (estimate here: purchase rate of tickets on the day)
33,100 tickets

N = 33,100/(0.033×33,100 + 667)   18.7   19 units

[Number of ticket windows]

n : estimated total number of sold tickets = 33,100

N = 33,100×1.5/(200×16)   16 windows

> Since only three ticket windows already exist, these existing facilities are insufficient.

Since the purchase rate of tickets on the day is 50% and the numbers of automatic ticket vending machines and ticket windows are high at 19 and 16 respectively, it will be necessary to take steps (utilization of season tickets and coupon tickets, etc.) to cut down on the sale of tickets on the day.

○ Improvement plan in this case

[Number of automatic ticket vending machines and ticket windows]

[Ticket windows] 8 shall be assumed.

$$N = \frac{n \times 1.5}{\text{Tickets sold per hour} \times \text{effective time}}$$

$$\begin{aligned}\text{Therefore, } n &= N \times \text{tickets sold per hour} \times \text{effective time}/1.5 \\ &= 8 \times 200 \times 16/1.5 = 17{,}100 \text{ tickets}\end{aligned}$$

[Required number of automatic ticket vending machines]

n = 33,100 - 17,100 = 16,000 tickets

N = 16,000/(0.0333×16,000 + 667)   13.3   14 units

6) Calculation of width of free corridors, stairs and escalators

① Width shall be 1.5 m or more in order to avoid hindrance to the smooth flow of passengers.

② The basis for calculation of free corridor width shall be 1 m per 2,000 people/hour.

③ The basis for calculation of the width of free corridor stairs, etc. shall be 1 m per 1,500 people/hour.

④ Concerning corridors which contain a height difference, as a rule both upward and downward escalators shall be installed.

The future projection of boarding and alighting passengers is 17,100 people (per hour in rush hour), however, since ticket issue and inspection facilities are on 2F and the free corridor is on 3F, the number of people using the free corridor will be reduced due to users simply passing thpreliminary and passengers who take the wrong platform, etc. However, because the connecting corridor between NR/MCX Magallanes Station and the station plaza is only planned for construction on the north side of the existing station, it is thought that outer circle line users will use the free corridor for transit. Therefore, it is imagined that the number of station users passing thpreliminary will be 30% of the projected number of boarding and alighting passengers shown above.

Based on this, calculation of the width of the free corridor is carried out according to the number of front entrance users.

① Free corridor users

Free corridor users (per hour during rush) = future boarding and alighting passengers (per hour during rush)×use rate + number of people passing thpreliminary

= 17,100 × 0.3 + 17,100 × 0.1   6,800

② Calculation of free corridor width

Calculation of free corridor width = users (per hour during rush) /2,000 people/H/m
= 6,800 people/2,000 people/H/m = 3.4 m
< The existing free corridor width of 5.0 m is sufficient.

③ Installation of new escalators

The current station is equipped with elevators designed for wheelchair users, however, there are no escalators. Therefore, physically challenged persons shall use the elevators. Moreover, in order to promote future railway users, upward and downward escalators shall be installed between the pavement 1F - ticket barriers and platforms 2F - free corridor 3F for both the inner circle and outer circle lines.

- Purpose of use, type, layout and number of escalators

Purpose of use	:	general use escalators
Type of escalators	:	800 type, for 1 person, effective capacity 4,500 people/hour
Layout of escalators	:	parallel layout
Number of escalators	:	1F-2F → 2 units, 2F-3F → 2 units, subtotal 4 units Inner circle and outer circle line total: 8 units

- Capacity of escalators

The peak number of boarding passengers on the outer circle line at rush hour is 8,600, however, when one considers that users are dispersed by the connecting corridor between NR/MCX Magallanes Station and its station plaza and the width of existing stairs is taken into account, escalators of the 800 type for use by one person (having a capacity of 4,500 people/hour) are considered to be sufficient.

7) Ticket windows and ticket barriers plan, and calculation of concourse area

Concourse area (outside the inner compound) is calculated using the following expression by totaling the area in front of ticket windows and the flow area.

$A = U + T$

- A : required area
- U : area in front of ticket windows
- T : flow area

① Inner circle line

a) Area in front of ticket windows

Area in front of ticket windows is the space required for boarding and alighting passengers to purchase boarding tickets, etc. This is refuge area necessary for people waiting to purchase tickets.

