CyLOS

CyLOS
Cycling Level Of Service Evaluation Tool

Draft User Manual

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1 Background

It can be expected that the government's policies for boosting cycle use in the cities would attract investments in street infrastructure improvement along with other measures, increasing the potential of using cycling to combat GHGs in India. To realize the full potential of these efforts, the infrastructure design would need to evolve around a detailed understanding of user requirements as well knowledge to convert this understanding in to an effective design, which would attract the desired use. To make this possible designers, planners, engineers etc., would need to be equipped with relevant toolkits, guidelines and manuals. So far; in the absence of any detailed regional design and evaluation tools, it is estimated that more than 75% of the NMV infrastructure development under JnNURM (and other funded schemes) fails to meet user requirements and expectations and thus attracts negligible or dismal use. Planning and engineering solutions failed to integrate cycling in urban infrastructure; resulting in either over segregation to block motorized two wheelers thus mostly excluding use; or reduced priority resulting in bicycle network being compromised to motorized vehicular parking or lanes.

CyLOS is a tool to assist planners and designers develop an effective non motorised transport (NMT) infrastructure, which attracts both choice and captive riders. The objective of this tool is to allow planners, designers and decision makers easy access to objective evaluation of proposed and implemented projects. The availability of such data will direct attention and corrective action towards specific development, implementation and operation issues, resulting in a user appropriate infrastructure. Such efforts in the long term, when replicated across the city, would ensure better utility of investments made in non-motorized transport, generating higher use and better public image.

CYLOS is linked to the Non Motorised Transport Planning and Design Guideline which has been prepared by TRIPP, IIT Delhi under a grant received from ClimateWorks Foundation, USA.

This guideline provides an inventory of approaches and solutions for planning and designing of NMT infrastructure in Indian cities. It is felt that this information along with NMT infrastructure audit benchmarks (to be included in the guidelines) can be moulded in to a feature based, user friendly interactive tool, which can accurately predict and/or evaluate the performance of a proposed or existing infrastructure. The outputs from the tool would also include suggestions on designs such as cross section arrangements, intersection details, etc., which will be useful for planners and designers to make informed choices. This document has been produced as part of the Climate Works Foundation sponsored project on Non-motorised Transport: Planning and Design Manual to Transportation Research and Injury Prevention Programme at the Indian Institute of Technology Delhi. The project team at TRIPP, IIT Delhi has worked closely with researchers from Innovative Transport Solutions (iTrans) Pvt. Ltd. and SGArchitects during the course of this project. We are thankful to all our project partners for detailed discussions on planning and design issues involving non-motorised transport. Various planning and design issues discussed in Manual for Cycling Inclusive Urban Infrastructure Design in the Indian Subcontinent' (2009) supported by Interface for Cycling Embassy under Bicycle Partnership Program which was funded by Sustainable Urban Mobility in Asia; Public Transport Accessibility Toolkit (2012) and Urban Road Safety Audit (URSA) Toolkit supported by Institute of Urban Transport (IUT) provided the necessary background information for this document.

CyLOS is a user friendly tool for auditing cycle infrastructure and design therefore the project is limited only to cycling infrastructure and users including bi and tri cycle users.

2 Getting Started with CYLOS

Once the user enters the website www.cylos.in, there are five tabs on the panel. Figure 1 shows the 'Getting Started 'page layout with the various options the user has to operate. They have been explained below:

Figure 1: Cylos: Getting Started

1. **Home**: This tab layout contains introduction of CyLOS and the information of the project team and its sponsors.
2. **Reports**: This contains the link to two reports, 'The Non-Motorised Planning and Design Guideline', prepared by IIT Delhi and the Technical Report contains the descriptive information of all front end and back end computations used to develop the tool.
3. User Manual: This contains the User manual report which addresses inputs the user should follow while using the tool.
4. **Getting Started**: This contains information for the user where he can login into the tool by pressing the 'Get started Now" button as well as the 'Register' button. It also contains the 'Data Requirement' for each type of Evaluation Category as well as 'Evaluation Steps' that broadly gives the user information about steps involved while using the tool
5. **Contact Us**: This Tab contains contact details of SGArchitects so that the user can contact the team for further queries and suggestions for the tool.
6. **Data Requirement** : This enlists the type of data required by the user to enter per evaluation category into the tool. The data requirement is as follows:
    a. **Corridor/Route**: This tool uses a cycling route between a defined origin and destination point as an evaluation unit. This tool requires defining segments which comprise the entire cycling route. The data required to evaluate a route is listed in Table 1.

Table 1: Data Requirement Checklist for corridor/route evaluation

Checklist for Data Required	
DATA	SOURCE

Segment Identification Details of the road &ROW / function Route plan / dwg (and image) Landuse details Traffic Volume Observed Speed	General Alignment Drawing / Plan available with official/consultant Zonal Plan / Ward Plan Traffic Volume Survey Speed Gun Survey
Segment Details	
Record from Site (Evaluating an planned route)	General Alignment Drawing / Plan available with official/consultant Cross –Sections Details including services, material and finishes planned.
Record from Site (Evaluating an Existing route)	Form 1 – Segment Context Form 2- Infrastructure at Midblock Form 3 – Infrastructure Design at Intersections and Crossings Form 4 – Other Details For above forms refer Annexure.

a. **Transit access influence area**: This tool evaluates the accessibility an area of 1200 radius around a particular transit station. This tool requires defining links which comprise the entire transit access influence area. The data required to evaluate a route is listed in Table 2.

Table 2: Data requirement Checklist for transit access influence area evaluation

Checklist for Data Required	
DATA	SOURCE
• **Transit Access Influence Area Identification** Details of the road &ROW / function Route plan / dwg (and image) Landuse details	General Alignment Drawing / Plan available with official/consultant Zonal Plan / Ward Plan Traffic Volume Survey Speed Gun Survey

Traffic Volume Observed Speed	
• **Link Details**	
Record from Site (Evaluating an planned route)	General Alignment Drawing / Plan available with official/consultant Cross –Sections Details including services, material and finishes planned.
Record from Site (Evaluating an Existing route)	Form 1 – Link Context Form 2- Infrastructure at Midblock Form 3 – Infrastructure Design at Intersections and Crossings Form 4– Other Details For above forms refer Annexure.

b. City wide: Here the tool uses the entire city as an evaluation unit. Data to be entered ranges from safety, accessibility and mobility indicators to environment and health indicators that can assess the current and the potential state of a city with respect to its cycle friendliness. Table 3 gives a list of data requirement and their source for the city assessment.

Table 3: Data requirement Checklist for city wide evaluation

Checklist for Data Required	
DATA	**SOURCE**
• Modal Share & Accessibility * • Trip length* • Posted Speed Limit • Cost of commuting • Households owning cycles disaggregated by income • Land consumed for different transport activities • Road Network	Household surveys City Traffic and Transport Study (CTTS) Comprehensive Mobility Plan (CMP) National Sample Survey Organization (NSSO)
• Land Use Data	Census data available at ward or electoral block level

• Land Allocated to NMT Parking • Lighting	Road inventory survey
• Safety and Risk Exposure	Detailed accident data can be collected from traffic police.
• Perception of safety	Stated household surveys
• Ambient Air quality (local poluutants like $PM_{2.5}$, PM_{10}, SOx, NOx)	Map air quality in city (CPCB data if available)
• Noise Level	Map exceedance of noise levels
• Investment	City budgets across years
* the data should be collected separately for vulnerable groups such as: i) Slum dwellers ii) Within the slums, of households living in katcha housing as that is indicating BPL households iii) Recent migrants to the city and temporary migrants to the city iv) Households living in relocated sites v) SC households vi) Minority groups vii) street vendors etc. The data should also be disaggregated by sex	

7. **Evaluation Steps** :
    a. Registration: The use of CyLOS tool requires one time registration. Registered users can login and retrieve any saved evaluation.
    b. Base Data and segment definition: The user has to enter basic information for selected evaluation category. This information refers to inputs like file name, name of city, state, number of segment, link, route length, modal share w.r.t the type of evaluation category.
    c. User Input Forms: The user has to enter design specific information in different forms presented sequentially. All forms need to be filled in carefully. Forms shall be repeated for each segment however data can be copied and edited from another segment(using 'mirror data' button).
    d. Output: Evaluation output of input information entered earlier is presented. These can be printed and saved in an external file.
8. **Get Started Now**: This button initiates the evaluation for a particular category using CyLOS tool.
9. **Login**: This button is visible on all tabs discussed earlier. It helps the user login once he has registered on the website.
10. **Registe**r: This button is visible on all tabs discussed earlier. It helps the user for first time registration.

Figure 2 shows the 'User Login 'page layout. The input values to be filled have been explained below:

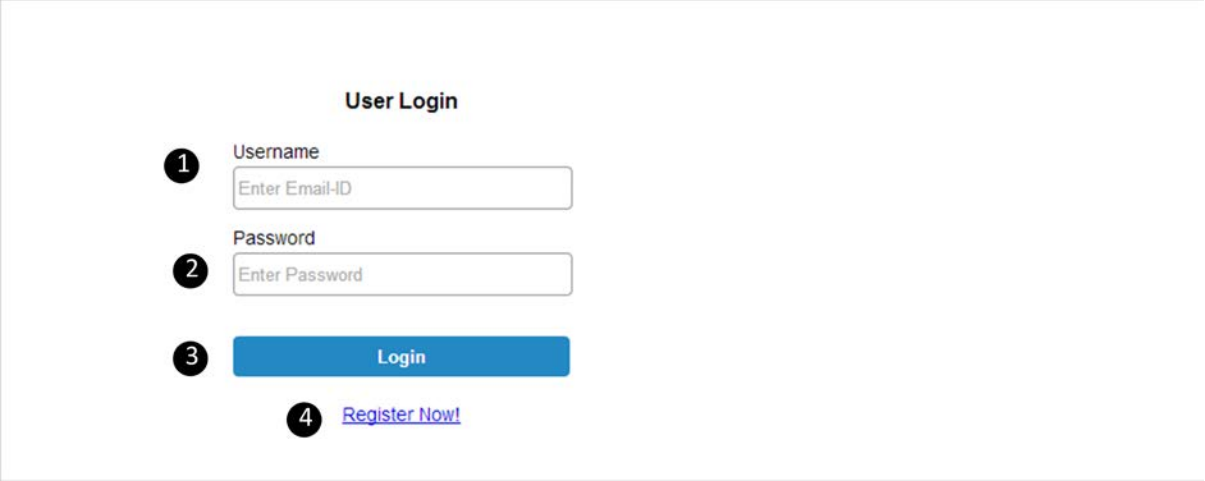


Figure 2: CYLOS: User Login

1. **User Name**: The user has to enter a valid email address.
2. **Password**: The user has to enter a password.
3. **Login** : This button entitles the user to enter the evaluation tool and start entering information post selection of evaluation category.
4. **Register Now**: Incase a first time user has entered the login button from any page prior to registration, the user can click on this and register first.

3 User Input Forms

Once the user will login into the tool, the first page appears where a selection of the evaluation category mentioned earlier has to be undertaken. Once done, the user has to input information which will be computed by the tool to generate an output/results.

Figure 3 shows the 'Evaluation Category 'page layout. The details have been explained below:

Figure 3: CYLOS: Evaluation Category

1. **Evaluation Category**: CyLOS Tool offers three categories for evaluation. These have been explained below:
    a. Route or Corridor LOS: The user can evaluate the cycle level of service for a particular route or a corridor. This has been explained in detail in Evaluation of a Corridor / Route (3.1)
    b. Transit access influence area LOS: The user can evaluate the cycle level of service for a particular route or a corridor. This has been explained in detail in Evaluation of a Transit (3.2)

c. City wide cycling network LOS: : The user can evaluate the cycle level of service for a particular route or a corridor. This has been explained in detail Evaluation of a City (3.3)

2. **Start New Analysis**: Once the selection has been done, the user can press this button and start with the data entry and evaluation of the particular selection.
3. **Open Saved Analysis**: The Tool will save the data entry of every form when the user clicks on the 'Next' button. A returning user can look for the file name and open/review the data file last worked upon.

3.1 Evaluation of a Corridor / Route

Prior to explaining input forms in this evaluation category, Figure 4 indicates its features.

