Evaluation of Rwp-Isl Metrobus Service

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Abstract:
This study will evaluate Rwp-Isl Metrobus Service on the basis of international best practices followed all around the world such as “BRT Standard 2016”. This study concludes that Rwp-Isl Metrobus Service fulfills the criteria for “Bronze BRT.” It has scored low in Service Planning, Infrastructure and access and integration. Comparing it with Lahore BRT, much improvement can be seen, but still, number of key things were not considered like service planning, infrastructure and access and integration. This shows that ignoring standards of BRT set by experts and deviation from proposed transport policies is one of the key factors that can lead towards failure of urban transport system in Rawalpindi-Islamabad

Key Words: Performance Evaluation, Rwp-Isl BRT, BRT Standards 2016, BRT Scoring, History of Rwp-Isl transportation

1. INTRODUCTION

Modal shares of public transport are on the decline in most developing countries like Pakistan. This was due to lack of availability of alternate mode to travel which has forced many to shift from public transport to personal vehicles such as cars, motorcycles, etc. This shift will ultimately lead to increase in traffic congestion, bad effect on the economy, increase in environmental pollution thus making the overall situation quite alarming. So living in the life where everyone has a shortage of time, transportation authorities all over the world are moving towards speedy, accessible and reliable Mass Transit Systems that will help in overcoming the problems faced by the commuters. This will not only facilitate commuters, but it will also help in reducing environmental pollution.

A successful Mass Transit System increases its ridership and discourages the use of privately owned vehicles consequently decreasing the congestion on the roads. It provides commuters with the speedy, accessible, reliable and safe transportation system. It plays a key role in improving accessibility for all individuals, thereby enhancing social cohesion between people of various classes. It is also beneficial for disabled people and senior citizens by providing them accessible public transport system. But it is necessary that a transportation system must be fully utilized and performing at an optimum level to give maximum benefits to its users. In this regard, it is necessary that transportation system not only have to be well planned, operated, maintained and marketed but performance evaluation of transportation system must be regularly carried out to keep an eye on the productivity of the system.

2. STUDY BACKGROUND

The public transport system in Islamabad started in 1989 when People’s Bus Train was started simultaneously in Karachi, Rawalpindi, and Islamabad by Ms. Bhutto’s first government. (NTRC 1992). In this project, the National Transport Research Centre (NTRC) designed and developed a Bus Train (prime mover plus three trailers) using old discarded buses to provide high-capacity bus services at peak hours. The Awami Bus Train provided services on main corridor that had sufficient road width. Initially, this project was started in Karachi but after one year of operation, the Bus Train was shifted to Rawalpindi and Islamabad. The Bus Train had, for the first time, introduced an imaginary bus lane on the extreme left of the road. It was estimated that the Bus Train attracted a large number of commuters in Rawalpindi and Islamabad from 1991 to 1993. This service used 45 per cent of its capacity and recovered 68 per cent of its cost from fares in two years of operation (Govt. of Pakistan, NTRC 1996). However, this service was shut down due to lack of interest from the government in providing public transport services.

In 1996, under Prime Minister Benazir Bhutto’s Development Programme for big cities, a mass transit project was started in the cities of Rawalpindi and Islamabad. This system was based on a rail-road mixed mode
that contained an urban rail link between Rawalpindi and Islamabad connected with feeder coasters (mini buses) in Islamabad. The main objective of this service was to reduce peak-hour traffic congestion, reduce air pollution, and make use of existing railway infrastructure (Govt. of Pakistan, NTRC 1996). Initially, the train service was designed for 6,000-8,000 commuters per day. Therefore, only three train services at the frequency of 1.5 hours in the morning peak and three train services at the frequency of 3 hours in the afternoon peak were started. However, nearly three months after it became operational, these services were reduced to four train services per day. Finally, this rail-road mass transit system was shut down due to heavy financial losses. The main reasons behind its failure were inadequate service planning, which includes the absence of feeder buses in Rawalpindi; very low frequency; lack of information about time tabling; lack of amenities on railway stations; and relatively higher fares without any time savings. Additionally, this train service caused traffic jams at the level crossing roads in Rawalpindi.