- $U = B_1 \times L_1$

B_1: total width of ticket windows
L_1: depth in front of ticket windows (3 m is assumed as standard)

i) Case of automatic ticket vending machines

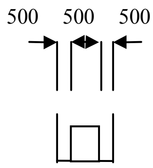


Fig. 8.1.27 Preliminary Plan of Automatic Ticket Vending Machines

B_1: required number of automatic ticket vending machines
= 1 (from (5) 5) ticket issue facilities)
$B_1 = 1 \times 0.5 + (0.5 + 0.5) = 1.5 \quad 2.0$ m
$= 2.0 \times 3.0 = 6.0$ m^2

ii) Case of ticket windows

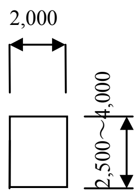


Fig. 8.1.28 Preliminary Plan of Ticket Windows

B_1: number of ticket windows

= 1 (from (5) 5) ticket issue facilities)

$B_1 = 1 \times 2.0 = 2.0$ m

$= 2.0 \times 3.0 = 6.0$ m^2

< Since there are three existing ticket windows and the depth before windows is 3 m or more, the existing facilities are sufficient.

b) Flow area

Flow area is the concourse area required for the flow of boarding and alighting passengers.

- $T = B_2 \times L_2$

B_2 : flow width (however, minimum width shall be 4 m)

$B_2 = (L_3 \times N) + B_3$

L_3: unit width of ticket collection windows

N : calculated number of ticket collection windows

In case of automatic passage from the required number of ticket windows in (5) 4), 1 entry, 4 exit = 5 total.

$L_3 \times N = 1.0$ m $\times 5$ units $= 5.0$ m

B_3: flow width correction value 2 m

$= 5.0$ m$+2$ m $= 7.0$ m > 4.0 m

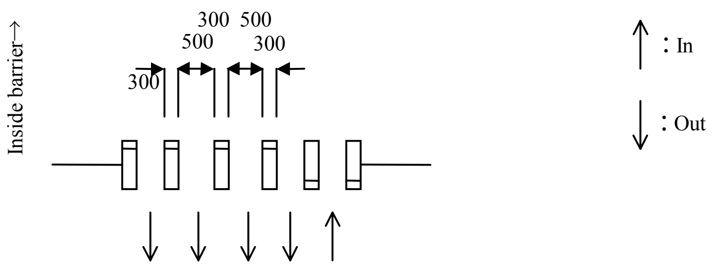


Fig. 8.1.29 Preliminary Plan of Automatic Barrier (existing facilities dimensions)

L_2: depth in front of ticket collection windows

L_2 shall be 3 m as standard, and depth in front of ticket collection windows shall be 0.5 B_2 or more.

3 m $< 0.5 B_2 = 0.5 \times 7.0 = 3.5$ m

$= 7.0$ m $\times 3.5$ m $= 24.5$ m^2

< Since the depth in front of the existing automatic barrier is 5.7 m (greater than 3.5 m), the existing facilities are sufficient.

② Outer circle line

a) Area in front of ticket windows

Area in front of ticket windows is the space required for boarding and alighting passengers to purchase boarding tickets, etc. This is refuge area necessary for people waiting to purchase tickets.

- $U = B_1 \times L_1$

  B_1 : total width of ticket windows

  L_1 : depth in front of ticket windows (3 m is assumed as standard)

i) Case of automatic ticket vending machines

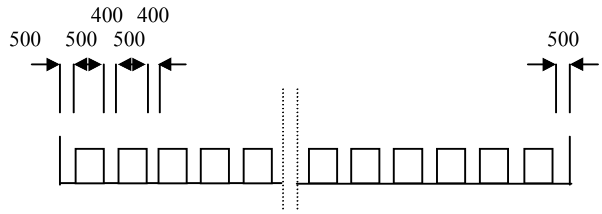


Fig. 8.1.30 Preliminary Plan of Automatic Ticket Vending Machines

B_1: required number of automatic ticket vending machines

= 14 (from (5) 5) ticket issue facilities)

$B_1 = 14 \times 0.5 + (14 - 1) \times 0.4 + (0.5 + 0.5) = 13.2 \quad 14.0$ m

$= 14.0 \times 3.0 = 42.0\ m^2$

ii) Case of ticket windows

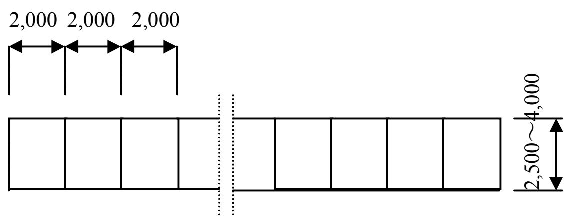


Fig. 8.1.31 Preliminary Plan of Ticket Windows

B_1: number of ticket windows

= 8 (from (5) 5) ticket issue facilities)

$B_1 = 8 \times 2.0 = 16.0$ m

$= 16.0 \times 3.0 = 48.0\ m^2$

< Since there are only three existing ticket windows, improvement of facilities is necessary. As for the depth before windows, 3 m shall be secured.

b) Flow area

Flow area is the concourse area required for the flow of boarding and alighting passengers.

