TOD KP

FI-A01

INFRASTRUCTURE CAPITAL & OPERATING COST ESTIMATES/RANGES

This Knowledge Product is intended to be used as a reference and an interactive Excel spreadsheet available online on the GPSC's TOD website and the World Bank's TOD CoP website. The reader should first review the summary presented in this section before using the spreadsheet tool.

Type: Spreadsheet + User Guide

TOD Global Platform for Sustainable Cities WORLD BANK GROUP IBI

INTRODUCTION

This tool has been structured to provide a broad reference for arriving at initial cost estimates of a transit infrastructure project. The costing has been considered for integrated developments with transit infrastructure comprising of allied real estate or other developments. The costing is calculated in three major portions as mentioned i.e:

- **Preparatory Activities** mainly comprising of engagement of consultants, etc.
- **Capital Cost** comprising all development costs, including land cost, if any;
- **Operations Cost** - broadly calculated based on the capital cost.

The tool provides a brief description of each item and a broad range of associated cost for development of infrastructure. The local requirements and conditions define the cost applicable, and accordingly, the appropriate cost may be selected for each of the components.

The land cost has not been provided considering the range for this component to be large, depending on the local conditions. Therefore, the applicable rate of land may be provided in the yellow box against the component.

The tool also includes a reference sheet containing details of transit infrastructure cost for various cities across the world.

Disclaimer: *The Transit-Orientated Development Implementation Resources & Tools knowledge product is designed to provide a high-level framework for the implementation of TOD and offer direction to cities in addressing barriers at all stages. As the context in low and middle-income cities varies, the application of the knowledge product must be adapted to local needs and priorities, and customized on a case-by-case basis.*

PURPOSE

It is essential to understand and estimate the cost investments that are primarily required for transit infrastructure. The cost of transit infrastructure depends on the mode of transit and terrain of the development area. In the case of requirements for earth cutting and tunneling for network connectivity the transit infrastructure cost increases significantly.

The cost of infrastructure is also dependent on other factors like mode of funding, interest costs, ancillary studies, overall Programme management, land preparations etc. These can be assessed as a derivative of the capital costs for the main network and infrastructure. This section describes the cost of capital investments, as well as allied expenditures expected towards other factors as listed. The sheet “AS-04 Threshold for Rapid Transit” analyses the operational expenditure of transit on Passenger Kilometer Travel (PKT) basis.

The revenue from the transit operations is principally dependent on the ridership and the fares chargeable for the use of the facility. Generally, the charges are directly proportional to the average per capita income of the region and hence, in most cases of World Bank client countries, does not suffice to recover the operational expenditure.

ASSUMPTIONS AND LIMITATIONS

- The tool utilizes per km average cost of transit infrastructure development based on type and category to arrive at total cost.
- The average per kilometer cost was available for the year 2013. The values have been adjusted with reference to the global inflation rate to arrive at rates for the year 2018.
- The ancillary costs listed in the tool are based on broad parameters as a derivative of the total cost of transit arrived at through above methodology.
- A reference to public transit fares has been provided based on available secondary data. No inferences have been drawn with respect to the fares data.

INTENDED OUTCOMES

- The tool aims to provide a block estimate for the transit infrastructure planned for city-wide, corridor or station area development, knowing the length and type of transit network.
- A reference sheet of transit fares across major cities in the world to assist in assessing approximate revenue from commuter/user fees based on the ridership estimates.
- Provide assistance in analyzing the mode of transit infrastructure with reference to the cost of such development.

HOW TO USE THIS TOOL?

First, the user should read the User Guide Tab before using the spreadsheet. The application of the Infrastructure Capital and Operating Cost Estimates tool consists of five basic steps:

01 STEP 1

Decide on the type or mode of transit infrastructure intended to be developed as part of the initial assessment plan.

02 STEP 2

Based on the transit type, the required length of transit infrastructure essential for the TOD needs to be ascertained.

03 STEP 3

The details on type and length of the transit shall have to be provided in **Cost Assessment tab.** The details of type of transit shall have to be selected from the pre-defined list of Bus Rapid Transit (BRT), Light Rail Transit (LRT), Light Rail Transit (LRT) and Heavy Rail Transit (HRT). The BRT is further sub-divided into Gold, Silver, Bronze and Basic categories.

04 STEP 4

The tool automatically calculates the total cost of transit based on pre-defined data and the inputs provided, as above. Also, in cases where the land cost is a component to be incurred for development of transit then that cost must also be provided in the **Cost Assessment tab**.

05 STEP 5

Based on the average range for the ancillary costs, the tool also calculates other costs that may have to be incurred towards project management, conceptualization, design etc.