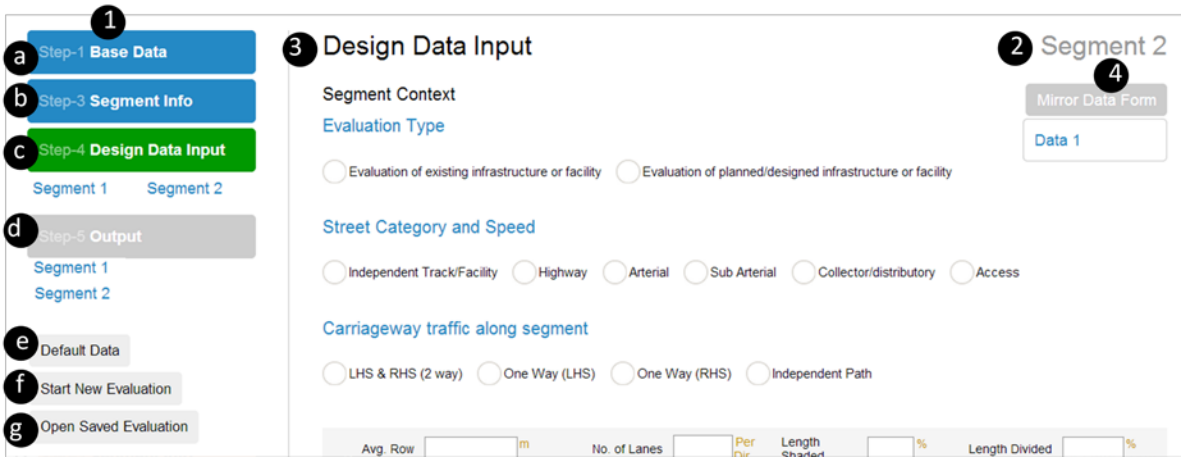


Figure 4: CYLOS Corridor/Route : Page Layout

1. **Navigation Panel**: The left side of the page is the navigation panel for this evaluation category. The active tab on which the user is working is highlighted in green color. It includes the following tabs:
   a. **Base Data**: This refers to the basic information to be entered by the user.
   b. Segment Information: This refers to the input values that need to be filled for the various segments of the corridor.
   c. **Design Data Input**: This refers to the input values that need to be entered by the user for each link. This form has four input forms.
   d. **Output**: This refers to the result of the segment/overall corridor.
   e. **Default Data**: This refers to where default values have been entered.
   f. **Start New Evaluation** : Once can start a new evaluation.
   g. **Open and Saved Evaluation**: The user can open a saved evaluation sheet to edit/review details.
2. **Name of the Segment** – The top right corner shall include the segment number which is active and data is being entered.
3. **Name of the form** – The right hand side of the page starts with the name of each form the user is currently working on. This active form is highlighted in green colour.
4. **Mirror Data** – This appears on the top right corner below the segment name, if there is more than one segment in the corridor. Incase two segments are identical in their context/midblock/intersection or miscellaneous inputs, the user can click on this button. The

user can chose the name of the segment from the list of segments (appear below the button). This shall facilitate the

The user should keep in mind that in many input values, the information to be entered is for both the Left Hand Side (LHS) and the Right Hand Side (RHS) of the corridor. These are based on the Indian context and need to be read as per increasing chainage.

3.1.1 Base Data Information

This form has a total of 8 inputs which are being shown and explained in 2 parts in the below sections. Each of the inputs is being assigned with numbers and is elaborated number wise in the respective tables for each part.

Figure 5 shows the image of part 1 of the base information form. The inputs required in this form have been explained below.

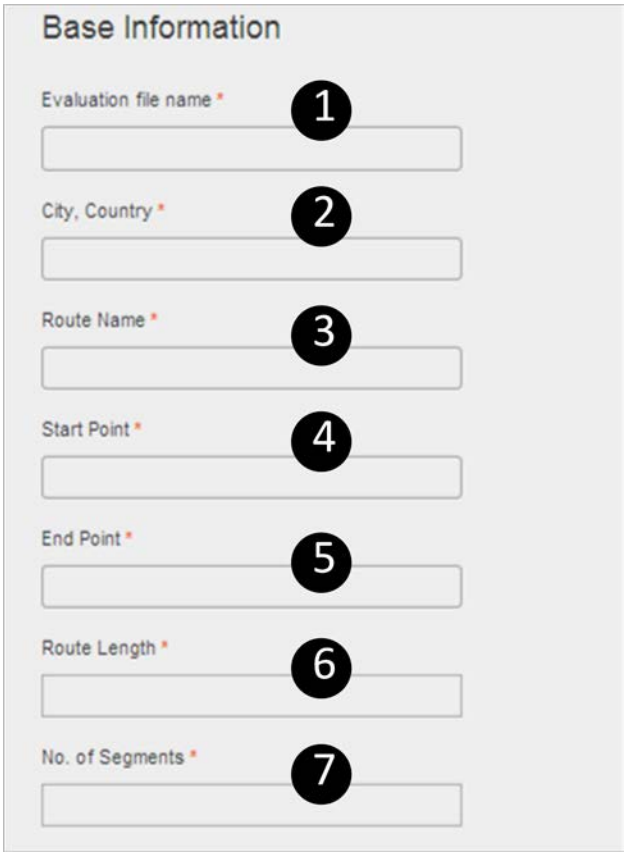


Figure 5 : CYLOS for Corridor / Route - Base Data Form: Part 1

1. **Evaluation file name**: Enter the name of the Evaluation File. The name should be maximum 12 characters. No alphanumeric characters should be used.

   Example: 'Eval123'

2. **City, Country**: Enter the name of the city and country (separated by a comma) where the project under evaluation is proposed.

   Example: 'Delhi, India'

3. **Route Name**: Enter the name given to the road/route chosen for evaluation.

   Example : 'Mahatma Gandhi Marg'

4. **Start Point:** Enter the start point of the corridor/route being evaluated.

   Example:'S. Nagar'

5. **End Point:** Enter the end point of the corridor/route being evaluated.

   Example: 'T. Nagar'

6. **Route Length:** Enter the total length of the corridor/route being evaluated i.e. the distance between the start point and the end point. The value should be +ve, should be numerical and in 'Kms'). The input value must be between 0.05 km to 100 km.

   Example: '6.5'km

7. **No. of Segments:** Enter the total number of segments in the entire corridor/route that is being evaluated. (The value should be +ve number and must be between 1 and 40)

   Segments are defined as part of route lengths identified from various possibilities like:

   i. Length of road between two intersections.
   ii. Major parking type variation, i.e. major parking type defines less than 80% of the entire parking along the stretch. ROW width variation greater than ± 20%.
   iii. Different street category i.e. arterial, collector, access, highway or standalone/independent cycle track.
   iv. Number of lane variation along the segment.
   v. Posted speed limit or observed speed variation more than ± 20% along the stretch.
   vi. For independent cycle tracks/paths separate segments should be defined for conditions when footpath is common with cycle facility and where footpath is separated.
   vii. Applicable for min 40m length

   Example: '3' no.

Figure 6 shows the image of part 2 of the base information form. The inputs required in this form have been explained below.

Figure 6 : CYLOS for Corridor / Route - Base Data Form: Part 2

8. **Image:** Upload the image of the corridor/route highlights all identified segments in another colour. The image should be in jpeg format and less than 1MB in size. Click on 'Choose File' tab and upload file from your system.

3.1.2 Segment Information

Figure 7 shows the segment information page. The inputs required in this form have been explained below.

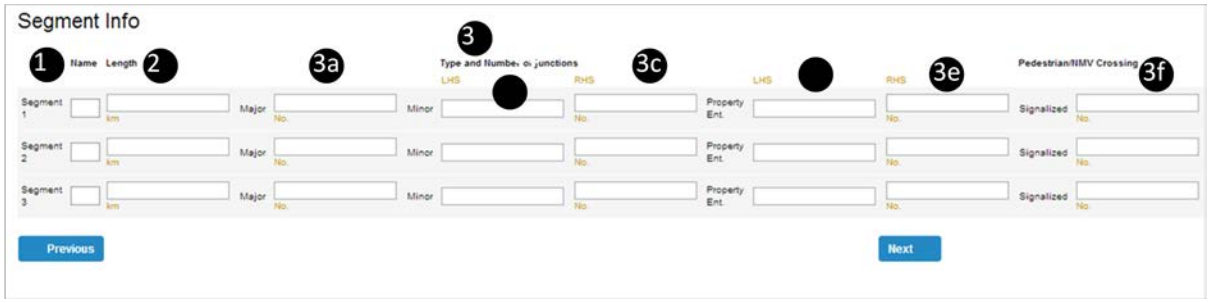


Figure 7 : CYLOS for Corridor / Route - Segment Information

In the next form titled 'Segment Information', the user has to fill information of the total number of segments entered in base data form point no. 7. It has to be kept in mind that the total length of the segments should be equal to the total route length entered in base data form point no. 6.

1. **Name**: Enter the name of each segment in this column.

Example: 'S1'; "Part x".

2. **Length:** Enter the length of each segment in this column, in 'km'. The length of each segment should vary from 0.5km to 50 km.

Example: '3 km'

3. **Type and Number of Junctions**: The user has to enter the number of major and minor intersections for each segment. This is divided into 5 columns:
    a. **Major Intersection**: Enter the number of major intersections in the segment. The user should input whole numbers only and the input value should range between 0 and 500. It should be kept in mind that the segment width should be greater than the combined width of the major intersections.

    Example: '2'

    b. **Minor Intersection (LHS)**: Enter the number of minor intersections in the left hand side (LHS) of the segment. The user should input whole numbers only and the input value should range between 0 and 500. It should be kept in mind that the segment length has to be greater than the combined length of the major junction, minor junctions and property entrances of either LHS or RHS, whichever is greater.

    Example: '5' no.

    c. **Minor Intersection (RHS)**: Enter the number of minor intersections in the right hand side (RHS) of the segment. The user should input whole numbers only and the input value should range between 0 and 500. It should be kept in mind that the segment length has to be greater than the combined length of the major junction, minor junctions and property entrances of either LHS or RHS, whichever is greater.

    Example: '3' no.

    d. **Property Entrance (LHS):** Enter the number of property entrances in the left hand side (LHS) of the segment. The user should input whole numbers only and the input value should range between 0 and 5000.

    Example: '5' no.

    e. **Property Entrance (RHS):** Enter the number of property entrances in the right hand side (RHS) of the segment. The user should input whole numbers only and the input value should range between 0 and 5000.

    Example: '7' no.

    f. **Pedestrian/NMV Crossing** (signalised): Enter the total number of the signalized safe crossings in the segment. The user should input whole numbers only and the input value should range between 0 and 500.

Example: ‘1’ no.

If the user wishes to add more number of segments, select the ‘BACK’, change the number of the segments and return to this form to enter the required information.

3.1.3 Design Data Input

This is the third form which includes 4 forms

1. Segment Context
2. Infrastructure at Midblock
3. Infrastructure Design at Intersections and Crossings
4. Miscellaneous

3.1.3.1 Segment Context

‘Segment Context for CyLOS, is the first input form and has a total of 22 inputs which are being shown and explained in 4 parts in the following sections. Each of the inputs is being assigned with numbers and is elaborated number wise.

Figure 8 shows the part 1 of the segment context form. The inputs required in this form have been explained below.

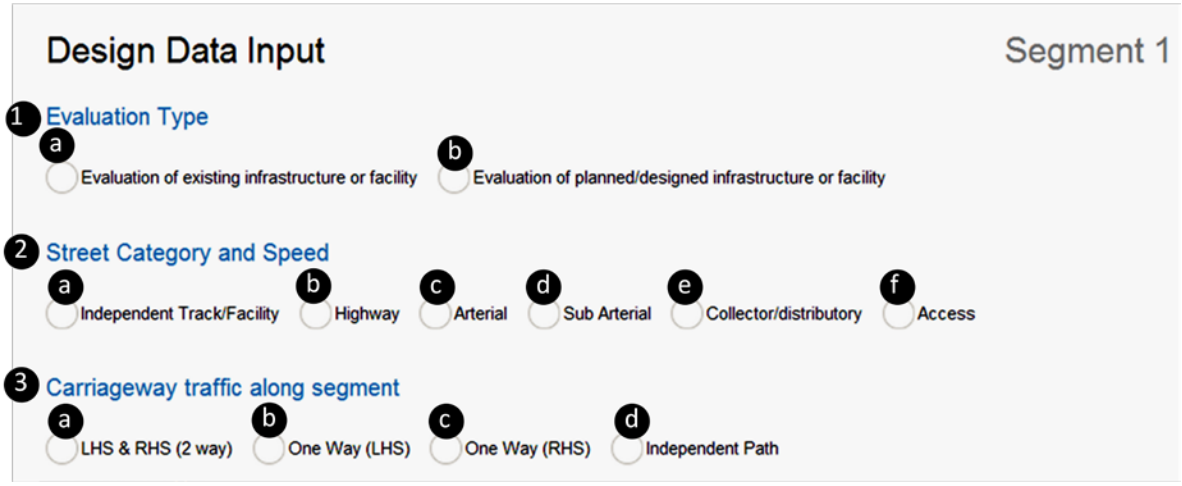


Figure 8 : CYLOS for Corridor / Route – Segment Context – Part 1

1. **Evaluation Type**: Before starting / selecting the appropriate inputs for the infrastructure the user has to select one option out of 'a' or 'b', where,

   a. Evaluation of an existing infrastructure or facility: Indicates that the facility/segment being evaluated exists and is operational;

   b. Evaluation of planned/designed infrastructure or facility: Indicates a planned or a designed facility/segment which has not yet been constructed or operational.

2. **Street Category and Speed**: The selection chosen will be related to the type of street and design speed of the segment being evaluation i.e. the nature and function of the roadway along this segment. The user has to select only one option out of 'a' to 'f'.

a. **Independent Track/ Facility**: If cycle infrastructure being evaluated is not along any motorized vehicular road (such as bike ways through parks and motor vehicle free streets) then 'a' should be selected.
b. **Highway**: If this segment is cycle facility along a highway then 'b' should be selected. Highways are intercity roads with design speeds and speed limits equal to or higher than 70km/h. If a designated highway is passing through the city and used as a city road, it should not be selected as a highway but as one of the lower hierarchy city roads as applicable.
c. **Arterial**: For cycle facility along an arterial road 'c' should be selected. Arterial roads have design speeds and speed limits between higher than 30 but lower than 60km/h, and are generally divided and serve to carry mainly through city traffic. If the corridor is a designated highway but the segment under evaluation is designed/planned or used as a lower hierarchy road should be selected accordingly. Arterial roads are generally 45m or above in ROW and provide a service lane on one or both sides (for property access).
d. **Sub-Arterial**: If the ROW is less than 45m but greater than 24m, with through traffic function with mostly divided carriageway and design speeds or speed limits higher than 30km/h, then 'd' should be selected.
e. **Collector/Distributor** If the ROW is equal to or less than 24m but greater than 12m, and the design speed or speed limit is less than or equal to 30km/h, the road is defined as collector road, in which case 'e' should be selected.
f. **Access**: For roads with ROW less than or equal to 15m and design speed or speed limit equal to or less than 20km/h 'f' should be selected.