- $T = B_2 \times L_2$

B_2 : flow width (however, minimum width shall be 4 m)

$B_2 = (L_3 \times N) + B_3$

L_3 : unit width of ticket collection windows

N : calculated number of ticket collection windows

In case of automatic passage from the required number of ticket windows in (5) 4), 4 entry, 1 exit = 5 total.

$L_3 \times N = 1.0 \text{ m} \times 5 \text{ units} = 5.0 \text{ m}$

B_3: flow width correction value 2 m

$= 5.0 \text{ m} \times 2 \text{ m} = 7.0 \text{ m}$

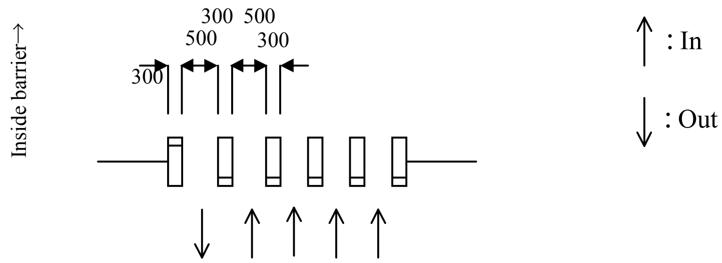


Fig. 8.1.32 Preliminary Plan of Automatic Barrier (existing facilities dimensions)

L_2: depth in front of ticket collection windows

L_2 shall be 3 m as standard, and depth in front of ticket collection windows shall be 0.5 B_2 or more.

$3 \text{ m} < 0.5 B_2 = 0.5 \times 7.0 = 3.5 \text{ m}$

$= 7.0 \text{ m} \times 3.5 \text{ m} = 24.5 \text{ m}^2$

< Since the depth in front of the existing automatic barrier is 5.7 (greater than 3.5), the existing facilities are sufficient.

> Two automatic barriers shall be added.

8) Sign system

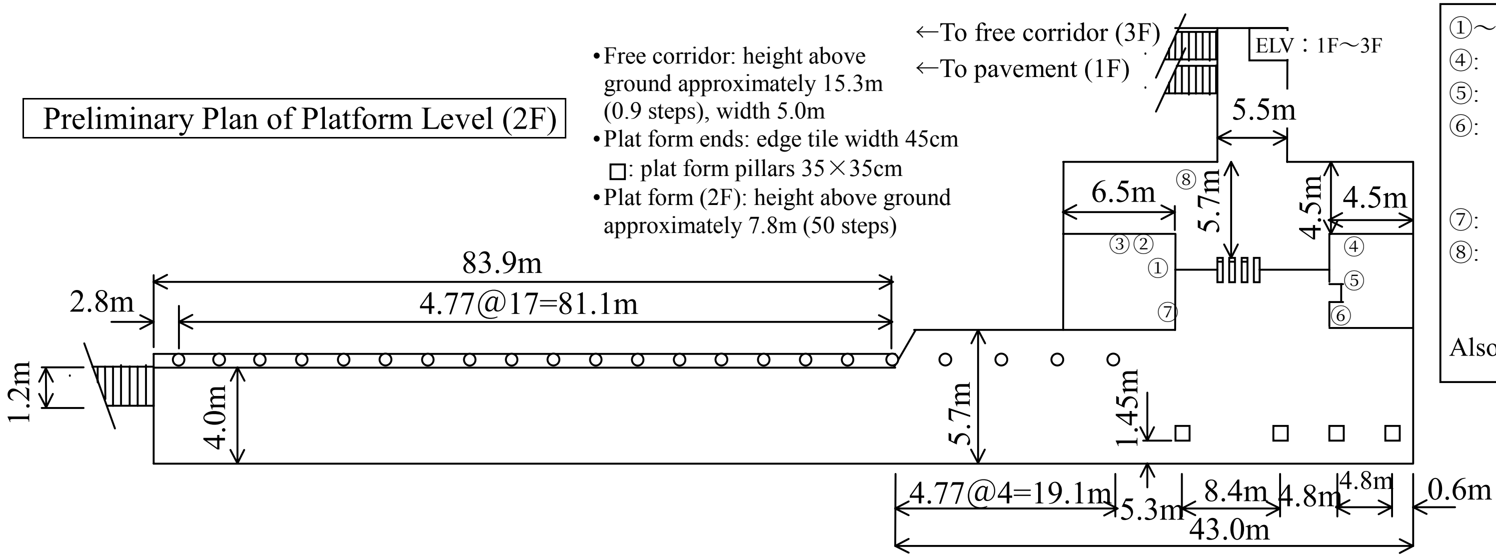
At Magallanes Station, since ticket issue facilities and barriers are on 2F and the free corridor is on 3F, people who take the wrong platform use the free corridor on 3F. Therefore, in order to reduce the number of people who take the wrong platform, signs and guiding information shall be provided on the 1F pavement to enable station users to distinguish between the inner circle and outer circle lines.