The Varan bus service started on February 23, 2000, with a fleet of 150 buses aimed at providing comfortable travelling facilities to commuters of the twin cities. The initial cost of the venture was estimated to be Rs. 60 crore. It accommodated about 200,000 passengers per day. Its routes were perfectly designed and were able to fulfill the daily traveling needs of citizen of Rawalpindi and Islamabad. Unfortunately this bus service was shut down in 2005 due to accidents involving Varan Buses. In 2008, Varan buses were launched again but due to political issues it was completely shut down in 2010.

In Feb 2013, Metro Bus Service or BRTS (Bus Rapid Transit System) was first time introduced in Lahore by Government of Punjab with the objective of providing a quality bus service to the residents of Lahore. Lahore BRT was built as an inspiration for Istanbul, Turkey. It was the first of its kind and it proved to be a successful project and was remarkably accepted by the residents of the city. It has a 27 km long corridor which starts from Gajumata and ends at Shahdara with daily ridership of around 180,000 to 220,000. It was followed up by Rawalpindi-Islamabad Metro bus Service in June, 2015 which is a 22.5 km long corridor that starts from Saddar, Rawalpindi and ends at Pak Secretariat, Islamabad with average daily ridership of 138,000. The third BRT service in Pakistan was Multan Metro Bus Service was started in Jan, 2017 which is an 18 km long dedicated corridor that starts from Bahauddin Zikriya University and goes upto Kumharanwala Chowk serving 97,000 people daily. These BRTS were introduced to provide speedy, accessible and reliable transportation services to people of different cities of Pakistan.

3. METHODOLOGY

This research will now shift its focus and compares Rwp-Isl Metrobus Service with the international best practices followed all around the world. Rwp-Isl Metrobus Service was evaluated according to the “BRT Standard 2016”. These BRT Standards was developed to create a common definition of Bus Rapid transit and to recognize high quality BRT corridors around the world. BRT Standard 2016 is a tool that is used to assess and analyze BRT based on international best practices.

In order to evaluate Rwp-Isl Metrobus Service on the basis of BRT Standard 2016, extensive visits and trips were performed to observe the different elements of BRT currently operating in twin cities of Rawalpindi and Islamabad. Google maps were also utilized to quantify the length of the Rwp-Isl Metrobus Service corridor, distance between stations as well as other necessary data.

3.1 BRT BASICS

BRT basics are the element that are set forth for defining a corridor as BRT. Various factors are considered in BRT basics such as “dedicated right of way; busway alignment; off-board fare collection; intersections treatment and platform level boarding etc”. A proposed BRT corridor must achieve atleast 4 points on both busway alignment and dedicated right of way and must achieve a minimum 20 points across all five categories to be identified as BRT. Rwp-Isl Metrobus Service achieved 38/38 points in BRT basics as it fulfilled all the criterias. These criterias are explained one by one in following paragraphs.

3.1.1 Dedicated right of way
Dedicated right of way are costly to build as but it helps to improve safety of bus operations within the assigned corridor. Rwp-Isl Metrobus Service has 22.5 long dedicated corridor that is physically separated with other traffic and has no crossing of traffic or signal whatsoever. So Rwp-Isl Metrobus Service has scored 8/8 points in this criteria.

3.1.2 Bus-way alignment
Busway alignment plays and important role in minimizing conflicts with other traffic. The researchers have found out that if BRT corridor is located in middle of roadway, it has least chance to have conflict with other traffic plying on road. Rwp-Isl Metrobus Service operates in the middle of the Murree Road, 9th Avenue and Jinnah Avenue with two way median aligned bus-way. So Rwp-Isl Metrobus Service has scored 8/8 points in this criteria.

3.1.3 Off-board fare collection
Off-board fare collection is usually used in transit systems in order to speed up boarding time. It also improves efficiency of system and improve passengers experience. Rwp-Isl Metrobus Service has all turnstile controlled stations. These stations are used to enforce one way traffic of people as well fare is deducted when a passenger pass through turnstile. Maximum points are awarded if BRT has all turnstile controlled stations. Rwp-Isl Metrobus Service earned 8/8 points as all 24 stations are turnstile controlled.

3.1.4 Platform-level boarding
Platform-level boarding is most important aspect as far as accessibility of public transport to disabled people is concerned. A platform level boarding provides accessibility to disabled people as well ensuring the safety of passengers during boarding and alighting at stations. It also minimizes the time of alighting and boarding of passengers. As per the standard, the distance between station and bus should be less than 4cm to be said as platform level boarding (BRT Standard 2016). Rwp-Isl Metrobus Service buses that are at platform level having 4 cm or less of vertical gap. So Rwp-Isl Metrobus Service has scored 7/7 points in this criteria.