3. **Carriageway traffic along segment**: This input determines whether the carriageway traffic is moving in which direction on the identified segment. Select if the carriageway is one way or 2 ways.
    a. Select if the traffic movement in the carriageway is two way.
    b. Select if the carriageway is one way in the increasing chainage direction.
    c. Select if carriageway is one way in decreasing chainage direction.
    d. Select if the cycle infrastructure in the segment is standalone.

The question shall be ‘Not Applicable’ automatically if the user selects an independent track/facility in the previous question (Number 2).

Figure 9 shows the part 2 of the segment context - design data input page. The inputs required in this form have been explained below.

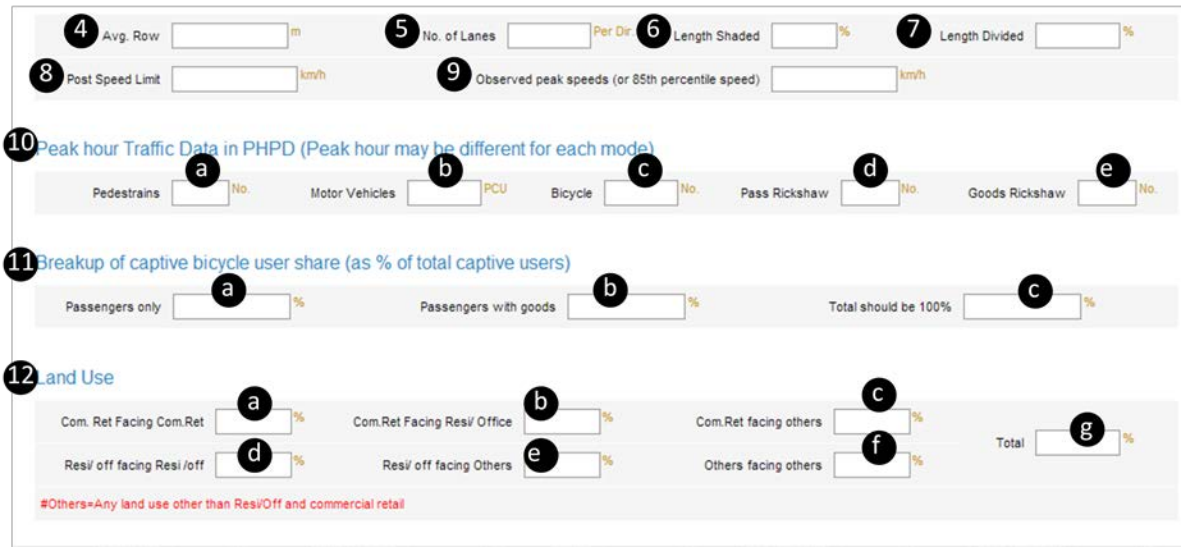


Figure 9 : CYLOS for Corridor / Route –Segment Context – Part 2

4. **Average ROW**: Right of way (ROW) refers to the distance between opposite roadway edges or boundary walls on opposite sides of a roadway. The user has to input the Average ROW width for the segment being evaluated. It is expected that the variation in ROW widths is not more than ± 20%. For variations more than that, a separate segment should be selected/defined. If standalone/independent cycle track has been selected in Question 2 earlier then enter alphabet 'X' here (without inverted commas) else the input value should range between 2 and 200 and the unit is in 'm'.

5. **No. of Lanes**: Enter the total no. of approximately 3m wide vehicular lanes in each direction. If standalone/independent cycle track is selected i.e. 2a is selected then enter alphabet 'X' here (without inverted commas) else enter a value between 1 and 12. Enter 1 if access or local roads are provided with less than one lane per direction traffic.

6. **Length Shaded**: Enter the % length of expected cycling path that is shaded by trees or other means. Shaded implies, protection from sun and/or rain or protection from critical elements of weather. An average shaded length of the cycling facility on both sides of carriageway should be entered and the input value ranges between 0 and 100 and is in %. If standalone/independent street category has been selected (Segment Context -Question2) is selected then the user should enter alphabet 'X' here (without inverted commas).

7. **Length Divided**: Enter the % length of carriageway along the segment that is divided by means of a raised divider or physical segregator. The input value can range between 0 and 100 and is in %. If standalone/independent facility has been selected under street category (Segment Context – question 2), then enter alphabet 'X' as input value (without inverted commas). If total no. of lanes per direction is less than 2, it is assumed that there is no segregation between opposite traffic lanes and hence only '0' as a value is acceptable. If the direction of flow on the carriageway is input as one way direction (Segment Context – question 3), no segregator is required and the input value should be 'X'.

8. **Posted Speed Limit**: Enter the posted or legal speed limit for motorized vehicles in km/h. If standalone/independent facility has been selected under street category then enter alphabet 'X' here (without inverted commas) else input value can range between 10 and 120.

9. **Observed peak speeds (or 85th percentile):** Enter the observed peak speeds for motorized vehicles (car specific) in km/h. The input value varies between 10 and 120 and the unit is in km/h. Only if standalone/independent facility has been selected under street category (Segment Context – Question 2) then enter alphabet 'X' (without inverted commas) as the input value.

10. **Peak hour traffic data in PHPD (Peak hour may be different for each mode): E**nter the peak hour traffic data for different road users . Input data has to be specific to the peak hour of each user. In some regions, commuter cyclist peak hour is staggered from motor vehicle peak hour.

    a. **Pedestrians:** Enter the number of pedestrians observed per hour per direction during peak hour. The input value can vary between 0 and 50000. In case of a newly planned infrastructure, the user should input the estimated number of pedestrian expected to use the facility in each direction during peak hour.
    b. **Motor Vehicles**: Enter the total PCU of motor vehicular traffic per direction in peak hour. The input value should be between 0 and 50000. In case where standalone/independent facility had been selected under street category (Segment Context – Question 3), the user should enter alphabet 'X' here. For a newly planned infrastructure, the user has to estimate the PCU value of traffic for new roads where no current traffic exists.
    c. **Bicycle**: Enter the no. of bicycles (both goods and passengers) observed per hour per direction during peak cycling hour. Enter a value between 0 and 50000. In case of a new planned infrastructure, input the estimated number of cyclist expected to use the facility in each direction during peak hour.
    d. **Passenger Cycle Rickshaw**: Enter total number of passenger cycle rickshaws (per hour per direction) during the peak cycling hour. The input value should be between 0 and 50000.
    e. **Goods cycle rickshaw**: Enter total number of good cycle rickshaw on the segment per hour per direction during peak cycling hour. Enter a value between 0 and 50000.

11. **Breakup of captive bicycle user share**(as % of total captive users) : The user has to enter the breakup of bicyclist type as percentage of total bicyclists
    a. **Passenger only**: Enter the percentage of cyclists carrying goods such as gas cylinders and other items, out of total number of bicyclists mentioned earlier (Segment Context – Question 10(c)). The input value should range between 0 to 100.
    b. **Passenger with goods**: Enter the percentage of passenger cyclist with or without pillion rider, out of the total number of bicyclists quoted in A10b. Input a value between 0 to 100.

c. Total: No user input is required here. The total of the input values entered in 'a'& 'b' should sum up 100.

12. **Land Use:** This refers to the land use activity abutting the edge of the ROW on both sides along the identified segment. Six different land use combinations have been listed (a to f). The user needs to input the percentage of the defined land use type on both the side of the segment (while moving in the order of increasing chainage), as percentage length (of segment) falling under each category. For land use categories which do not exist on the segment, '0' as a value should be input. Do not account for informal activities such as hawking; these are accounted for under Question 21 of segment context form. Only activity based land use in built environment, whether formal or informal should be recorded here. Land use percentage under assigned combinations should be entered even if the road carries one way traffic (even if in segment context- question 3, one way was selected).

The land use combinations assigned in the form are basically distributed under three broad categories of land use functions

- Commercial retail land use,
- Residential / office land use category, and;
- Other: Other land use function is comprised of Industrial, institutional, recreational and no function like blank boundary wall, railway line, a nalah /drain with no formal defined activity through any built environment intervention. If the land use along cycle path is green or recreational in nature with easy access to all, then it shall get accounted under category 'other'. For land use which is green (like parks, etc) but closed with fence or wall, limiting or restricting access, then again it is to be accounted under 'no function' and category 'Other' should be chosen. If the land use along cycle path is primarily industrial consisting of either formal or informal manufacturing units, etc., it gets accounted under industrial and category 'other' should be filled.

The user needs to input the percentage of the following land use type on both the side of the segments:

a. **Commercial Retail facing Commercial Retail**: This refers to the percentage of segment length which has retail commercial land use on both the side of the segment. Such conditions include street/cycle path is primarily commercial with retail character; it should get accounted under this category. Do not account for hawking activity as part of retail based commercial, however if retail is functioning through kiosks or semi-permanent but fixed/static shops then these shall fall under retail based commercial activity. If built environment consists of shops and offices, then these should find place in the category which is the primary road facing/abutting function If the built environment is mix of residential and offices where both activities are less than 80% (each) of the total function, such land use shall fall under Commercial retail land use category.
b. **Commercial Retail facing Residential / Office**: This refers to the percentage of segment length occupied by residential as well as office function. Residential can be formal or informal. Hence slum clusters, and land use with primary residential functions will qualify as residential land use. Also all primary office function oriented land use should be accounted under this head.
c. **Commercial Retail facing others**: This refers to the percentage of segment length occupied by retail commercial land use and other land use function. Other land use function can be comprised of Industrial, institutional, recreational and No function

like blank boundary wall, railway line, a nala/drain with no formal defined activity through any built environment. If the land use along cycle path is green or recreational in nature with easy access to all, then it shall get accounted under this category. For land use which is green but closed off with fence or wall, limiting or restricting access, should be accounted under 'no function' in others category. If the land use along cycle path is primarily industrial consisting of either formal or informal manufacturing units, etc., it gets accounted under industrial in other land use category.

d. **Residential/ Office facing Residential/Office**: This refers to the percentage of segment length occupied by residential land use on both the side of the segment. Residential can be formal or informal. Slum clusters, and land use with primary residential functions will qualify as residential land use.
e. **Residential/Office facing other**: This refers to the percentage of segment length occupied by residential land use and other land use function. Residential can be formal or informal. Slum clusters, and land use with primary residential functions will qualify as residential land use where as other land use function can be comprised of Industrial, institutional, recreational and No function like blank boundary wall, railway line, a nala/drain with no formal defined activity through any built environment.
f. **Others facing others**: This refers to the percentage of segment length occupied by other land use functions on both the sides. If the land use along cycle path is primarily industrial consisting of either formal or informal manufacturing units, etc., it gets accounted under industrial in this category. If the land use along cycle path is green or recreational in nature with easy access to all, then it shall get accounted under this category. For land use which is green but closed off with fence or wall, limiting or restricting access, should be accounted under 'no function' in others category.
g. **Total**: No input is required here, system generates total under all categories from a to f. Total should equal 100%.

Figure 10 shows the design data input page. The inputs required in this form have been explained below.

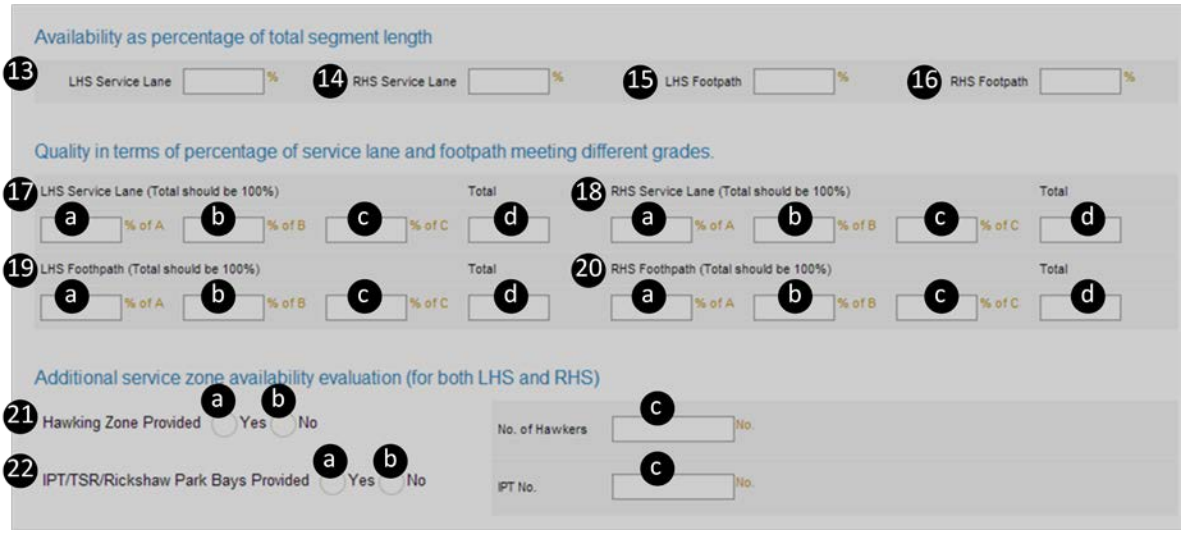


Figure 10 : CYLOS for Corridor / Route – Segment Context – Part 3

13. **Availability as percentage of total segment length – Service Lane (LHS):** This refers to the availability of service lane on the LHS along the segment being evaluated. The user has to enter the value in percentage. Only well defined service lanes, i.e. those visually and physically distinct from carriageway and other functions qualify as service lane (or lanes serving as access function to property).The input value ranges between 0 to 100. The quality of pedestrian paths is accounted for under segment context form – question 17 and 18. If the facility or path is a stand alone or independent (Segment context – Question 2) then the user should input alphabet 'X' here. Note: Total curb to curb width for service lane should be 3.0m or higher to qualify as a service lane.