(Notes)

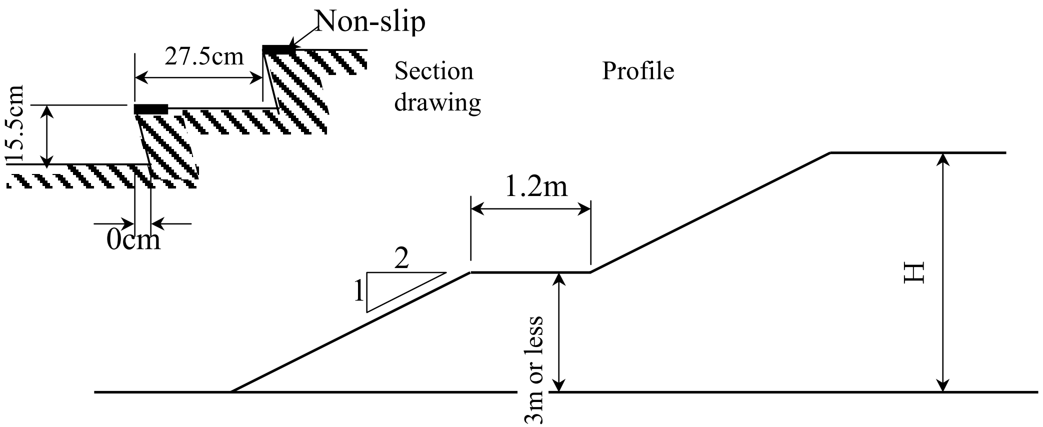
This examination of station facilities is based on the outline manual of station planning, and dimensions of facilities are calculated from generally adopted figures in Japan.

Moreover, since station drawings could not be obtained, the improvement plan here is limited to a preliminary examination.

●Outline of Existing Facilities at Magallanes (Line 3) Station



①～③：Ticket windows
④: Ticket window (future)
⑤: Women's toilets
⑥: Men's toilets (2 urinals, 1 seat) Door width 80, height difference 3.5 cm
⑦: Disabled persons' toilets
⑧: Automatic ticket vending machines (width 87, depth 70, height 170 cm)
Also, two public telephones