3.2 SERVICE PLANNING
Service Planning helps to ensure that the system is fulfilling the current demand as well as has the capacity to fulfill future demand as well. Service Planning criteria includes different components such as “multiple routes; express, limited and local services; control center; etc”. Rwp-Isl Metrobus Service scored 10/19 points in this criteria. This score shows that Rwp-Isl Metrobus Service has performed poorly in service planning. The breakdown of service planning is given below.

3.2.1 Multiple routes
Multiple routes in a single corridor helps in reduction of door to door travel time. As Rwp-Isl Metrobus Service consists of a single corridor so it achieved 0/4 points in multiple routes criteria. In May, 2017 Govt started constructing another route of Rwp-Isl Metrobus Service that will start from Peshawar More, Islamabad and will go upto New Islamabad Airport near Fateh Jang. It is hoped that it will attract number of people that will eventually decrease the congestion on Kashmir Highway, Islamabad.

3.2.2 Express, limited-stop and local services
The prime objective of Mass Transit is to reduce travel time and it is provided by express and limited services. Rwp-Isl Metrobus Service is currently not operating with limited and express services. As discussed in operational analysis, buses are overcrowded during peak hour thus it would be difficult to serve future passenger demand and current design of Rwp-Isl Metrobus Service did not support express and multiple services, so no limited-stop or express services exist whatsoever. Rwp-Isl Metrobus Service achieved 0/3 points in this criteria.

3.2.3 Control center
Control center are essential for keeping an eye on vehicles which is tool to identify problems and respond quickly to a problem in BRT system. A Central Command and Control Center helps to monitor the exact location of vehicles with GPS as well as recording different parameters of operations. Rwp-Isl Metrobus
Service has full Command and Control Center located in Saddar, Rawalpindi which monitors overall bus operations. Rwp-Isl Metrobus Service achieved 3/3 points as it has state of the art control center.

### 3.2.4 BRT corridor in top ten corridors

A BRT system will only attract people if it exist on that route which has potential of attracting riders. Rwp-Isl Metrobus Service is located in top ten corridors that has highest ridership and demand. The whole route of Rwp-Isl Metrobus Service is among the busiest areas of Rawalpindi as well as Islamabad. That’s why Rwp-Isl Metrobus Service earned 2/2 points in this criteria.

### 3.2.5 Demand profile

Maximum utilization and productivity can be achieved if the BRT is built along the highest demand of road. Rwp-Isl Metrobus Service is passing along the highest demand of the road. So Rwp-Isl Metrobus Service earned 3/3 points in criteria.

### 3.2.6 Hours of operation

Availability of BRT service throughout the day is a sign of good BRT system. The following bar chart will show the variation of daily ridership throughout the day.

**Figure 3.1 Variation of Ridership throughout the day**

![Variation of Ridership throughout the day](image)

But Rwp-Isl Metrobus Service is not available after 10 pm as it operates between 6:00 AM to 10:00 PM in seven days a week. Rwp-Isl Metrobus Service earned 1 point because it is not available till midnight.

### 3.2.7 Multi corridor network

Multiple corridor networks provides several travel options to passengers while moving through the city. They prefer to use BRT if gives access to different areas of city. A vast network of multiple corridors in a BRT system helps in increased ridership. Rwp-Isl Metrobus Service operates on a single corridor. It achieved 1/2 points but it will improve as another corridor is under construction.

### 3.3 INFRASTRUCTURE

Good infrastructure plays a key role in increasing comfort of passengers during the journey and can accommodate passengers for longer time. Various things are considered in Infrastructure that includes “passing lanes at stations; minimizing bus emissions; stations set back from intersections” etc. Rwp-Isl Metrobus Service
achieved 7/14 points in infrastructure. It shows that transportation authorities are totally neglecting this important constituent. The breakdown of this section is given below.

### 3.3.1 Passing lanes at station

Passing lanes at Station stops are necessary for express and limited services to operate. During visual survey it was found out that Rwp-Isl Metrobus Service does not have passing lanes at stations. It means that it is not viable to start express and limited services of BRT that is the key feature of an efficient system. Rwp-Isl Metrobus Service achieved 0/4 points because it has no passing lanes at stations. In case of breakdown at Station, Busses would have to use opposite side lane that will not only cause delays as well as it will compromise the safety of bus operations. This maneuver of passing will also compromise the safety of the system and chance of collision with opposite bus will increase.