14. **Availability as percentage of total segment length – Service Lane (RHS):** This refers to the availability of service lane on the RHS along the segment being evaluated. The user has to enter the value in percentage. Only well defined service lanes, i.e. those visually and physically distinct from carriageway and other functions qualify as service lane (or lanes serving as access function to property).The input value ranges between 0 to 100. The quality of pedestrian paths is accounted for under segment context form- question 17 and 18. If the facility or path is a stand alone or independent (segment context – Question 2) then the user should input alphabet 'X' here. Note: Total curb to curb width for service lane should be 3.0m or higher to qualify as a service lane.

15. **Availability as percentage of total segment length – Footpath (LHS):** This refers to the availability of footpath on the LHS along the segment being evaluated. The user has to enter the value in percentage. Only well defined footpaths, i.e. those visually and physically distinct from carriageway and other functions qualify as footpath. The quality of pedestrian paths is accounted for under segment context form- question 19 and 20. Input should be between 0 to 100. In case of standalone or independent cycle track/facility, where cycle track and footpath are not segregated or are common, cycle track or segment length should be treated as the footpath length and the input should be 100. In case of standalone or independent cycle track/facility, where cycle track and footpath are segregated, it is expected that footpath shall only be only on one side of cycling facility/path and hence value in question 15 should equal that of question 16.

16. **Availability as percentage of total segment length – Footpath (RHS):):** This refers to the availability of footpath on the RHS along the segment being evaluated. The user has to enter the value in percentage. Only well defined footpaths, i.e. those visually and physically distinct from carriageway and other functions qualify as footpath. The quality of pedestrian paths is accounted for under segment context form- question 19 and 20. Input should be between 0 to 100. In case of standalone or independent cycle track/facility, where cycle track and footpath are not segregated or are common, cycle track or segment length should be treated as the footpath length and the input should be 100. In case of standalone or independent cycle track/facility, where cycle track and footpath are segregated, it is expected that footpath shall only be only on one side of cycling facility/path and hence value in question 15 should equal that of question 16.

17. **Quality in terms of percentage of service lane and footpath meeting different grades - Service Lane (LHS):** Input percentage breakup of total service lane (on LHS) in terms of its quality or grade. Quality or grade of service lane is divided in three categories A, B and C. The total of percentage service lane on LHS falling under these categories should be 100%, if the length of service lane on LHS of the segment is more than 0%.
    - **a.** Enter the percentage of service lane on LHS which corresponds to quality equivalent to grade A or more. Grade A quality entails that a minimum width of service lane is not less than 6.0m anywhere along the length of service lane (on LHS) and there are no movable or immovable obstructions on the service lane, and that the service lane has right slopes for surface drainage and that service lane has excellent surface quality with no need of repairs, and that the service lane has adequate lighting levels of Average 18 lux with 40% uniformity and that the service is separated from the property boundray by a functional footpath with a minimum width of 1.8m . Input alphabet 'X' if no service lane exists on the LHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.
    - **b.** Enter the percentage of service lane on LHS which corresponds to quality equivalent to grade B. Grade B quality entails that width of service lane is between 6.0 and 4.5m throughout the length of service lane (on LHS) and there are no movable or immovable obstructions on the service lane, and that the service lane has right slopes for surface drainage and that service lane has excellent surface quality with only minor needs of repairs, and that the service lane has adequate lighting levels of Average 12 lux with 33% uniformity and that the service is separated from the property boundary by a functional footpath with a width between 1.2 to 1.8m throughout the length. Input alphabet 'X' if no service lane exists on the LHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.
    - **c.** Enter the percentage of service lane on LHS which corresponds to quality equivalent to grade C. Grade C quality entails that width of service lane is no wider than 4.5m anywhere along the length of service lane (on LHS) or there are movable or immovable obstructions on the service lane, or that the service lane has improper slopes for surface drainage or that service lane has excellent surface quality with only minor needs of repairs, and that the service lane has average lighting levels of less than 15 lux or with less than 33% uniformity or that the service lane is not separated from the property boundary by a functional footpath or if the footpath width is no more than 1.2m throughout the length. Input alphabet 'X' if no service lane exists on the LHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.
    - **d.** No input is required, and is system generated. Sum total of percentage of footpath for all three grades should be 100% or the input against all three grades should be 'X'.

18. **Quality in terms of percentage of service lane and footpath meeting different grades - Service Lane (RHS):** The user has to input percentage breakup of total service lane (on RHS)

in terms of its quality or grade. Quality or grade of service lane is divided in three categories A, B and C. The total of percentage service lane on RHS falling under these categories should be 100%, if the length of service lane on LHS of the segment is more than 0%.

a. Enter the percentage of service lane on RHS which correspnds to quality equivalent to grade A or more. Grade A quality entails that a minimum width of service lane is not less than 6.0m any where along the length of service lane (on RHS) and there are no movable or immovable obstructions on the service lane, and that the service lane has right slopes for surface drainage and that service lane has excellent surface quality with no need of repairs, and that the service lane has adequate lighting levels of Average 18 lux with 40% uniformity and that the service is seperated from the property boundray by a functional footpath with a minimum width of 1.8m . Input alphabet 'X' if no service lane exists on the RHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.
b. Enter the percentage of service lane on RHS which correspnds to quality equivalent to grade B. Grade B quality entails that width of service lane is between 6.0 and 4.5m throughout the length of service lane (on RHS) and there are no movable or immovable obstructions on the service lane, and that the service lane has right slopes for surface drainage and that service lane has excellent surface quality with only minor needs of repairs, and that the service lane has adequate lighting levels of Average 12 lux with 33% uniformity and that the service is seperated from the property boundray by a functional footpath with a width between 1.2 to 1.8m throughout the length. Input alphabet 'X' if no service lane exists on the LHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.
c. Enter the percentage of service lane on RHS which correspnds to quality equivalent to grade C. Grade C quality entails that width of service lane is no wider than 4.5m anywhere along the length of service lane (on RHS) or there are movable or immovable obstructions on the service lane, or that the service lane has improper slopes for surface drainage or that service lane has excellent surface quality with only minor needs of repairs, and that the service lane has average lighting levels of less than 15 lux or with less than 33% uniformity or that the service lane is not seperated from the property boundray by a functional footpath or if the footpath width is no more than 1.2m trhroughout the length. Input alphabet 'X' if no service lane exists on the RHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.
d. No input is required, and is system generated. Sum total of percentage of footpath for all three grades should be 100% or the input against all three grades should be 'X'.

19. **Quality in terms of percentage of service lane and footpath meeting different grades - Footpath (LHS):** The user has to input percentage breakup of total footpath (on LHS) in terms of its quality or grade. Quality or grade of footpath is divided in three categories A, B and C. The total of percentage footpath on LHS falling under these categories should be 100%, if the length of footpath on LHS of the segment is more than 0%.
    a. Enter the percentage of footpath on LHS which corresponds to quality equivalent to grade A or more. Grade A characteristics for footpath are as follows:

i. Minimum width of footpath is not less than 1.8m anywhere along the length (on LHS)
ii. There are no movable or immovable obstructions on the footpath.
iii. The footpath is not higher than 18cm from road surface.
iv. The footpath has right slopes for surface drainage and that footpath has excellent surface quality with no need of repairs.
v. There are no sudden bends or drops along the footpath.
vi. The footpath is completely barrier free (disabled friendly) throughout its length.

Input alphabet 'X' if no footpath exists on the LHS of roadway or facility along this segment.

b. Enter the percentage of footpath on LHS which corresponds to quality equivalent to grade B. Grade B characterises as follows:

i. Minimum width of footpath is mostly 1.8m or more but is not less than 1.5m anywhere long Grade B length (on LHS)
ii. There is a minimum 1.2m wide clear width available on either side of any movable or immovable obstructions on the footpath.
iii. The footpath is not higher than 20cm from road surface.
iv. The footpath has right slopes for surface drainage.
v. The footpath has excellent surface quality with no or minor need of repairs.
vi. There are no sudden bends or drops along the footpath and the footpath is mostly barrier free (disabled friendly) throughout its length and may or may not include tactile directional pavers, but includes warning tiles for blind.

Input alphabet 'X' if no footpath exists on the LHS of roadway or facility along this segment.

c. Enter the percentage of footpath on LHS which corresponds to quality equivalent to grade C. Grade C characterises as follows:

i. Maximum width of footpath is not more than 1.5m anywhere along the length (on LHS)
ii. There are movable or immovable obstructions on the footpath with clear walking width of less than 1.2m,
iii. The footpath is higher than 20cm from road surface.
iv. The footpath does not have right slopes for surface drainage or if footpath has poor surface quality with urgent needs of repairs,
v. There are sudden bends or/and drops along the footpath or if the footpath is completely inaccessible to persons with disabilities.

Input alphabet 'X' if no footpath exists on the LHS of roadway or facility along this segment.

d. No input is required, and is system generated. Sum total of percentage of footpath for all three grades should be 100% or the input against all three grades should be 'X'.

20. **Quality in terms of percentage of service lane and footpath meeting different grades - Footpath (RHS):** The user has to input percentage breakup of total footpath (on RHS) in terms of its quality or grade. Quality or grade of footpath is divided in three categories A, B and C. The total of percentage footpath on RHS falling under these categories should be 100%, if the length of footpath on RHS of the segment is more than 0%.
    a. Enter the percentage of footpath on RHS which corresponds to quality equivalent to grade A or more. Grade A characteristics for footpath are as follows:
        i. Minimum width of footpath is not less than 1.8m anywhere along the length (on RHS)
        ii. There are no movable or immovable obstructions on the footpath.
        iii. The footpath is not higher than 18cm from road surface.
        iv. The footpath has right slopes for surface drainage and that footpath has excellent surface quality with no need of repairs.
        v. There are no sudden bends or drops along the footpath.
        vi. The footpath is completely barrier free (disabled friendly) throughout its length.

    Input alphabet 'X' if no footpath exists on the RHS of roadway or facility along this segment.

    b. Enter the percentage of footpath on RHS which corresponds to quality equivalent to grade B. Grade B characterises as follows:
        i. Minimum width of footpath is mostly 1.8m or more but is not less than 1.5m anywhere long Grade B length (on RHS)
        ii. There is a minimum 1.2m wide clear width available on either side of any movable or immovable obstructions on the footpath.
        iii. The footpath is not higher than 20cm from road surface.
        iv. The footpath has right slopes for surface drainage.
        v. The footpath has excellent surface quality with no or minor need of repairs.
        vi. There are no sudden bends or drops along the footpath and the footpath is mostly barrier free (disabled friendly) throughout its length and may or may not include tactile directional pavers, but includes warning tiles for blind.

    Input alphabet 'X' if no footpath exists on the RHS of roadway or facility along this segment.

    c. Enter the percentage of footpath on RHS which corresponds to quality equivalent to grade C. Grade C characterises as follows:
        i. Maximum width of footpath is not more than 1.5m anywhere along the length (on RHS)
        ii. There are movable or immovable obstructions on the footpath with clear walking width of less than 1.2m,
        iii. The footpath is higher than 20cm from road surface.
        iv. The footpath does not have right slopes for surface drainage or if footpath has poor surface quality with urgent needs of repairs,

v. There are sudden bends or/and drops along the footpath or if the footpath is completely inaccessible to persons with disabilities.

Input alphabet 'X' if no footpath exists on the RHS of roadway or facility along this segment.

d. No input is required, and is system generated. Sum total of percentage of footpath for all three grades should be 100% or the input against all three grades should be 'X'.

21. **Additional service zone availability evaluation(for both LHS and RHS) – Provision of Hawking Zone :** This defines if the segment has a provision or a dedicated space for hawking activity in line with the existing demand and location for hawking activity.
    - **a.** Select 'Yes' if more than 80% of hawkers have been accounted for in the planning process i.e. while carving out and designing spaces for hawkers.
    - **b.** Select 'No' if less than 80% of hawkers have been accounted for in the planning process i.e. while carving out and designing spaces for hawkers.
    - **c.** Input the number of hawkers observed (total for both LHS and RHS) observed during any single peak hour of the day. Input a value between 0 and 10000.

22. **Additional service zone availability evaluation (for both LHS and RHS) – Provision of iPT/TSR/Rickshaw Parking bays:** This defines if the segment has a provision or a dedicated space for feeder services like Intermediate public transport (IPT) systems such as three wheeled auto rickshaw (TSR) and cycle rickshaw, in line with the existing demand and location for the same along the segment.
    - **a.** Select 'Yes' if more than 80% of IPT demand has been accounted for in the planning process i.e. while carving out and designing spaces for formal auto rickshaw and cycle rickshaw parking and drop-off bays.
    - **b.** Select 'No' if less than 80% of IPT demand has been accounted for in the planning process i.e. while carving out and designing spaces for formal auto rickshaw and cycle rickshaw parking and drop-off bays.
    - **c.** Input the total number of parked IPT observed (total for both LHS and RHS) observed during any single peak hour of the day. Input a value between 0 and 500.

Figure 11 shows the part 4 of the segment context form. The inputs required in this form have been explained below.