Preliminary plan of automatic barrier

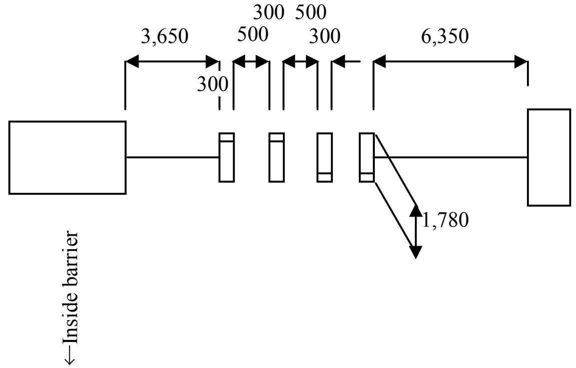


Fig. 8.1.33 Outline of Existing Facilities at Magallanes Station

8.2 Materials of Economic and Financial Analysis

Financial Analysis for Development of Monument Station and the Station Plaza (Unit:1000 Peso)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Operating Profit	0	0	0	0	0	30,551	35,831	41,375	47,197	53,311	59,729	66,469	73,546	80,976	88,778
	0	0	0	0	0										
Operating Revenue	0	0	0	0	0	105,615	110,895	116,439	122,261	128,375	134,793	141,533	148,610	156,040	163,842
	0	0	0	0	0										
Operating Expense	0	0	0	0	0	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064
Maintenance Cost	0	0	0	0	0	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195
Depreciation Cost	0	0	0	0	0	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869
Investment (Station)															
Investment Total	33,330	22,220	25,227	530,280	0	0	0	0	0	0	0	0	534	58,947	0
Local Currency Total	19,998	13,332	19,058	0	0	0	0	0	0	0	0	0	481	0	0
Foreign Currency Total	13,332	8,888	6,169	530,280	0	0	0	0	0	0	0	0	53	58,947	0
Building	0	0	24,312	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	18,234	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	6,078	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Platform	0	0	381	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	343	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0
Elevator	0	0	0	368,421	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	368,421	0	0	0	0	0	0	0	0	0	0	0
Escalator	0	0	0	88,000	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	88,000	0	0	0	0	0	0	0	0	0	0	0
Ticket Vending Machine	0	0	0	58,947	0	0	0	0	0	0	0	0	0	58,947	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	58,947	0	0	0	0	0	0	0	0	0	58,947	0
Automatic Gate Fare Machine	0	0	0	14,912	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	14,912	0	0	0	0	0	0	0	0	0	0	0
Shelter	0	0	534	0	0	0	0	0	0	0	0	0	534	0	0
Local Currency	0	0	481	0	0	0	0	0	0	0	0	0	481	0	0
Foreign Currency	0	0	53	0	0	0	0	0	0	0	0	0	53	0	0
Enginering & Consulting	33,330	22,220	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	19,998	13,332	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	13,332	8,888	0	0	0	0	0	0	0	0	0	0	0	0	0
-Salvage Value															
Investment(Station Plaza)															
Investment Total	31,685	359,523	21,800	87,626	80,248	0	0	0	0	0	0	0	0	7,738	360
Local Currency	19,011	351,074	21,800	54,897	47,969	0	0	0	0	0	0	0	0	6,964	36
Foreign Currency	12,674	8,449	0	32,729	32,279	0	0	0	0	0	0	0	0	774	324
Land	0	338,400	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	338,400	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Deck	0	0	0	79,888	79,888	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	47,933	47,933	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	31,955	31,955	0	0	0	0	0	0	0	0	0	0
Environmental Zone	0	0	0	7,290	0	0	0	0	0	0	0	0	0	7,290	0
Local Currency	0	0	0	6,561	0	0	0	0	0	0	0	0	0	6,561	0
Foreign Currency	0	0	0	729	0	0	0	0	0	0	0	0	0	729	0
Shelter	0	0	0	448	0	0	0	0	0	0	0	0	0	448	0
Local Currency	0	0	0	403	0	0	0	0	0	0	0	0	0	403	0
Foreign Currency	0	0	0	45	0	0	0	0	0	0	0	0	0	45	0
Light	0	0	0	0	360	0	0	0	0	0	0	0	0	0	360
Local Currency	0	0	0	0	36	0	0	0	0	0	0	0	0	0	36
Foreign Currency	0	0	0	0	324	0	0	0	0	0	0	0	0	0	324
Access Road	0	0	15,000	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	15,000	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pavement	0	0	6,800	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	6,800	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enginering and Consulting	31,685	21,123	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	19,011	12,674	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	12,674	8,449	0	0	0	0	0	0	0	0	0	0	0	0	0
-Salvage Value															
Finance Program															
Finance															
Borrowing	69,599	422,869	51,670	628,304	85,887	0	0	0	0	0	0	0	534	66,685	360
Repayment	0	0	0	0	0	0	0	0	50,724	50,724	50,724	50,724	50,724	50,724	50,724
Balance	69,599	492,467	544,137	1,172,442	1,258,328	1,258,328	1,258,328	1,258,328	1,207,604	1,156,879	1,106,155	1,055,431	1,005,240	1,021,201	970,837
Interest	4,584	41,126	4,643	10,398	5,639	97,800	97,800	97,800	97,800	90,192	82,583	74,974	67,438	61,471	53,871
Net Cash Flow	0	0	0	0	0	-25,380	-20,100	-14,556	-59,458	-45,736	-31,709	-17,360	-2,747	10,650	26,052
Cumulative Net Cash Flow	0	0	0	0	0	-25,380	-45,480	-60,035	-119,493	-165,229	-196,938	-214,298	-217,045	-206,395	-180,343
Cash Flow Statement															
Cash In	69,599	422,869	51,670	628,304	85,887	72,420	77,701	83,245	89,067	95,180	101,599	108,338	115,949	189,531	131,007
Operating Profit	0	0	0	0	0	30,551	35,831	41,375	47,197	53,311	59,729	66,469	73,546	80,976	88,778
Depreciation	0	0	0	0	0	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869
Borrowing	69,599	422,869	51,670	628,304	85,887	0	0	0	0	0	0	0	534	66,685	360
Cash Out	69,599	422,869	51,670	628,304	85,887	97,800	97,800	97,800	148,525	140,916	133,307	125,699	118,697	178,881	104,956
Investment	65,015	381,743	47,027	617,906	80,248	0	0	0	0	0	0	0	534	66,685	360
Int.During Construction	4,584	41,126	4,643	10,398	5,639	0	0	0	0	0	0	0	0	0	0
Repayment	0	0	0	0	0	0	0	0	50,724	50,724	50,724	50,724	50,724	50,724	50,724
Interest	0	0	0	0	0	97,800	97,800	97,800	97,800	90,192	82,583	74,974	67,438	61,471	53,871

Financial Analysis for Development of Monument Station and the Station Plaza (Unit:1000 Peso)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cash Flow for FIRR	-65,015	-381,743	-47,027	-617,906	-80,248	72,420	77,701	83,245	89,067	95,180	101,599	108,338	114,881	56,161	130,287

