1. FOREWORDS
   1.1 Background
   1.2 Purpose of This Guide
   1.3 Scope of Discussion

2. BAD PRACTICES
   2.1 CSW Intersection
   2.2 Cawang Cikoko
   2.3 The Aim of Integration

3. COMPONENTS OF INTEGRATION
   3.1 Faster, Easier
   3.2 More Affordable

4. ACCESSIBILITY
   4.1 At-Grade
   4.2 Multi-level
   4.3 Accessibility Improvement

5. TYPICAL DESIGN
   5.1 Median BRT - Underground MRT
   5.2 Elevated BRT - Elevated MRT
   5.3 BRT - KRL
   5.4 BRT - LRT
   5.5 Integration of Area

6. LOCATION OF INTEGRATION
   6.1 Mapping
   6.2 List of Locations

7. CASE STUDY AND RECOMMENDATION
   7.1 Taman Kota
   7.2 Juanda

8. CONTACT PERSONS
1.1 BACKGROUND

Jakarta is building massive public transportation infrastructure and it needs proper integration to help the intermodal transfer run smoothly. Therefore, it is important to apply the principle of integration design to avoid poor intermodal connectivity.

1.2 PURPOSE OF THIS GUIDELINE

This practical guide was prepared in order to create intermodal integration, which emphasizes the ease of passengers’ mobility aspect. It can be used by the DKI Jakarta Provincial Government as a reference in planning Jakarta’s intermodal integration.

1.3 SCOPE OF DISCUSSION

Jakarta's intermodal integration design which focuses on:

- Passenger's access speed
- Passenger's convenient
- Fare affordability
- Locations with integration needs
2

BAD PRACTICES

2.1

CSW INTERSECTION

This location is an intersection between Transjakarta corridor 1 & 13 with MRT. CSW Transjakarta bus shelter, which is located at a 23-meter height, only has stair access and no direct connection with Sisingamangaraja MRT station located less than 100 meter north.

2.2

CAWANG CIKOKO

There are very few facilities that provide connectivity between Transjakarta with KRL. Passengers must pass through 90cm-wide pedestrian access if they wish to access the station's south side. Conditions worsen at night and during rain, with the lack of lighting and the water-filled access. This location will also hold Jabodebek LRT Station in the future.

2.3

THE AIM OF INTEGRATION

Faster

to shorten passenger's wait and transfer time

More convenient

to make passenger's experience more convenience; shorten passenger's walking time, provide clear information about transfer information and seamless intermodal system

More affordable

integrated fare and payment system lower passenger's transportation cost
Components of Integration

3.1 FASTER, EASIER

- Direct Connection
- At-Grade Crossing
- Pedestrian facilities within 500 m radius

3.1.1 DIRECT CONNECTION

Most of the time, the placement between existing and new public transport station is relatively close. During the planning stage, this common practice needs to be agreed upon between the mode's stakeholders. This integration of infrastructure is very beneficial for transferring passengers since it will shorten the wait time, transfer time, and walking distance.

CONVENTIONAL CROSSING

Currently, the only direct connection between Transhjakarta and MRT Jakarta are only implemented at Bundaran HI Station, where underground tunnel directly connect the two modes. A direct connection will shorten the time and distance up to 74%, and passengers will not need to leave the bus stop or station.
The majority of access to Transjakarta stations is in the form of pedestrian bridges (Jembatan Penyeberangan Orang /JPO), few of these has a ramp for wheelchair users. This lead to an increase in distance and time needed for the passenger to reach the bus station. JPO with a ramp can be modified by adding a set of stairs in the middle of the ramp. ITDP recommends at-grade direct crossings as access to the bus shelter, which is more universal and faster for the passengers.

Areas such as Cawang Cikoko become a hub of intermodal stops and stations. There are at least three modes with stopping points at Cawang Cikoko. Area integration is meant to ease the passengers' intermodal transfer.

The basic principle is to improve pedestrian accessibility within a 500-meter radius, not just on the main road. Additional pedestrian facilities can be in a form of pedestrian corridor, which are protected from the weather, with foliage and active frontage.
Improvement of accessibility to the intermodal station area can be made with the following elements:

1. **Shade**
   The canopy will protect pedestrians from the sun and rain.

2. **Wide sidewalk**
   The station area can be crowded with passengers’ moving so its design needs to be inclusive and with better lighting at night.