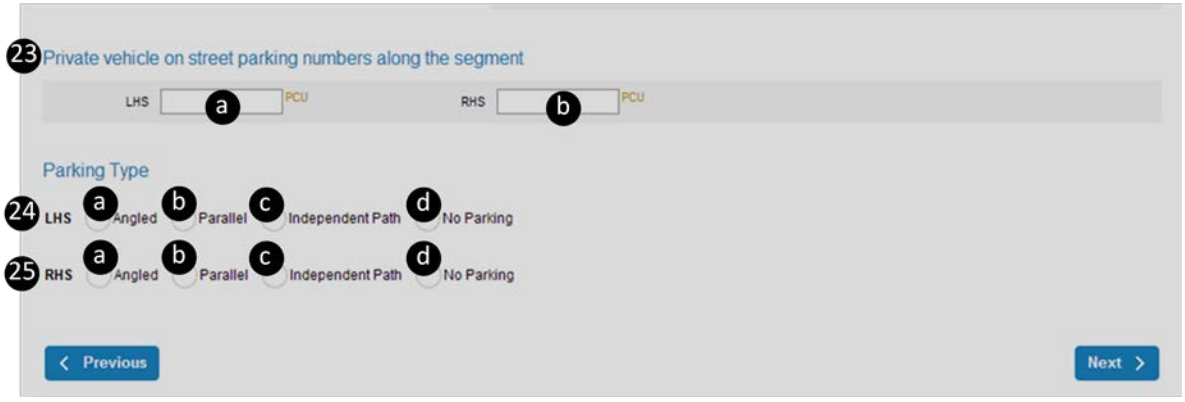


Figure 11: CyLOS for Corridor / Route – Segment Context – Part 4

23. **Private Vehicle on street parking (numbers along the segment)**:This refers to the total number of vehicles that are parked on the street. The user has to enter this value in PCU. The value varies between 0 and the maximum value based on the parking type, where, the total parking length should not exceed the usable segment length.The system shall generate an error if the maximum value in any case is more than 50000.
    a. **LHS** : The user has to input the total number of private vehicles observed to be parked on LHS of carriageway, either in formal on street parking or informally/illegally at any time during peak hours. Insert the value as passenger car unit (PCU). If standalone/independent cycle facility is being evaluated in this segment, no private vehicular parking is expected and hence in put the alphabet 'X' in that case.
    b. RHS : The user has to input the total number of private vehicles observed to be parked on RHS of carriageway, either in formal on street parking or informally/illegally at any time during peak hours. Insert the value as passenger car unit (PCU). If standalone/independent cycle facility is being evaluated in this segment, no private vehicular parking is expected and hence in put the alphabet 'X' in that case.

24. **Parking Type (LHS):** This refers to the primary or majority (i.e. more than 80%) of observed parking type on LHS of carriageway or cycle facility. Select between (a), (b) or (c) (d).
    a. **Angled** :Select if the majority parking type is perpendicular or angled (more than or equal to 30 degree parking)
    b. **Parallel**: Select if the majority parking type is parallel to the carriageway (less than 30 degree from the curb edge)
    c. **Segregated Parking** : Select if the majority parking type is segregated parking facility, i.e. no vehicular carriageway exists
    d. **No Parking**: Select if there is no parking observed

25. **Parking Type (RHS)**: Indicate the primary or majority (i.e. more than 80%) of observed parking type on LHS of carriageway or cycle facility. Select between (a), (b) or (c) (d).
    a. **Angled** :Select if the majority parking type is perpendicular or angled (more than or equal to 30 degree parking)
    b. **Parallel**: Select if the majority parking type is parallel to the carriageway (less than 30 degree from the curb edge)
    c. **Segregated Parking**: Select if the majority parking type is segregated parking facility, i.e. no vehicular carriageway exists
    d. **No Parking**: Select if there is no parking observed

After the above 25 inputs the user can press ‘Next’ and go to the second design data input form i.e. infrastructure at mid block.

3.1.3.2 Infrastructure at Mid-Block

'Infrastructure at Mid-Block' for CyLOS, is the second input form and has a total of 19 inputs which are being shown and explained in 4 parts in the below sections. Each of the inputs is being assigned with numbers and is elaborated number wise in the respective tables for each part.

Figure 12 shows the part 1 of infrastructure at mid block. The inputs required in this form have been explained below.

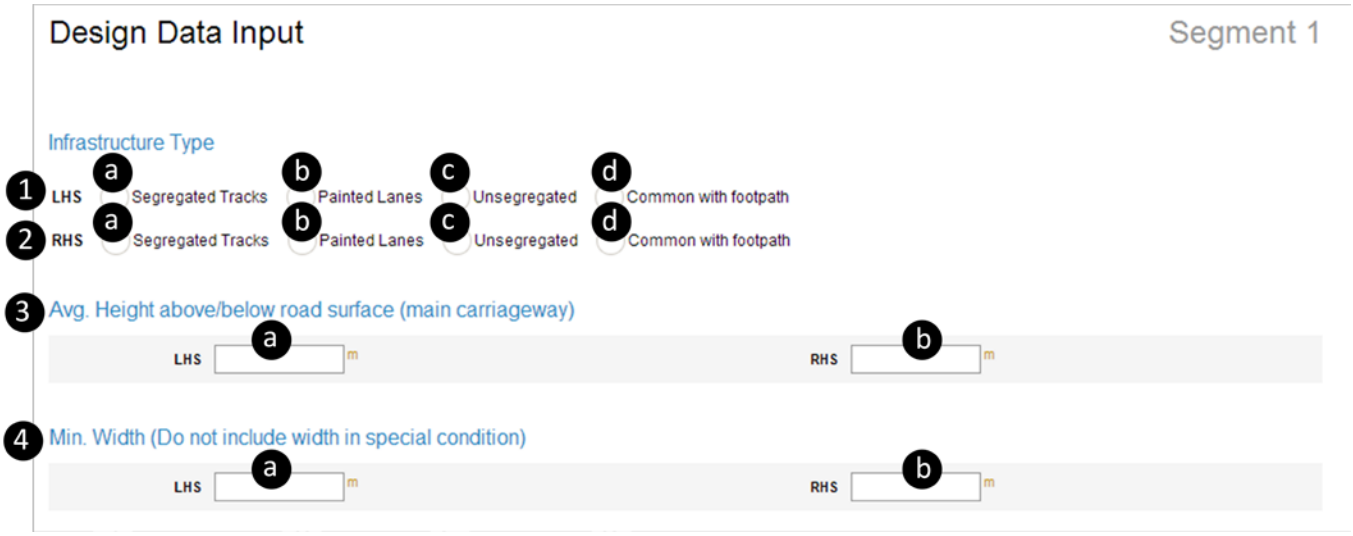


Figure 12: CYLOS for Corridor / Route – Infrastructure at Midblock – Part 1

The details of the numbers (1 to 4) shown in the above figure are being tabulated below:

1. **Infrastructure Type (LHS)**: This defines the type of infrastructure provided for the cyclist on the left Hand Side (LHS) of the segment. Only one option out of 'a', 'b', 'c' or 'd' can be selected. Each option has been explained below:
    a. **Segregated Tracks**: The user should select if the type of cycle infrastructure being evaluated is physically segregated from carriageway, footpath and service lane.
    b. **Painted Lanes**: The user should select if the type of cycle infrastructure being evaluated is not physically segregated from carriageway and instead it is a painted track along carriageway on LHS.
    c. **Unsegregated**: The user should select if the type of cycle infrastructure being evaluated is physically unsegregated from carriageway or service lane.
    d. **Common with footpath**: The user should select if type of cycle infrastructure being evaluated is a combined with footpath

2. **Infrastructure Type (RHS)**: This defines the type of infrastructure provided for the cyclist on the Right Hand Side (RHS) of the segment. Only one out of 'a','b','c'or'd' can be selected. Each option has been explained below:
    a. **Segregated Tracks**: 'a' should be selected if the type of cycle infrastructure being evaluated is physically segregated from carriageway, footpath and service lane on RHS.

b. **Painted Lanes**: 'b' should be selected if the type of cycle infrastructure being evaluated is not physically segregated from carriageway and instead it is a painted track along carriageway on RHS.
c. **Unsegregated:** 'c' should be selected if the type of cycle infrastructure being evaluated is physically unsegregated from carriageway or service lane on RHS.
d. **Common with footpath:** 'd' should be selected if type of cycle infrastructure being evaluated is a combined with footpath on RHS.

3. **Average Height of the cycle track/lane above/below road surface (main carriageway):** The average height of the cycle infrastructure being evaluated with respect to the main carriageway road level should be input in millimetres, separately for LHS and RHS. The cycle infrastructure can be above or below the main carriageway road level. If the infrastructure is below the carriageway level then (-) should be put before the value being input. If the infrastructure is above the carriageway level then the value has to be input.
    a. Enter the average height of the cycle infrastructure on the LHS w.r.t the main carriageway in millimetres. Use a '-'sign if input value is below the main carriageway.
    b. Enter the average height of the cycle infrastructure on the RHS w.r.t from the main carriageway in millimetres. Use a '-'sign if input value is below the main carriageway.

4. **Minimum width (does not include width in special conditions**): This defines the minimum width of the cycle infrastructure being evaluated excluding any special conditions. Special conditions imply any condition in the segment that has different characteristics due to presence of a flyover, ROB, underpass, etc.
    a. Minimum width of the cycle infrastructure being evaluated on LHS should be entered if the type of infrastructure selected is 'Segregated Tracks' i.e. question 1(a). This width should not include the minimum width of special conditions. Special conditions implies any condition in the segment being evaluated which is part of the segment but has different characteristics due to presence of a flyover, ROB, Underpass, etc. This has been explained in greater details as part of next form. If the type of infrastructure selected is not 'Segregated Tracks' i.e. other than question 1(a) then enter alphabet 'X' (without inverted commas) should be entered.
    b. Minimum width of the cycle infrastructure being evaluated on RHS should be entered if the type of infrastructure selected is 'Segregated Tracks' i.e. question 1(a). This width should not include the minimum width of special conditions. Special conditions implies any condition in the segment being evaluated which is part of the segment but has different characteristics due to presence of a flyover, ROB, Underpass, etc. This has been explained in greater details as part of next form. If the type of infrastructure selected is not 'Segregated Tracks' i.e. other than than question 1(a) then enter alphabet 'X' should be entered.

Figure 13 shows part 2 of infrastructure at mid block. The inputs required in this form have been explained below.

Figure 13 : CYLOS for Corridor / Route – Infrastructure at Midblock – Part 2

5. **Primary Location of Track/Lane on Cross Section (LHS):** This refers to the primary location of the cycle track/lane in the LHS of the cross section of the segment being evaluated. Only one out of 'a', 'b', 'c', 'd', 'e', 'f', or 'g' can be selected. Each option has been explained below:
    a. **Along carriageway (Main MV Lane):** Select if the primary location of track/lane being evaluated is along carriageway on the cross section on LHS.
    b. Along Footpath (footpath separates from carriageway): Select if the primary location of track/lane being evaluated is along footpath and footpath separates the carriageway and the cycle track on the cross section on LHS.
    c. **Along property edge**: Select if the primary location of track/lane being evaluated is along property edge on the cross section, does not have a service lane on other side and footpath separates the cycle track from property edge on LHS.
    d. **On the median**: Select if the primary location of track/lane being evaluated is on the median of the carriageway on the cross section on LHS.
    e. **Between on street parking and carriageway**: Select if the primary location of track/lane being evaluated is between service lane and property edge on the cross section on LHS.
    f. **Between service lane and property edge**: Select if the primary location of track/lane being evaluated is between service lane and property edge where footpath may or may not separate the cycle track from property edge on LHS.
    g. **Independent or standalone**: Selected if the primary location of track/lane being evaluated is independent or standalone on the cross section being on LHS. In case if the user has selected “independent/standalone facility “in Segment context form, question 2a, then the user should select this option.
6. **Primary Location of Track/Lane on Cross Section (RHS):** This refers to the primary location of the cycle track/lane in the RHS of the cross section of the segment being evaluated. Only one out of 'a','b','c', 'd', 'e', 'f', or 'g' can be selected.

a. **Along carriageway (Main MV Lane**): Select if the primary location of track/lane being evaluated is along carriageway on the cross section on RHS.
b. **Along Footpath (footpath separates from carriageway)**: Select if the primary location of track/lane being evaluated is along footpath and footpath separates the carriageway and the cycle track on the cross section on RHS.
c. **Along property edge**: Select if the primary location of track/lane being evaluated is along property edge on the cross section, does not have a service lane on other side and footpath separates the cycle track from property edge on RHS. RHS.
d. **On the median**: Select if the primary location of track/lane being evaluated is on the median of the carriageway on the cross section on RHS.
e. **Between on street parking and carriageway**: Select if the primary location of track/lane evaluated is between on street parking and carriageway on the cross section being on RHS.
f. **Independent or standalone**: Select if the primary location of track/lane being evaluated is between service lane and property edge where footpath may or may not separate the cycle track from property edge on RHS.
g. **Independent or standalone**: Select if the primary location of track/lane being evaluated is independent or standalone on the cross section being on RHS. In case if the user has selected “independent/standalone facility “in Segment context form, question 2a, then the user should select this option.