FIRR 7.02%

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Operating Profit	96,970	105,572	114,603	124,087	134,045	144,500	155,478	167,005	179,108	179,114	179,114	179,114	179,114	179,114	179,114
Operating Revenue	172,034	180,637	189,668	199,151	209,109	219,564	230,542	242,069	254,172	254,178	254,178	254,178	254,178	254,178	254,178
Operating Expense	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064	75,064
Maintenance Cost	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195	33,195
Depreciation Cost	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869
Investment (Station)															
Investment Total	0	0	0	471,333	0	0	0	59,481	0	0	0	0	0	0	0
Local Currency Total	0	0	0		0	0	0	481	0	0	0	0	0	0	0
Foreign Currency Total	0	0	0	471,333	0	0	0	59,000	0	0	0	0	0	0	0
Building	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Platform	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elevator	0	0	0	368,421	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	368,421	0	0	0	0	0	0	0	0	0	0	0
Escalator	0	0	0	88,000	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	88,000	0	0	0	0	0	0	0	0	0	0	0
Ticket Vending Machine	0	0	0	0	0	0	0	58,947	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	58,947	0	0	0	0	0	0	0
Automatic Gate Fare Machine	0	0	0	14,912	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	14,912	0	0	0	0	0	0	0	0	0	0	0
Shelter	0	0	0	0	0	0	0	534	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	481	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	53	0	0	0	0	0	0	0
Engineering & Consulting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Salvage Value															199,190
Investment(Station Plaza)															
Investment Total	0	0	0	0	0	0	0	0	7,738	360	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	6,964	36	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	774	324	0	0	0	0	0
Land	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Deck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Zone	0	0	0	0	0	0	0	0	7,290	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	6,561	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	729	0	0	0	0	0	0
Shelter	0	0	0	0	0	0	0	0	448	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	403	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	45	0	0	0	0	0	0
Light	0	0	0	0	0	0	0	0	0	360	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	324	0	0	0	0	0
Access Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pavement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Engineering and Consulting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Salvage Value															83,945
Finance Program															
Finance															
Borrowing	0	0	0	471,333	0	0	0	59,481	7,738	360	0	0	0	0	0
Repayment	72,379	72,419	72,999	73,002	73,002	22,278	22,278	22,278	22,280	24,270	24,281	24,321	24,902	24,865	39,995
Balance	898,458	826,039	753,040	1,151,370	1,078,368	1,056,090	1,033,812	1,071,015	1,056,473	1,032,563	1,008,282	983,960	959,059	934,194	894,199
Interest	46,263	38,438	30,606	27,401	19,483	11,564	11,254	11,606	12,348	12,047	11,717	11,387	11,051	10,628	10,210
Net Cash Flow	20,198	36,585	52,867	65,553	83,429	152,527	163,816	174,990	186,350	184,666	184,985	185,275	185,031	185,491	453,913
Cumulative Net Cash Flow	-160,146	-123,560	-70,693	-5,140	78,289	230,816	394,632	569,622	755,972	940,638	1,125,623	1,310,898	1,495,929	1,681,420	2,135,333
Cash Flow Statement															
Cash In	138,840	147,442	156,473	637,290	175,914	186,369	197,347	268,355	228,716	221,343	220,983	220,983	220,983	220,983	220,983
Operating Profit	96,970	105,572	114,603	124,087	134,045	144,500	155,478	167,005	179,108	179,114	179,114	179,114	179,114	179,114	179,114
Depreciation	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869	41,869
Borrowing	0	0	0	471,333	0	0	0	59,481	7,738	360	0	0	0	0	0
Cash Out	118,642	110,857	103,606	571,737	92,485	33,842	33,532	93,365	42,366	36,677	35,998	35,708	35,952	35,492	-232,930
Investment	0	0	0	471,333	0	0	0	59,481	7,738	360	0	0	0	0	-283,135
Int.During Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment	72,379	72,419	72,999	73,002	73,002	22,278	22,278	22,278	22,280	24,270	24,281	24,321	24,902	24,865	39,995
Interest	46,263	38,438	30,606	27,401	19,483	11,564	11,254	11,606	12,348	12,047	11,717	11,387	11,051	10,628	10,210
Financial Analysis for Develop															
Cash Flow for FIRR	138,840	147,442	156,473	-305,376	175,914	186,369	197,347	149,393	213,240	220,623	220,983	220,983	220,983	220,983	504,118