3. **Active building frontage**
   Creating an interesting and enjoyable atmosphere for walking.
3.2 MORE AFFORDABLE

- Fare integration based on distance/time
- Universal electronic payment method
- Concession fare (students, elderly, tourists, people with disabilities, etc.)

3.2.1 RATES & PAYMENT

Transjakarta, MRT, LRT, and KRL as one united service will ease intermodal transfer with features such as one-timed payment and integrated fare. Intermodal fare and payment schemes include:

**Stored value**

- High flexibility for the user depending on available balance
- Rates adjustment or promotion flexibility for operators

**Time-based**

- The flexibility of the number of trips within a certain period for passengers
- Additional income for operators when trips duration are minimized

**Trip-based**

- Upfront ticket purchase if the passengers didn't complete the trips
- Additional income for operators for unused trips

Income from tickets is collected and consolidated by a clearinghouse, then distributed to public transportation operators based on the percentage of mileage carried out.

With this model, passengers can use the same card for every mode and change modes without having to pay again in the certain period of time.
ACCESSIBILITY

4.1 AT-GRADE CROSSING

4.1.1 FIXED TIMING

- Adding access to at-grade crossings, especially for bus stops located near intersections
- Adding pedestrian traffic light at intersections
- At-grade crossing as direct access to the bus stop without having to use a pedestrian bridge
4.1.2 Pelican Crossing

- This type of crossing can be placed between a wide block of roads with high traffic
- Pedestrians are asked to push a button which will automatically activate the lamp as a signal for vehicles to stop
- Currently, several TransJakarta have applied pelican crossings at Monas Station, Bundaran Senayan Station and Gelora Bung Karno Station
Currently, the majority of access to or from Transjakarta BRT stations are pedestrian bridge equipped with a ramp. According to the Indonesia Ministry of Public Works, the standard of pedestrian bridge's ramp maximum slope is 8%. But field assessment shows that no pedestrian bridge's ramps have met the standard yet.

The previous table shows that the pedestrian bridge's ramps are too steep for wheelchair users to access the BRT stations independently.

<table>
<thead>
<tr>
<th>Pedestrian Bridge Location</th>
<th>West Side</th>
<th>Centre</th>
<th>East Side</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dukuh Atas</td>
<td>8.9% - 15.6%</td>
<td>42%</td>
<td>10.5 - 12%</td>
</tr>
<tr>
<td>Karet</td>
<td>Stairs</td>
<td>10.8% - 11.9%</td>
<td>Stairs</td>
</tr>
<tr>
<td>Bendungan Hilir</td>
<td>11.2% - 10%</td>
<td>10.3% - 22.3%</td>
<td>8.2% - 10.5%</td>
</tr>
</tbody>
</table>

To use pedestrian bridge as access, the followings must be ensured:

- Maximum ramp slope of 8%
- Additional stairs are recommended as an alternative for faster access
4.1.2 ADDITION TO EXISTING PEDESTRIAN BRIDGE

For existing pedestrian bridge with ramp, the short term solution is to add stairs at the middle of the ramp. This facility is an option for passengers to access the bus shelter faster. Passengers can shorten the distance up to 30-meter with the additional stairs.
4.3 ACCESSIBILITY IMPROVEMENT

4.3.1 SIGNAGE

Signage at Bank Indonesia Transjakarta BRT Station

Signage as location and directional markers for pedestrians and public transport users.

BUS STOP DESIGN

- Company logo
- Bus stop icon
- Location
- Route code
- Route information
4.3.2 WAYFINDING

Wayfinding and totem serve as a more complete direction and location information for pedestrians and public transport users. Wayfinding can be placed at the sidewalk near an intersection, at the middle block of a road segment, or the station/bus stop entryway. The contents on a wayfinding include:

- Street name
- Direction directory according to wayfinding location
- Public transportation information
- Situational map
4.3.3 WAYFINDING ON SIDEWALK TILE

Wayfinding at East Jatinegara Street, 500 m towards Kampung Melayu

Wayfinding can also be integrated directly on the sidewalk tile. Installation can occur during sidewalk construction or using pre-made mould. The content of this wayfinding are:

- Public transportation logo
- Directional sign
- Distance

Information includes:
1. TransJakarta logo
2. Directional sign
3. Distance (100 m, 200 m, 300 m)

r = 25 cm
4.3.4 Improving Sidewalk Quality

East Jatinegara before improvement

East Jatinegara after improvement

Sidewalk at Dukuh Atas, Sudirman
4.3.5 SHADES

The convenience of walking, especially in tropical countries, can be improved by providing canopies to protect pedestrians from the sun or rain. Shading can be in the form of a canopy on the sidewalk or arcade/alley, added with shops opening as active frontage.
5.1 MEDIAN BRT - UNDERGROUND MRT

- Underground MRT stations are commonly located near existing BRT bus shelter on the road median
- The MRT station and BRT station must be connected with a tunnel on the concourse area
- Concourse area becomes a common space shared by BRT and MRT passengers
- Elevator and escalator provided for this connection will ensure universal access
Integration of infrastructure between underground MRT station and BRT station at road median using a connecting tunnel, become a direct connection for intermodal transfer.

A tunnel connecting the underground MRT station and BRT station at road median as a direct connection provides the following benefits for intermodal transfer:

- Shorter distance
- One similar element for passengers
- Expanding mass transportation network
5.2 ELEVATED BRT - ELEVATED MRT

It’s important to have a connection for intermodal transfer to keep passengers inside the system.

The solution to elevation difference is by providing elevators and/or escalators as universal access.

5.3 BRT - KRL

Existing Design

Walking distance 115 m

Design Recommendation

Walking distance 55 m
Commonly, passengers from the train station have to continue to their trip with other modes. The followings are the principle for this typical integration:

- Bus stop located as near as possible to the train station exit
- A weather-proofed pedestrian connection between the station and bus stop
- Clear directional, route, and schedule information

### 5.4 BRT - LRT

- Closely located LRT stations and BRT stops (top and bottom) are integrated on the station concourse area with a direct connection
- Escalator and elevator as access from the sidewalk
5.5 AREA OF INTEGRATION

Area integration is focused on accessibility and connectivity within a 500-meter radius from every station or any public transport stop. Pedestrian movement is facilitated for convenience, safety and attractive at the intermodal area with the following elements:

- Wide sidewalk
- Proper shade and lighting
- Public space activation for interaction
INTEGRATION LOCATION

6.1 MAPPING

Location needed intermodal integration
There are a total of 53 locations at Jakarta that have a potential for intermodal integration. These intermodal integration types are:

- TJ - MRT
- TJ - KRL
- TJ - LRT Jabodebek
- TJ - LRT Jakpro
- Integration of more than 2 modes on one location

6.2 LIST OF LOCATIONS

<table>
<thead>
<tr>
<th>TransJakarta stop</th>
<th>MRT Station</th>
<th>Integration Typical Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bundaran HI</td>
<td>Bundaran HI</td>
<td>Direct Connection Area Integration Bus Bay Stop-station connection Accessibility Improvement</td>
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<tr>
<td>Dukuh Atas 1 &amp; 2</td>
<td>Dukuh Atas</td>
<td>Area Integration</td>
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<tr>
<td>Dukuh Atas 1</td>
<td>Surabaru</td>
<td>Direct Connection</td>
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<tr>
<td>Karet</td>
<td>Bendungan Hilir</td>
<td>Direct Connection</td>
</tr>
<tr>
<td>GBK/Polda</td>
<td>Istora</td>
<td>Direct Connection</td>
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<td>Bundaran Senayan</td>
<td>Senayan</td>
<td>Direct Connection</td>
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<tr>
<td>CSW</td>
<td>Sisingamangaraja</td>
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<tr>
<td>Blok M</td>
<td>Blok M</td>
<td>Area Integration</td>
</tr>
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<td>Blok A Petogouan (Bus Stop)</td>
<td>Blok A</td>
<td>Bus Bay</td>
</tr>
<tr>
<td>H. Nawi Raya (Bus Stop)</td>
<td>Haji Nawi</td>
<td>Bus Bay</td>
</tr>
<tr>
<td>Jalan Cipete Raya (Bus Stop)</td>
<td>Cipete Raya</td>
<td>Bus Bay</td>
</tr>
<tr>
<td>Jalan Banjarsari (Bus Stop)</td>
<td>Fatmawati</td>
<td>Bus Bay</td>
</tr>
<tr>
<td>Lebak Bulus</td>
<td>Lebak Bulus</td>
<td>Direct connection</td>
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### Phase 2