7. **Primary Segregation Type from carriageway(LHS):** This refers to the primary type of segregation of the cycle track/lane from carriageway on the LHS. Only one out of 'a','b','c', 'd', 'e', 'f', or 'g' can be selected. Each option has been explained below:
    a. **Not along Carriageway**: Select if the primary segregation type from carriageway of track/lane being evaluated is not along carriageway on LHS.
    b. **Not Segregated**: Select if the primary segregation type from carriageway of track/lane being evaluated is not segregated from carriageway on LHS.
    c. **Paint Marking**: Select if the primary segregation type from carriageway of track/lane being evaluated is through paint marking on LHS.
    d. **Reflector Studs**: Select if the primary segregation type from carriageway of track/lane being evaluated is through reflector studs on LHS.
    e. **Raised Median**: Select if the primary segregation type from carriageway of track/lane being evaluated is by raised median on LHS.
    f. **Green Belt**: Select if the primary segregation type from carriageway of track/lane being evaluated is by green belt on LHS.
    g. **Open Drain**: Select if the primary segregation type from carriageway of track/lane being evaluated is by an open drain on LHS.
    h. **Vertical surface higher than 180mm:** Select if the primary segregation type from carriageway of track/lane being evaluated is by any vertical surface higher than 180mm on LHS.
    i. **Segregation width**: The user should enter the width of the segregation of track/lane being evaluated from the carriageway on LHS in metres. The input value varies between 0 and 10. Also, if the track/lane being evaluated is not segregated from the

carriageway i.e. option 1(a) is not selected on LHS then alphabet 'X' (without inverted commas) should be entered

8. **Primary Segregation Type from carriageway(RHS) :** This refers to the primary type of segregation of the cycle track/lane from carriageway on the RHS. Only one out of 'a','b','c', 'd', 'e', 'f', or 'g' can be selected. Each option has been explained below:
    a. **Not along Carriageway**: Select if the primary segregation type from carriageway of track/lane being evaluated is not along carriageway on RHS.
    b. **Not Segregated**: Select if the primary segregation type from carriageway of track/lane being evaluated is not segregated from carriageway on RHS.
    c. **Paint Marking**: Select if the primary segregation type from carriageway of track/lane being evaluated is through paint marking on RHS.
    d. **Reflector Studs**: Select if the primary segregation type from carriageway of track/lane being evaluated is through reflector studs on RHS.
    e. **Raised Median**: Select if the primary segregation type from carriageway of track/lane being evaluated is by raised median on RHS.
    f. **Green Belt**: Select if the primary segregation type from carriageway of track/lane being evaluated is by green belt on RHS.
    g. **Open Drain**: Select if the primary segregation type from carriageway of track/lane being evaluated is by an open drain on RHS.
    h. **Vertical surface higher than 180mm:** Select if the primary segregation type from carriageway of track/lane being evaluated is by any vertical surface higher than 180mm on RHS.
    i. **Segregation width**: The user should enter the width of the segregation of track/lane being evaluated from the carriageway on RHS in metres. The input value varies between 0 and 10. Also, if the track/lane being evaluated is not segregated from the carriageway i.e. option 1(a) is not selected on RHS then alphabet 'X' (without inverted commas) should be entered

Figure 14 shows the part 3 of infrastructure at mid block. The inputs required in this form have been explained below.

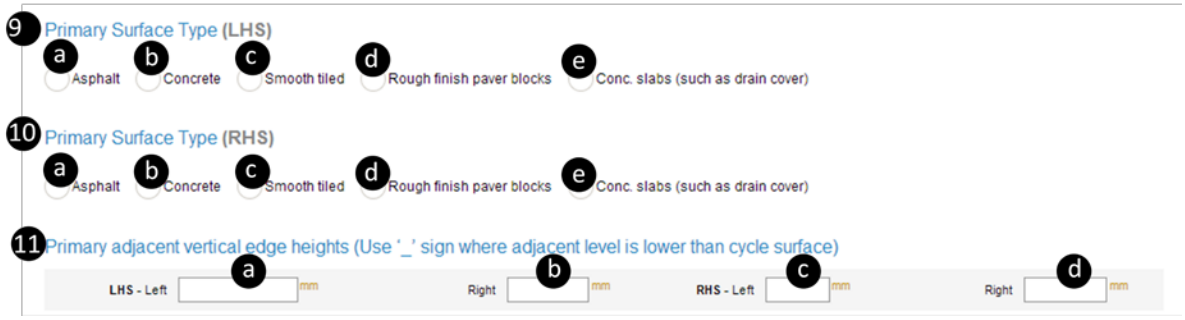


Figure 14: CYLOS for Corridor / Route - – Infrastructure at Midblock – Part 3

9. **Primary Surface Type (LHS):** This refers to the primary surface type of the cycle track/lane in LHS of the segment being evaluated. Only one out of 'a','b','c', 'd' or 'e' can be selected. The options have been explained below:

a. **Asphalt**: Select if the primary surface type of track/lane being evaluated is Asphalt on LHS.
b. **Concrete (in situ)**: Select if the primary surface type of track/lane being evaluated is Concrete (in situ) on LHS.
c. **Smooth tiles**: Select if the primary surface type of track/lane being evaluated is smooth tiles on LHS.
d. **Rough finish paver blocks**: Select if the primary surface type of of track/lane being evaluated is rough finish paver blocks on LHS.
e. **Concrete Slab (such as drain cover)**: Select if the primary surface type of of track/lane being evaluated is Concrete slabs on LHS.

10. **Primary Surface Type (LHS):** This refers to the primary surface type of the cycle track/lane in RHS of the segment being evaluated. Only one out of 'a','b','c', 'd' or 'e' can be selected. The options have been explained below:
    a. **Asphalt**: Select if the primary surface type of track/lane being evaluated is Asphalt on RHS.
    b. **Concrete (in situ)**: Select if the primary surface type of track/lane being evaluated is Concrete (in situ) on RHS.
    c. **Smooth tiles**: Select if the primary surface type of track/lane being evaluated is smooth tiles on RHS.
    d. **Rough finish paver blocks**: Select if the primary surface type of of track/lane being evaluated is rough finish paver blocks on RHS.
    e. **Concrete Slab (such as drain cover)**: Select if the primary surface type of of track/lane being evaluated is Concrete slabs on RHS.

11. **Primary adjacent vertical height:** This refers to the adjacent vertical height on the left and the right hand side of the cycle track/lane. The value to be entered can be in the range of -2000mm to 2000mm. The user has to add a '-'sign where the adjacent height is lower than the cycle track/lane. Left and right side should be considered in terms of increasing chainage.
    a. **LHS (Left)**: The user has to input the value of primary adjacent vertical edge height on left side of the LHS track/lane being evaluated.
    b. **LHS (Right):** The user has to enter the value of primary adjacent vertical edge height on right side of the LHS track/lane being evaluated. In case of right hand side of the LHS, if the width of segregation is '0' of the track/lane being evaluated from the carriageway and the track/lane being evaluated is below the road surface then the value to be entered would be a whole number. Again, in case of right hand side of the LHS if the width of segregation is '0' of the track/lane being evaluated from the carriageway and the track/lane being evaluated is above the road surface then the value to be entered would be a negative (-) number.
    c. **RHS (Left):** The user has to input the value of primary adjacent vertical edge height on left side of the RHS track/lane being evaluated is to be entered.
    d. **RHS (Right):** The user has to enter the value of primary adjacent vertical edge height on right side of the RHS track/lane being evaluated. In case of right hand side of the RHS if the width of segregation is '0' of the track/lane being evaluated from

the carriageway and the track/lane being evaluated is below the road surface then the value to be entered would be a whole number. Again, in case of right hand side of the RHS if the width of segregation is '0' of the track/lane being evaluated from the carriageway and the track/lane being evaluated is above the road surface then the value to be entered would be a negative (-) number.

Figure 15 shows part 4 of the infrastructure at mid block. The inputs required in this form have been explained below.

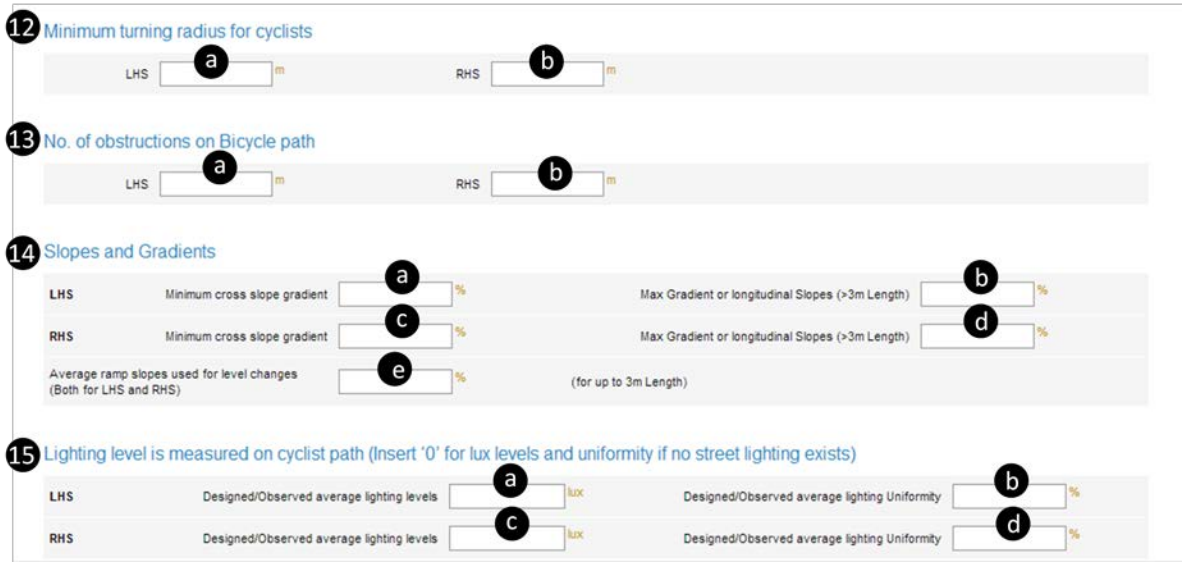


Figure 15 : CYLOS for Corridor / Route - Infrastructure at Midblock – Part 4

12. **Minimum Turning Radius for Cyclists:** This refers to the minimum turning radius used for cyclists. The value can vary between 0 and 300 and is in meters.
    a. **LHS**: The user has to input the value in metres for minimum turning radius on LHS on the track/lane being evaluated.
    b. **RHS**: The user has to enter the value in metres for minimum turning radius on RHS on the track/lane being evaluated.

13. **No. of Obstructions on Bicycle Path:** This refers to the obstructions that are located on the cycle path (track / lane). The obstructions can be static as well as dynamic in nature. For example, static obstructions would include obstructions such trees, structures, poles, sign posts, etc. Similarly, dynamic obstructions could include hawkers, parking, gatherings, etc. The input value is a number and can vary between 0 and 10000.
    a. **LHS:** The user has to enter the number of obstructions on LHS on the track/lane being evaluated.
    b. **RHS**: The user has to input the number of obstructions on RHS on the track/lane being evaluated.

14. **Slopes and Gradients:** This refers to the various slopes and gradients on the cyclist path. The unit is percentarge and the value can vary between 0 and 100.

a. **Minimum Cross Slope Gradient (LHS):** The user has to input the percentage value of minimum cross slope gradient on LHS on the track/lane being evaluated is to be entered.
b. **Maximum gradient or longitudinal slope (for the length greater than 3m, LHS):** The user has to input the percentage value of maximum gradient or longitudinal slope (for the length greater than 3m) on LHS on the track/lane being evaluated is to be entered.
c. **Minimum Cross Slope Gradient (RHS):** The user has to input the percentage value of minimum cross slope gradient on RHS on the track/lane being evaluated is to be entered.
d. **Maximum gradient or longitudinal slope (for the length greater than 3m, RHS):** The user has to input the percentage value of maximum gradient or longitudinal slope (for the length greater than 3m) on RHS on the track/lane being evaluated is to be entered.
e. **Average ramps slopes used for level changes (both for LHS and RHS):** The user has to input the percentage value of average slope for level changes of both LHS and RHS for the lengths of upto 3m for track/lane being evaluated has to be entered.

15. **Lighting level measured on cyclist path:** This refers to the lighting level which is measured on the cyclist path. The unit is lux and the value can vary between 0 and 100.
    a. **Designed/observed average lighting levels (LHS)**: The user has to input the average value of designed/observed lighting levels in 'Lux' for LHS on track/lane being evaluated has to be entered.
    b. Designed/observed average uniformity levels (LHS):The user has to input the average percentage value of designed/observed lighting uniformity for LHS on track/lane being evaluated has to be entered.
    c. **Designed/observed average lighting levels (RHS)**: The user has to input the average value of designed/observed lighting levels in 'Lux' for RHS on track/lane being evaluated has to be entered.
    d. **Designed/observed average uniformity levels (RHS):**The user has to input the average percentage value of designed/observed lighting uniformity for RHS on track/lane being evaluated has to be entered.

Figure 16 part 5 of the infrastructure at midblock. The inputs required in this form have been explained below.

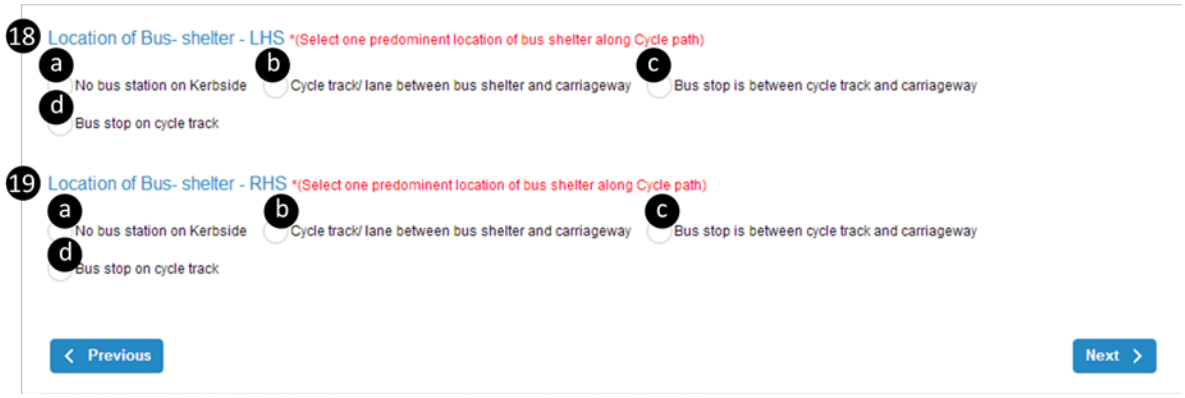


Figure 16: CYLOS for Corridor / Route - Infrastructure at Midblock – Part 5

16. **Marking and Signage - Presence of cycle specific marking:** This refers to the presence of cycle specific marking excluding lane markings such as cycle box, etc. for both LHS and RHS on the track/lane being evaluated. It does not include cycle specific markings on major and minor junctions Either one of 'a' or 'b' can be selected.
    a. Select if markings are present on the track/lane being evaluated.
    b. Select if markings are NOT present on the track/lane being evaluated.