Financial Analysis for Development of Magallanes(LRT 3) and Magallanes(MCX) Stations and the Station Plaza(MCX) (Unit:1000 Peso)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Operating Profit	0	0	0	0	0	101,356	108,179	115,257	122,863	130,759	1,385,493	147,759	156,900	166,500	176,580
Operating Revenue	0	0	0	0	0	136,438	143,261	150,339	157,945	165,842	1,420,575	182,842	191,983	201,582	211,662
Operating Expense	0	0	0	0	0	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082
Maintenance Cost	0	0	0	0	0	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429
Depreciation Cost	0	0	0	0	0	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653
Investment (Station)															
Investment Total	14,250	9,500	24,772	212,211	0	0	0	0	0	0	0	0	0	89,303	28
Local Currency Total	8,550	5,700	18,648	600	0	0	0	0	0	0	0	0	0	9,636	3
Foreign Currency Total	5,700	3,800	6,124	211,611	0	0	0	0	0	0	0	0	0	79,667	25
Building	0	0	24,312	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	18,234	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	6,078	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	0	12,000	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	600	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	11,400	0	0	0	0	0	0	0	0	0	0	0
Platform	0	0	460	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	414	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	46	0	0	0	0	0	0	0	0	0	0	0	0
Elevator	0	0	0	26,316	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	26,316	0	0	0	0	0	0	0	0	0	0	0
Escalator	0	0	0	76,000	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	76,000	0	0	0	0	0	0	0	0	0	0	0
Ticket Vending Machine	0	0	0	78,597	0	0	0	0	0	0	0	0	0	78,597	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	78,597	0	0	0	0	0	0	0	0	0	78,597	0
Automatic Gate Fare Machine	0	0	0	19,298	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	19,298	0	0	0	0	0	0	0	0	0	0	0
Enginering & Consulting	14,250	9,500	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	8,550	5,700	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	5,700	3,800	0	0	0	0	0	0	0	0	0	0	0	0	0
-Salvage Value															
Investment(Station Plaza)															
Investment Total	13,216	91,460	31,020	58,639	47,961										
Local Currency	7,930	87,936	31,020	38,396	28,763										
Foreign Currency	5,286	3,524	0	20,243	19,198										
Land	0	82,650	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	82,650	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Deck	0	0	0	47,933	47,933	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	28,760	28,760	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	19,173	19,173	0	0	0	0	0	0	0	0	0	0
Environmental Zone	0	0	0	10,062	0	0	0	0	0	0	0	0	0	10,062	0
Local Currency	0	0	0	9,056	0	0	0	0	0	0	0	0	0	9,056	0
Foreign Currency	0	0	0	1,006	0	0	0	0	0	0	0	0	0	1,006	0
Shelter	0	0	0	644	0	0	0	0	0	0	0	0	0	644	0
Local Currency	0	0	0	580	0	0	0	0	0	0	0	0	0	580	0
Foreign Currency	0	0	0	64	0	0	0	0	0	0	0	0	0	64	0
Light	0	0	0	0	28	0	0	0	0	0	0	0	0	0	28
Local Currency	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
Foreign Currency	0	0	0	0	25	0	0	0	0	0	0	0	0	0	25
Access Road	0	0	21,080	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	21,080	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pavement	0	0	9,940	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	9,940	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enginering and Consulting	13,216	8,810	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	7,930	5,286	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	5,286	3,524	0	0	0	0	0	0	0	0	0	0	0	0	0
-Salvage Value															
Finance Program															
Finance															
Borrowing	29,402	114,410	80,399	307,120	94,815	0	0	0	0	0	0	0	0	89,303	28
Repayment	0	0	0	0	0	0	0	0	28,788	28,788	28,788	28,788	28,788	28,788	28,788
Balance	29,402	143,812	224,211	531,331	626,146	626,146	626,146	626,146	597,358	568,569	539,781	510,992	482,204	542,719	513,958
Interest	1,936	13,450	24,607	36,270	46,854	54,626	54,626	54,626	54,626	50,308	45,989	41,671	37,353	35,277	30,959
Net Cash Flow	0	0	0	0	0	66,383	73,206	80,284	59,102	71,317	1,330,368	96,953	110,413	122,088	136,486
Cumulative Net Cash Flow	0	0	0	0	0	66,383	139,589	219,874	278,976	350,292	1,680,661	1,777,614	1,888,027	2,010,115	2,146,601
Cash Flow Statement															
Cash In	29,402	114,410	80,399	307,120	94,815	121,009	127,832	134,910	142,516	150,413	1,405,146	167,413	176,554	275,457	196,261
Operating Profit	0	0	0	0	0	101,356	108,179	115,257	122,863	130,759	1,385,493	147,759	156,900	166,500	176,580
Depreciation	0	0	0	0	0	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653
Borrowing	29,402	114,410	80,399	307,120	94,815	0	0	0	0	0	0	0	0	89,303	28
Cash Out	29,402	114,410	80,399	307,120	94,815	54,626	54,626	54,626	83,414	79,096	74,778	70,460	66,141	153,368	59,776
Investment	27,466	100,960	55,792	270,850	47,961	0	0	0	0	0	0	0	0	89,303	28
Int.During Construction	1,936	13,450	24,607	36,270	46,854	0	0	0	0	0	0	0	0	0	0
Repayment	0	0	0	0	0	0	0	0	28,788	28,788	28,788	28,788	28,788	28,788	28,788
Interest						54,626	54,626	54,626	54,626	50,308	45,989	41,671	37,353	35,277	30,959
Cash Flow For FIRR	-27,466	-100,960	-55,792	-270,850	-47,961	121,009	127,832	134,910	142,516	150,413	1,405,146	167,413	176,554	96,851	196,205