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<td>Sawah Besar</td>
<td>Sawah Besar</td>
<td>Direct Connection</td>
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<tr>
<td>Mangga Besar/Diimo</td>
<td>Mangga Besar</td>
<td>Direct Connection</td>
</tr>
<tr>
<td>Giodok</td>
<td>Giodok</td>
<td>Direct Connection</td>
</tr>
<tr>
<td>Kota</td>
<td>Kota</td>
<td>Direct Connection</td>
</tr>
</tbody>
</table>

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<tr>
<th>Transjakarta stop</th>
<th>MRT Station</th>
<th>Integration Typical Design</th>
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</thead>
<tbody>
<tr>
<td>Dukuh Atas 1 &amp; 2</td>
<td>Dukuh Atas</td>
<td>Area Integration</td>
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<tr>
<td>Setiabudi Utara</td>
<td>Setiabudi</td>
<td>Direct Connection</td>
</tr>
<tr>
<td>GOR Sumantri</td>
<td>Rasuna Said</td>
<td>Direct Connection</td>
</tr>
<tr>
<td>Depkes</td>
<td>Kuningan</td>
<td>Direct Connection</td>
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<tr>
<td>Pancoran Barat</td>
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<td>Direct Connection</td>
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<tr>
<td>Cawang Cikoko</td>
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<td>BNN</td>
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<td>Kampung Rambutan</td>
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<td>Transjakarta-train station connection</td>
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<tr>
<td>Garuda Taman Mini</td>
<td>TMII</td>
<td>Transjakarta-train station connection</td>
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<tr>
<td>Pemuda Rawamangun</td>
<td>Velodrome</td>
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<td>Transjakarta-LRT station connection</td>
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<td>Transjakarta stop</td>
<td>KRL Station</td>
<td>Integration Typical Design</td>
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<td>Dukuh Atas 1 &amp; 2</td>
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<td>Senen &amp; Senen Central</td>
<td>Pasar Senen</td>
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<td>Stasiun Jatinegara 2</td>
<td>Jatinegara</td>
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<tr>
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<td>Kemayoran</td>
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<td>Pondok Jati</td>
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<td>Taman Kota</td>
<td>Taman Kota</td>
<td>Accessibility Improvement</td>
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<td>Kampung Bandan</td>
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<td>Stasiun Klender</td>
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<td>Juanda</td>
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<td>Stop-Station Connection</td>
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<tr>
<td>Kota &amp; Stasiun Kota</td>
<td>Jakarta Kota</td>
<td>Stop-Station Connection</td>
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<tr>
<td>Tanjung Priok</td>
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<td>Stop-Station Connection</td>
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<td>Stasiun Gondangdia (Bus Stop)</td>
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<td>Stasiun Tebet (Bus Stop)</td>
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<tr>
<td>Stasiun Duren Kalibata (Bus Stop)</td>
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<td>Stasiun Pasar Minggu (Bus Stop)</td>
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<tr>
<td>Stasiun Tanah Abang (Bus Stop)</td>
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<tr>
<td>Stasiun Palmerah (Bus Stop)</td>
<td>Palmerah</td>
<td>Bus Bay</td>
</tr>
</tbody>
</table>
CASE STUDY AND RECOMMENDATION

7.1 TAMAN KOTA

- The distance between Taman Kota Transjakarta BRT station (corridor 3) and Taman Kota KRL station is approximately 180 meter.
- Both are connected with Taman Kota street, which has minimal pedestrian facilities.
- Recommended for intermodal connection for this case are continuous improvement of the surrounding sidewalk, with continuous sidewalk, proper shades, and proper lighting for passenger safety at night time.
Location 1
Existing condition

Location 1
Design recommendation

Location 2
Existing condition

Location 2
Design recommendation
7.2 JUANDA

Existing connection between Juanda Transjakarta BRT station and KRL station

- Currently, the integration at Juanda is still partially done, as Transjakarta pedestrian bridge connection only lands on the sidewalk at the end of the station
- Passengers have to descend the pedestrian bridge then climb back at concourse to KRL platform
- ITDP is recommending two alternatives; direct connection from pedestrian bridge to KRL concourse or at-grade crossing to increase pedestrians movement efficiency

Option 1 Design Recommendation

At-grade crossing for passenger connection

Option 2 Design Recommendation

Direct connection through pedestrian bridge from Transjakarta shelter to KRL station concourse level
Existing condition of Juanda intermodal integration

Option 1
Design
Recommendation

Option 2
Design
Recommendation
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