17. **Marking and Signage - Presence of cycle specific sign boards:** This refers to the presence of cycle specific sign boards for both LHS and RHS on the track/lane being evaluated and does not include cycle specific sign boards at major and minor intersections. Either one 'a' or 'b' can be selected.
    a. Select if cycle specific sign boards are present on the track/lane being evaluated
    b. Select if cycle specific sign boards are NOT present on the track/lane being evaluated

18. **Location of bus shelter (LHS):**
    This refers to the location of bus shelters for LHS on the cycle track/lane being evaluated. Only one out of 'a','b','c'or'd' can be selected. The options have been explained below:
    a. Select if there is no bus stop on kerb side and will be applicable in case if Stand alone or independent track is selected in segment context form.
    b. Select if the cycle track / lane exists between bus shelter and the carriage way.
    c. Select if the bus stop exists between cycle track and carriage way
    d. Select if bus stop is on the cycle track / lane.

19. **Location of bus shelter (RHS):** This refers to the location of bus shelters for RHS on the cycle track/lane being evaluated. Only one out of 'a','b','c'or'd' can be selected. The options have been explained below:
    e. Selected if there is no bus stop on kerb side and will be applicable in case if Stand alone or independent track is selected in segment context form.
    f. Select if the cycle track / lane exists between bus shelter and the carriage way.
    g. Select if the bus stop exists between cycle track and carriage way
    h. Select if bus stop is on the cycle track / lane.

3.1.3.3 Infrastructure Design at Intersections and Crossings

This user input form focuses on infrastructure design at intersections and crossings for the identified segment.

Figure 17 shows the design data input page. This form relates to Segment Information form. Incase the user has a segment with no major junctions, minor junctions and property entrances, safe crossing, the user needs to fill options like 'Not Applicable', 'No' and 'x' as listed in each question. However, if the input value in segment information for major junction, minor junction, property entrance and safe crossing is more than 0, the user has to inputs the following which explained below.

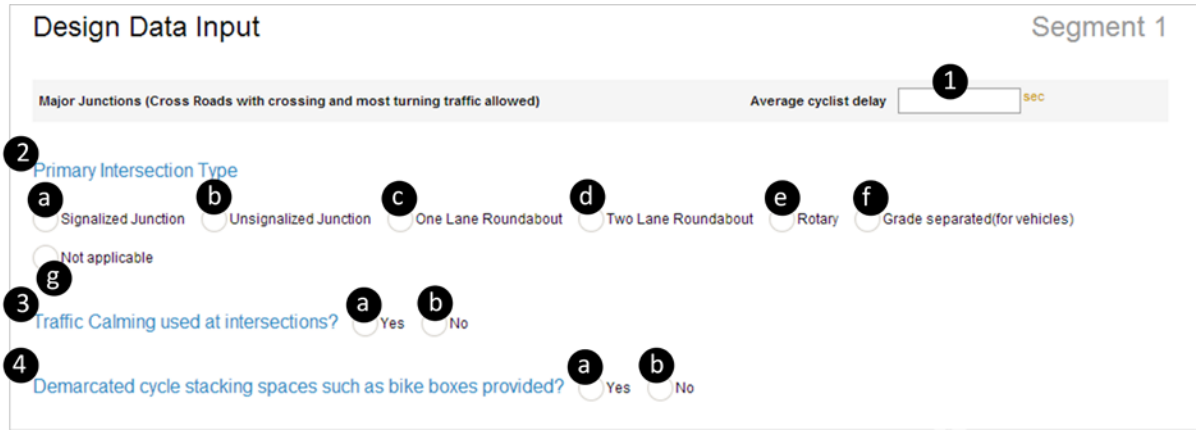


Figure 17: CYLOS for Corridor / Route – infrastructure design at intersection and crossings – Part 1

Major junctions

1. **Average Cyclist delay at major junctions**: This refers to the average delay for cyclists at major intersection(s) on the segment being evaluated. The input value varies between 0 and 1000 seconds. The major intersections on the segment being evaluated are those intersections on which right turn and/or cross traffic is allowed. Incase, the user has entered '0'as input value in segment information- major intersections (segment info – 3a), the user should enter '0' as input value here.

2. **Primary Intersection Type**: This refers to the type of major intersection for the segment being evaluated. The user has to select one of the categories below:
    a. Signalised Junction
    b. Un-Signalised Junction
    c. One Lane Roundabout
    d. Two Lane Roundabout
    e. Rotary
    f. Grade Separated (for vehicles)
    g. Not Applicable – Select if the user has entered '0'as input value in segment information- major intersections (Ref segment information – 3a).

3. **Traffic Calming Used at Intersections**: This refers to the use of traffic calming measures like speed humps, raised crossings, etc at intersections. The user needs to select one of the following:
    a. Select 'Yes' if traffic calming has been used at the major junction of the segment being evaluated.
    b. Select 'No' if traffic calming has not been used at the major junction of the segment being evaluated. Incase, the user has entered '0'as input value in segment information- major intersections (Ref segment information – 3a), the user should select 'No'.

4. **Demarcated cycle stacking spaces such as bike boxes provided**: This refers to the provision of cycle stacking spaces or waiting areas called cycle boxes at the junction for cyclists to wait for green signal to move ahead of motorised traffic. The user needs to select one of the following:
    a. Select 'Yes' if demarcated cycle stacking spaces such as bike boxes have been provided at the major junction of the segment being evaluated.
    b. Select 'No' if demarcated cycle stacking spaces such as bike boxes have not been provided at the major junction of the segment being evaluated. Incase, the user has entered '0'as input value in segment information- major intersections (Ref segment information – 3a), the user should select 'No'.

Figure 18 shows the design data input page. The inputs required in this form have been explained below.

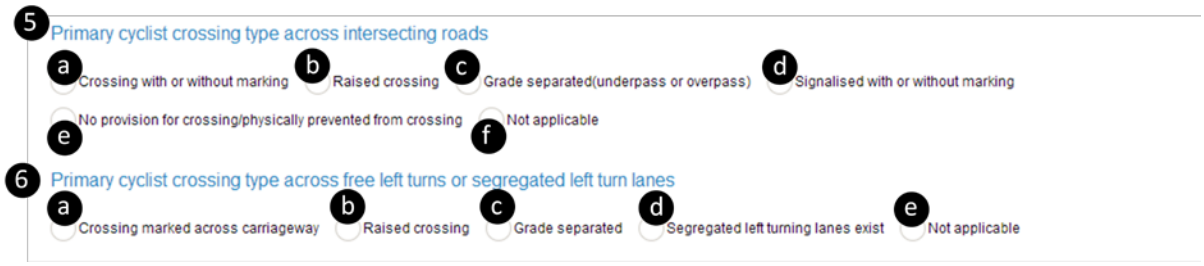


Figure 18 : CYLOS for Corridor / Route - infrastructure design at intersection and crossings – Part 2

5. **Primary Cyclist crossing type across intersecting roads**: This refers to the primary type of crossing available on the major intersection of the segment being evaluated. The user has to select one of the categories below:
    a. Crossing with or without marking: Provision of marking for cyclists to cross the road. This may be along with at grade pedestrian crossing or a separate provision of cycle marking to cross. Select this option, incase no marking is provided.
    b. Raised crossing: Provision of table top crossings.
    c. Grade separated (underpass or overpass)
    d. Signalised (with or without marking)
    e. No provision for crossing / physically prevented from crossing
    f. Not applicable - Select if the user has entered '0'as input value in segment information- major intersections (Ref segment information – 3a).

6. **Primary cyclist crossing across free left turns or segregated left turns**: This refers to the type of crossing provision for cyclists across free left turns or segregated left turns at intersections. The user has to select one of the categories below:
    a. **Crossing marked across carriageway**: the type of primary crossing across free left turns or segregated left turns on the major junction of the segment being evaluated is crossing marked across carriageway
    b. **Raised Crossing**: the type of primary crossing across free left turns or segregated left turns on the major junction of the segment being evaluated is raised crossing.
    c. **Grade Separated** : the type of primary crossing across free left turns or segregated left turns on the major junction of the segment being evaluated is grade separated (underpass or overpass).
    d. **Segregated left turning lanes exist** : the type of primary crossing across free left turns or segregated left turns exists as segregated left turning lane on the major junction of the segment being evaluated is grade separated (underpass or overpass).
    e. **Not applicable**: Select if the user has entered '0'as input value in segment information- major intersections (Ref segment information – 3a).

Figure 19 shows the design data input page. The inputs required in this form have been explained below.

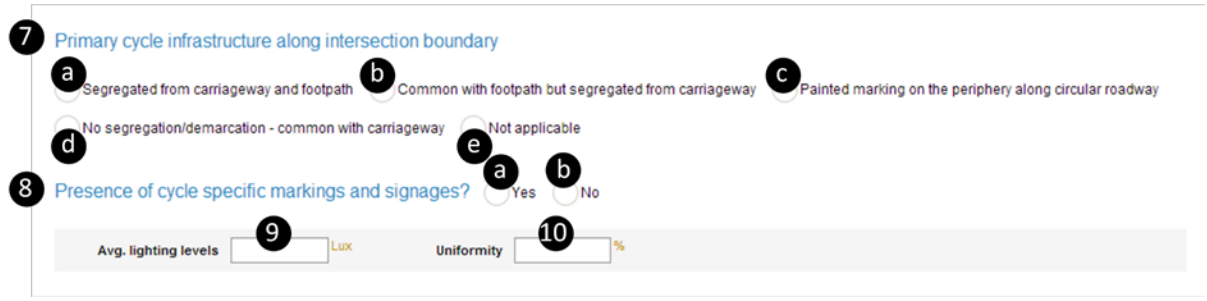


Figure 19: CYLOS for Corridor / Route - infrastructure design at intersection and crossings – Part 3

7. **Primary cycle infrastructure along intersection boundary**: This refers to the type of cycle infrastructure along intersection boundary. Only one out of 'a','b', 'c' or 'd' can be selected.
    a. **Segregated from carriageway and footpath**: Select if the type of primary cycle infrastructure along the intersection boundary is segregated from the carriage way and footpath on the major junction of the segment .
    b. **Common with footpath but segregated from carriageway**: Select if the type of primary cycle infrastructure along the intersection boundary is common with footpath but segregated from the carriage way on the major junction of the segment
    c. **Painted marking on the periphery along circular roadway**: Select if the type of primary cycle infrastructure along the intersection boundary is painted on the periphery along the circular roadway on the major junction of the segment .
    d. **No segregation/demarcation – common with carriageway**: Select if the type of primary cycle infrastructure along the intersection boundary is non segregated / demarcated but common with carriage way on the major junction of the segment

e. **Not applicable**: Select if the user has entered '0'as input value in segment information- major intersections (Segment Information – 3a).

8. **Presence of cycle specific marking and signages**: This refers to presence of cycle specific markings and signages at major intersections. Only one out of 'Yes' or 'No' can be selected.
    a. Select 'Yes' if cycle specific markings and signages are present at the major intersection.
    a. Select 'No' if cycle specific markings and signages are not present at the major intersection. Incase, the user has entered '0'as input value in segment information- major intersections (Segment information – 3a), the user should select 'No'.

9. **Average Lighting Levels** : The user has to input the average value of designed/observed lighting levels in 'Lux' for cycle track/lane on the major junction has to be entered. Incase, the user has entered '0'as input value in segment information- major intersections (Segment Information – 3a), the user should enter alphabet 'X' here (without inverted commas) .

10. **Lighting Uniformity**: In D9, the average percentage value of designed/observed lighting uniformity for track/lane on the major junction being evaluated has to be entered. Incase, the user has entered '0'as input value in segment information- major intersections (Segment Information 3a), the user should enter alphabet 'X' here (without inverted commas).

Figure 20 shows the design data input page. The inputs required in this form have been explained below.