FIRR 28.64%

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Operating Profit	187,162	198,275	209,943	222,194	235,058	248,565	251,463	254,506	257,702	261,057	264,580	268,279	272,163	272,163	272,163
Operating Revenue	222,244	233,357	245,025	257,276	270,140	283,647	286,546	289,589	292,784	296,139	299,662	303,361	307,245	307,246	307,246
Operating Expense	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082	35,082
Maintenance Cost	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429	15,429
Depreciation Cost	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653
Investment (Station)															
Investment Total	0	0	0	121,614	0	0	0	0	89,303	28	0	0	0	0	0
Local Currency Total	0	0	0	0	0	0	0	0	9,636	3	0	0	0	0	0
Foreign Currency Total	0	0	0	121,614	0	0	0	0	79,667	25	0	0	0	0	0
Building	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Platform	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elevator	0	0	0	26,316	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	26,316	0	0	0	0	0	0	0	0	0	0	0
Escalator	0	0	0	76,000	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	76,000	0	0	0	0	0	0	0	0	0	0	0
Ticket Vending Machine	0	0	0	0	0	0	0	0	78,597	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	78,597	0	0	0	0	0	0
Automatic Gate Fare Machine	0	0	0	19,298	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	19,298	0	0	0	0	0	0	0	0	0	0	0
Enginering & Consulting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Salvage Value															120,690
Investment(Station Plaza)															
Investment Total															
Local Currency															
Foreign Currency															
Land	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Deck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Zone	0	0	0	0	0	0	0	0	10,062	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	9,056	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	1,006	0	0	0	0	0	0
Shelter	0	0	0	0	0	0	0	0	644	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	580	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	64	0	0	0	0	0	0
Light	0	0	0	0	0	0	0	0	0	28	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0
Access Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pavement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enginering and Consulting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foreign Currency	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-Salvage Value															31,832
Finance Program															
Finance															
Borrowing	0	0	0	121,614	0	0	0	0	89,303	28	0	0	0	0	0
Repayment	38,145	38,145	38,948	38,948	38,948	10,159	10,159	10,159	10,159	12,815	12,816	12,816	13,619	13,619	16,870
Balance	475,814	437,669	398,721	481,388	442,440	432,280	422,121	411,961	491,105	478,318	465,502	452,686	439,068	425,449	408,579
Interest	26,641	22,229	17,817	14,501	9,969	5,437	5,222	5,008	7,036	6,823	6,582	6,342	6,101	5,740	5,379
Net Cash Flow	142,030	157,555	172,831	188,398	205,794	252,622	255,735	258,992	260,159	261,072	264,835	268,774	272,096	272,457	422,090
Cumulative Net Cash Flow	2,288,631	2,446,185	2,619,016	2,807,415	3,013,209	3,265,831	3,521,566	3,780,558	4,040,717	4,301,789	4,566,624	4,835,399	5,107,495	5,379,952	5,802,042
Cash Flow Statement															
Cash In	206,815	217,928	229,596	363,461	254,711	268,218	271,117	274,160	366,658	280,738	284,233	287,932	291,816	291,817	291,817
Operating Profit	187,162	198,275	209,943	222,194	235,058	248,565	251,463	254,506	257,702	261,057	264,580	268,279	272,163	272,163	272,163
Depreciation	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653	19,653
Borrowing	0	0	0	121,614	0	0	0	0	89,303	28	0	0	0	0	0
Cash Out	64,785	60,374	56,765	175,063	48,917	15,596	15,382	15,168	106,499	19,666	19,398	19,158	19,720	19,359	-130,274
Investment	0	0	0	121,614	0	0	0	0	89,303	28	0	0	0	0	-152,523
Int.During Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment	38,145	38,145	38,948	38,948	38,948	10,159	10,159	10,159	10,159	12,815	12,816	12,816	13,619	13,619	16,870
Interest	26,641	22,229	17,817	14,501	9,969	5,437	5,222	5,008	7,036	6,823	6,582	6,342	6,101	5,740	5,379
Cash Flow For FIRR	206,815	217,928	229,596	120,233	254,711	268,218	271,117	274,160	188,052	280,682	284,233	287,932	291,816	291,817	444,339

FIRR 28.64%