### 3.3.2 Minimizing bus emissions

Environmental is a great concern nowadays due to increase in Global warming. The main source of Global warming is automobile pollution and industrious pollutions. BRT vehicles must be Euro VI and U.S. 2010 emissions standards as per international practice. Rwp-Isl Metrobus Service fleet consists of Euro III diesel vehicles and the available fuel is not good for clean environment. BRT vehicles in Rwp-Isl Metrobus Service are using fuel of Euro II technology. It achieved 0/3 points because BRT vehicles are below Euro VI technology.

### 3.3.3 Stations set back from intersections

According to international standards, the least distance of stations from intersections should be 26 meters. An ideal distance should be 40 meters to avoid delays due to blockage at intersection. If stations are located just before an intersection, the traffic signal can keep buses from leaving the station and thus not allow other buses to pull in. The risk of conflict remains acute, particularly as frequency increases. Separating stations from intersections is a key way to mitigate these problems. This problem is not encountered as Rwp-Isl Metrobus Service has dedicated corridor with no intersection so it achieved 3/3 points in this criteria.

### 3.3.4 Center stations

Station design plays a key role in determine the construction cost as well as comfortable transfer of passenger. It always recommended to use centrally designed stations serving both directions of BRT. In Lahore BRT they have given stations sidewise i.e. Separate Station for each direction. Contrary to this, Rwp-Isl Metrobus Service stations are designed at center and has achieved 2/2 points.

### 3.3.5 Pavement quality

Good quality pavement ensures better service and operation and reduces the maintenance and rehabilitation cost of the road. Poor pavement quality will slow down the speed of vehicles as well as decreasing the discomfort of passengers as well. Rwp-Isl Metrobus Service has good quality of pavement as it is newly constructed. So Rwp-Isl Metrobus Service achieved 2/2 points in pavement quality.

### 3.4 STATIONS

A good and spacious designed station increases the level of satisfaction of passengers. It includes different criterias such as separation between station, safety and comfort of stations as well as number of docking bays and sub-stops and sliding doors in BRT stations. Rwp-Isl Metrobus Service earned 10/10 points in station design. It means that the station design of Rwp-Isl Metrobus Service is as per international practice. The detailed component analysis of station design is given below.

#### 3.4.1 Distance between stations

According to BRT Standard 2016, the average distance between stations must be between 0.3 km to 0.8 km. The average distance between stations is 0.8 km of Rwp-Isl Metrobus Service. So this figure comes below the standards stated by BRT Standard 2016. So Rwp-Isl Metrobus Service achieved 2/2 points in this criteria.

#### 3.4.2 Safe and comfortable stations
Stations should be safe and comfortable for passengers. Comfortable in terms of air quality, temperature of stations and with adequate facilities like a water dispenser, sitting area etc. A station must also be safe and protected from effect of atmospheric effects. The Rwp-Isl Metrobus Service are more than 3 meter wide and are safe and weather protected. So it achieved 3/3 points because it fulfilled all the criterias.

3.4.3 Number of doors in bus
An efficient mass transit system takes minimum time in boarding and alighting of passenger with help of multiple bus doors. Multiple door increases the safety of passengers in case of emergency. In the fleet of Rwp-Isl Metrobus Service, all buses have four doors which minimize the boarding and alighting time at stations. So it earned full points 3/3 as each bus has four doors in which two doors are for female passengers while the last two doors are for male passengers only.

3.4.4 Docking bays and sub-stops
Docking bays helps to increase the station capacity but it also allows to provide multiple services. Two docking bays and one sub-stop should be atleast present in station. Rwp-Isl Metrobus Service achieved 1/1 point in this criteria as it has three docking bays at all stations.

3.4.5 Sliding doors at BRT stations
Sliding doors at BRT stations improves quality of station, environment as well as reducing the risk of accidents. Sliding doors also improve the quality of station and increase the aesthetics of station. Rwp-Isl Metrobus Service earned full points 1/1 as all the stations has sliding doors.

3.5 COMMUNICATIONS
Communications includes giving passengers required information about the routes of bus, locations of bus, necessary instructions etc. Rwp-Isl Metrobus Service achieved 5/5 points in communications. The detailed breakdown analysis is given below.

3.5.1 Branding
Branding plays a crucial role in public acceptance of BRT services as it can differentiate its services from conventional transport services. Rwp-Isl Metrobus Service includes vehicles of red color that represents one brand in general while the operating staff has different bands. Dedicated corridor and services of Rwp-Isl Metrobus Service and physical segregation from other public vehicles that makes in one brand service. Rwp-Isl Metrobus Service achieved 3/3 points in branding as it has unique color which is easily identifiable.

3.5.2 Passenger Information
Availability of real time data about the arrival and departure of bus at station will help in providing necessary information to passengers. All stations of Rwp-Isl Metrobus Service have state of the art LEDs that give upto date information about the departure and arrival of buses. Rwp-Isl Metrobus Service earned 2/2 points in this criteria.

3.6 ACCESS AND INTEGRATION
Access and Integration includes different criteria including “universal access; integration with other public transport network; pedestrian access; bicycle lanes etc”. Rwp-Isl Metrobus Service achieved 5/14 points in access and integration. This score shows that proper attention is not paid to integrate the Rwp-Isl Metrobus Service with public transport.

3.6.1 Universal access
All BRT stations should be highly accessible to all people especially to disabled and old people. Rwp-Isl Metrobus Service has physical accessibility to disabled people because stations have ramps, escalators as well as lifts that provides easy access to disabled people. It was also seen that in some stations, lifts were installed but were not functioning. So in this criteria, Rwp-Isl Metrobus Service achieved 2/3 points in universal access.

3.6.2 Integration with Other Public Transport Network
A well-integrated BRT System helps in increasing productivity and utilization of the system. The distance between transferring points as well as fare integration should be minimum in order to avoid delays. Rwp-Isl Metrobus Service is not integrated with city public transport system. So it earned 0/3 points in this criteria.

3.6.3 Pedestrian access
Safe and accessible pedestrian access is of prime importance in a BRT system. An unsafe BRT system cannot achieve its goals. All stations of Rwp-Isl Metrobus Service have safe access for passengers. Most of stations are accessible through pedestrian bridges as Rwp-Isl Metrobus Service operates in the middle of the road. Rwp-Isl Metrobus Service achieved 3/3 points in this section.

3.6.4 Secure bicycle parking, bicycle lanes and bicycle sharing integration
Rwp-Isl Metrobus Service does not have bicycle lanes and bicycle sharing integration feature. It failed to provide any cycle/motorcycle/car stand for passengers. Rwp-Isl Metrobus Service earned 0/2 points in secure bicycle parking, 0/2 in bicycle lanes and 0/1 points in bicycle sharing integration.

3.7 OPERATIONS DEDUCTIONS
Points are deducted on poor performance and management of BRT. 7 points are deducted due to overcrowding and non-availability of traffic safety data. The detailed analysis of point deductions is given below.

3.7.1 Commercial speed
As per BRT Standard 2016 the minimum average commercial speed should be greater than 20 km/h. The minimum average commercial speed of Rwp-Isl Metrobus Service is more than 45 km/h.

3.7.2 Minimum peak passengers per hour per direction (pphpd)
No point is deducted because average ridership is greater than 1,000 passengers in peak hour in one direction.

3.7.3 Lack of enforcement of right-of-way
A BRT Corridor should be free from interference of other vehicles plying on road. Rwp-Isl Metrobus Service is physically segregated by means of fence from other traffic. Heavy fines are imposed in case of any violation by the users. So, no points are deducted.

3.7.4 Significant gap between bus floor & station platform
Full penalty (i.e. -5 points) should be imposed if there is large gap between bus and station platform. As there is no significant gap at point of docking at stations is observed during operation in Rwp-Isl Metrobus Service, so no penalty is imposed.

3.7.5 Overcrowding
Overcrowding decreases comfort and safety for passengers. Overcrowding shows that the system is failing to achieve its targets. Full penalty is imposed (i.e.-5 points) on Rwp-Isl Metrobus Service because overcrowding is observed during peak hours.

3.7.6 Poorly maintained busway, buses, stations and technology system
A well designed BRT system can collapse if not properly maintained. A corridor should be penalized if the bus- ways, busses and stations are poorly maintained. No penalty is imposed as Rwp-Isl Metrobus Service is in good condition.

3.7.7 Low Peak frequency
The average headway of buses during peak hour is an indicator that shows the quality of service. If all the routes have minimum of 8 buses per hour, no penalty is imposed. No point is deducted because Rwp-Isl Metrobus Service fulfills this proxy as each route has more than 8 buses per hour in peak time.

3.7.8 Low Off Peak frequency
The average headway of buses during off peak hour is an indicator that shows the quality of service. If all the routes have atleast 4 buses per hour, no penalty is imposed. In case of Rwp-Isl Metrobus Service, no penalty is imposed as it has more than 4 buses per hour in off-peak time on each route.
3.7.9 Permitting Unsafe Bicycle Use
Bicycle use in busways is generally not encourage, and is particularly dangerous in bus lanes with speed limits greater than 25 kilometers/per hour and bus lanes widths less than 3.8 meter. No deduction is made because Rwp-Isl Metrobus Service has no bicycle lane or usage.

3.7.10 Lack of Traffic Safety Data
Traffic safety data is vital to ensuring that transportation system operates safely and efforts to improve safety. All cities should collect traffic safety data and make this information public so that progress can be tracked and safety can be improved. Penalty is imposed as no traffic safety data is collect by Rwp-Isl Metrobus Service.

3.7.11 Buses Running Parallel To BRT Corridor
Bus corridors should be designed to capture as much of the public transport demand on a corridor to maximize the utility of dedicated transit infrastructures. A significant number of full-sized public busses operating outside of the busway results in difficult transfers, undermines the financial sustainability of the BRT corridor, and leads to less frequent service on the corridor. No penalty is imposed as no busses operate parallel to BRT corridor

3.7.12 Bus Bunching
Bus reliability is critical in improving BRT performance. Bus Bunching when the distance between buses become highly uneven, reduce reliability, increase wait time and contributes to crowding conditions, deteriorating quality and speed of service. No penalty is imposed as no bunch is observed on Rwp-Isl Metrobus Service and headway of buses are properly managed and maintained.

**Table 3.1 : Rwp-Isl Metrobus Service Achieved Points**

<table>
<thead>
<tr>
<th>BRT STANDARDS</th>
<th>BRT Standards 2016</th>
<th>Rwp-Isl Metro Bus Achieved Points</th>
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<tr>
<td>BRT Basics - Minimum score of 20 points needed</td>
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<td>Dedicated right-of-way - Minimum 4 points</td>
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<tr>
<td>Busway alignment - Minimum 4 points</td>
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<td>Off-board fare collection</td>
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The graphical display of above analysis is shown below

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<td>Overcrowding</td>
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<td>Lack of Traffic Safety Data</td>
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<td><strong>Total Score</strong></td>
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Rwp-Isl Metrobus Service Classification | Gold, Silver, Bronze | Bronze

<table>
<thead>
<tr>
<th>RWP-ISL METROBUS SERVICE VS BRT STANDARD 2016</th>
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<td>BRT Basics</td>
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<td>Rwp-Isl Metrobus Service</td>
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<td>BRT Standard 2016</td>
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</table>

**Figure 3.2 Comparison of Rwp-Isl Metrobus Service with BRT Standard 2016**

Gold standard is awarded if a BRT system scores 85-100 points, silver standard is awarded if a BRT system scores 70-84.9 points and bronze standard is awarded if a BRT system scores 55-69.9 points. Rwp-Isl Metrobus Service has achieved “Bronze BRT” status as it has scored 68 numbers out of total of 100.

4. **CONCLUSIONS:**

Summarizing the above analysis it is clear that Rwl-Isl Metro Bus Service fulfills the criteria for Bronze BRT. It has scored low in Service Planning, Infrastructure and access and integration as well. Rathore and Ali (2015) performed a similar analysis on Lahore Metro Bus. They used BRT Standards 2014 to evaluate the Lahore Bus Rapid Transit system. In their analysis, the Lahore BRT scored 47 achieving the level of “Basic BRT” and failed to achieve gold, silver or bronze standard. It means that Lahore BRT only fulfills the minimum criteria for a BRT system. Similar to Rwp-Isl Metrobus Service, the Lahore BRT also scored low in Service Planning, Infrastructure and access and integration. Although much improvement can be seen in construction of Rwp-Isl Metrobus Service but still number of key things were not considered like service planning, infrastructure and
access and integration. This shows that ignoring standards of BRT and deviation from proposed transport policies is one of the factors that can lead towards failure of urban transport system in Rawalpindi-Islamabad.

5. REFERENCES