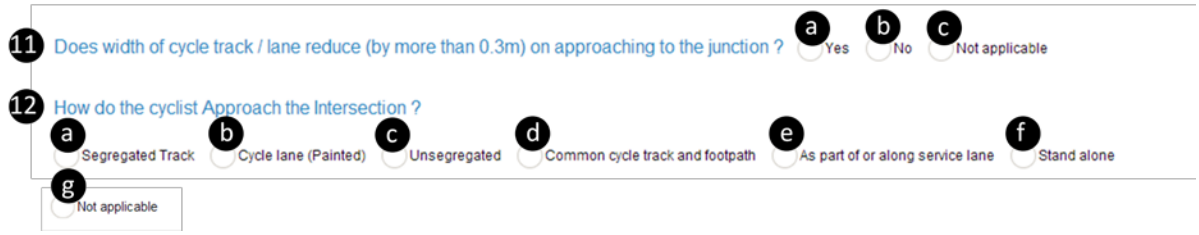


Figure 20: CYLOS for Corridor / Route - infrastructure design at intersection and crossings – Part 4

11. **Does width of cycle track/lane reduce (by more than 0.3m) on approaching to the junction**? : This refers to any change more than 0.3m in the width of cycle track while approaching the junction? This needs to be filled only for the LHS where the cyclist approaches the intersection.
    a. Select 'Yes' if the width of cycle track/lane changes more than 0.3m while approaching the junction.
    b. Select 'No' if the width of cycle track does not change more than 0.3m while approaching the junction.
    c. Not applicable: Select if the user has entered '0'as input value in segment information- major intersections (Ref segment information – 3a).
12. **How does the cyclist approach the intersection**? This refers to the way the cyclist approaches the intersection. Only one out of 'a','b','c'or 'd' can be selected.
    a. **Segregated Track**: Select if the type of cycle infrastructure being evaluated is physically segregated from carriageway, footpath and service lane on RHS.

b. **Cycle lane (painted)**: Select if the type of cycle infrastructure being evaluated is not physically segregated from carriagway and instead it is a painted track along carriageway on RHS.
c. **Unsegregated**: Select if the type of cycle infrastructure being evaluated is physically unsegregated from carriageway or service lane on RHS.
d. **Common cycle track and footpath**: Select if type of cycle infrastructure being evaluated is a combined with footpath on RHS.
e. **As part of or along the service lane**
f. **Stand alone**
g. **Not Applicable**: Select if the user has entered '0'as input value in segment information- major intersections (Ref segment information – 3a).

Minor junctions

Figure 21 shows the design data input page. This form relates to Segment Information form. Incase, the user has a segment with no minor junctions (as entered in Ref segment information – 3b,3c), the user needs to fill options like 'Not Applicable', 'No' and 'x' as listed in each question. However, if the input value in segment information for minor junction is greater than 0, the user has enter the following inputs.

The inputs required in this form have been explained below.

Figure 21: CYLOS for Corridor / Route - infrastructure design at intersection and crossings – Part 5

13. **Location of cycle track/lane changed from mid block design**: This refers to change in location of cycle track/lane being evaluated on RHS at minor junction. Either 'Yes' or 'No' can be selected.
    a. Select 'Yes' if the location of cycle track/lane changes from mid block design at minor junctions on LHS
    b. Select 'No' if the location of cycle track/lane does not change from mid block design at minor junctions on RHS. Incase, the user has entered '0'as input value in segment information- minor intersections (segment information – 3b), the user should select 'No'.
    c. Select 'Yes' if the location of cycle track/lane changes from mid block design at minor junctions on LHS

d. Select 'No' if the location of cycle track/lane does not change from mid block design at minor junctions on RHS. Incase, the user has entered ‘0’as input value in segment information- minor intersections (segment information– 3c), the user should select ‘No’.

14. **Primary type of crossing for cyclist across vehicular path (LHS):** This refers to primary type of crossing for cyclists across vehicular path on LHS. Only one out of 'a', 'b' or 'c' can be selected
    a. At carriageway level: 'a' should be selected if on LHS the primary type of crossing for cyclists across vehicular path is at carriageway level
    b. Level of cycle track remains same (above carriageway) : 'b' should be selcted if on LHS the level of cycle track remains same (above carriageway) for the primary type of crossing for cyclists across vehicular path.
    c. At footpath level: 'c'should be selected if on LHS the cycle track is at footpath level for the primary type of crossing for cyclists across vehicular path
    d. Not applicable: Select if the user has entered ‘0’as input value in segment information- minor intersections (segment information – 3b).

15. **Primary type of crossing for cyclist across vehicular path (RHS**): This refers to primary type of crossing for cyclists across vehicular path on RHS. Only one out of ‘a’, 'b' or 'c' can be selected.
    a. **At carriageway level**: 'a' should be selected if on RHS the primary type of crossing for cyclists across vehicular path is at carriageway level.
    b. **Level of cycle track remains same (above carriageway**): Select if on RHS the level of cycle track remains same (above carriageway) for the primary type of crossing for cyclists across vehicular path.
    c. **At footpath level**: Select if on RHS the cycle track is at footpath level for the primary type of crossing for cyclists across vehicular path.
    d. **Not applicable**: Select if the user has entered ‘0’as input value in segment information- minor intersections (segment information – 3c).

16. **Provision of warning such as blinkers and sign boards**: This refers to the provision of warnings such as blinkers and sign boards for cyclists on LHS. Either 'Yes' or 'No' can be selected.
    a. Select 'Yes' if warnings such as blinkers and sign boards for cyclists have been provided on LHS
    b. Select 'No' if warnings such as blinkers and sign boards for cyclists have not been provided on LHS. Incase, the user has entered ‘0’as input value in segment information- minor intersections (segment information– 3c), the user should select ‘No’.
    c. Select 'Yes' if warnings such as blinkers and sign boards for cyclists have been provided on RHS.
    d. Select 'No' if warnings such as blinkers and sign boards for cyclists have not been provided on RHS. Incase, the user has entered ‘0’as input value in segment

information- minor intersections (segment information – 3c), the user should select 'No'.

Property Entrances

Figure 22 shows the design data input page. This form relates to Segment Information form. Incase, the user has a segment with no property entrances (as entered in Ref segment information3.1.2 – 3d,3e), the user needs to fill options like 'Not Applicable', 'No' and 'x' as listed in each question. However, if the input value in segment information for minor junction is greater than 0, the user has enter the following inputs.

The inputs required in this form have been explained below.

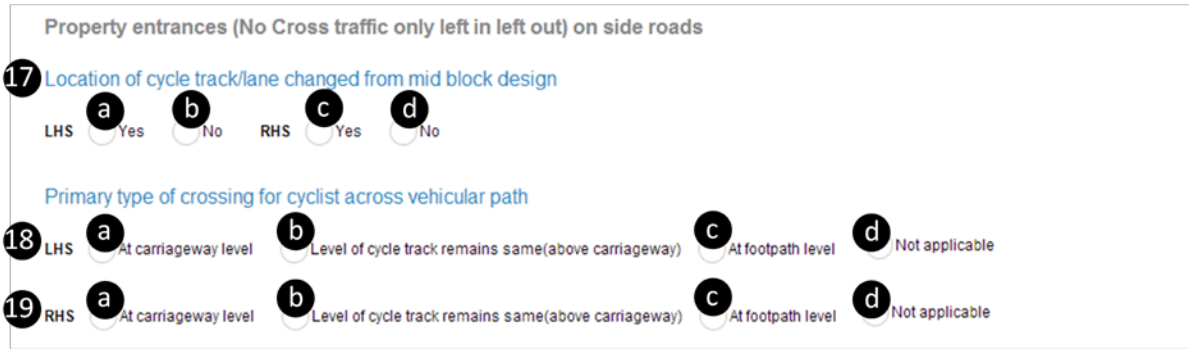


Figure 22 : CYLOS for Corridor / Route - infrastructure design at intersection and crossings – Part 6

17. **Location of cycle track/lane changed from mid block design**: This refers to change in location of cycle track/lane at property entrances (No cross traffic, only left in and left out) on LHS and RHS. Either 'Yes' or 'No' can be selected.
    a. Select 'Yes' should be selected if there is change in location of cycle track/lane at property entrances on LHS.
    e. Select 'No' should be selected if there is no change in location of cycle track/lane at property entrances on LHS. Incase, the user has entered '0'as input value in segment information- property entrances (Ref segment information – 3d), the user should select 'No'.
    b. Select 'Yes' if there is change in location of cycle track/lane at property entrances on RHS.
    c. Select 'No' if there is no change in location of cycle track/lane at property entrances on RHS. Incase, the user has entered '0'as input value in segment information- property entrances (Ref 3.1.2 – 3e), the user should select 'No'.

18. **Primary type of crossing for cyclist across vehicular path (LHS)**: This refers to primary type of crossing for cyclists across vehicular path at property entrances on LHS. Only one out of 'a', 'b' or 'c' can be selected
    a. No carriageway level: 'a' should be selected if on LHS the primary type of crossing for cyclists across vehicular path is at carriageway level.

b. Level of cycle track remains same (above carriageway): 'b' should be selected if on LHS the level of cycle track remains same (above carriageway) for the primary type of crossing for cyclists across vehicular path.
c. At footpath level: 'c'should be selected if on LHS the cycle track is at footpath level for the primary type of crossing for cyclists across vehicular path.
d. Not applicable: Select if the user has entered '0'as input value in segment information- property entrances (segment information – 3d).

19. **Primary type of crossing for cyclist across vehicular path (RHS):** This refers to primary type of crossing for cyclists across vehicular path at property entrances on RHS. Only one out of 'a', 'b' or 'c' can be selected.
    a. No carriageway level: 'a' should be selected if on RHS the primary type of crossing for cyclists across vehicular path is at carriageway level.
    b. Level of cycle track remains same (above carriageway): 'b' should be selected if on RHS the level of cycle track remains same (above carriageway) for the primary type of crossing for cyclists across vehicular path.
    c. At footpath level: 'c'should be selected if on RHS the cycle track is at footpath level for the primary type of crossing for cyclists across vehicular path.
    d. Not applicable: Select if the user has entered '0'as input value in segment information- property entrance (Segment information – 3e).

Figure 23 shows the design data input page. The inputs required in this form have been explained below.

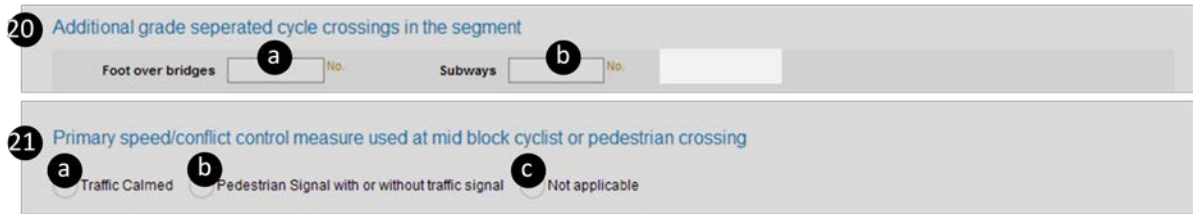


Figure 23 : CYLOS for Corridor / Route - infrastructure design at intersection and crossings – Part 7

20. **Additional grade separated cycle crossings in the segment**: This refers to additional grade separated cycle crossings in the segment being evaluated.
    a. **Foot Over Bridges**: The number of foot over bridges should be entered in D24a. The input value ranges between 0 and 100.
    b. **Subways**: The number of subways should be entered in D24b. The input value ranges between 0 and 100.

21. **Primary speed/conflict control measure used at mid block for vehicles**: This refers to primary cyclist crossing type across intersecting roads (Independent of intersections or not combined with major intersections). Only one out of 'a' or 'b'
    a. **Traffic Calmed**: 'a' should be selected if the primary cyclist crossing type across intersecting roads is traffic calmed.

b. **Pedestrian signal with Traffic without signal**: Select if the primary cyclist crossing type across intersecting roads is pedestrian signal with or without traffic signal
c. **Not applicable**: Select if the user has entered '0'as input value in segment information- pedestrian/nmv crossing (Ref segment information – 3f).

3.1.3.4 Miscellaneous

The final form of the Design data input for a segment indicates the other factors that influence cycle infrastructure. These vary from provision of cycle parking, maintenance, landscaping, enforcement, etc.

Figure 24 shows the design data input page. The inputs required in this form have been explained below.

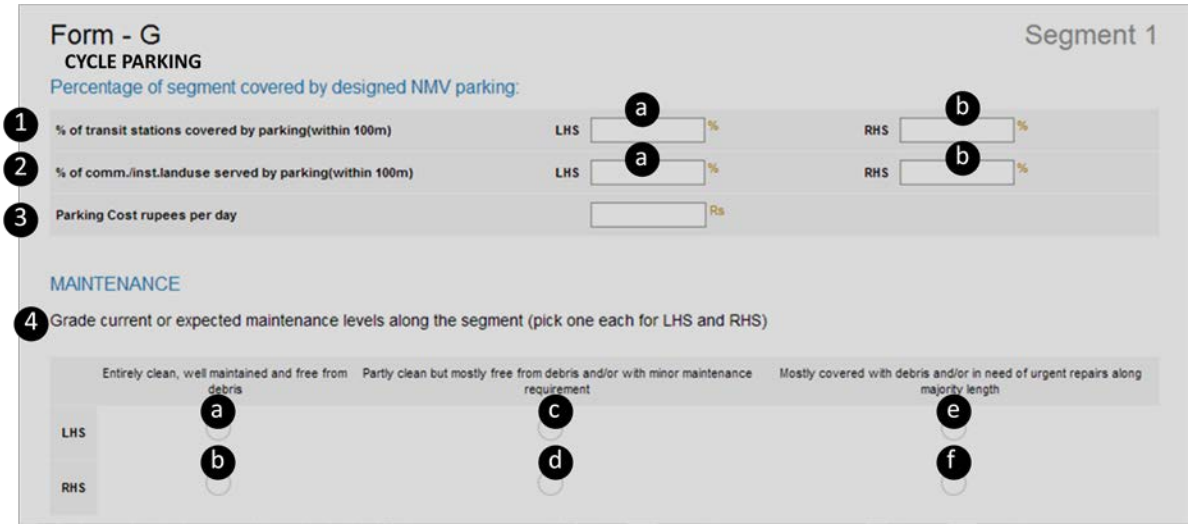


Figure 24: CYLOS for Corridor / Route - miscellaneous – Part 1

CYCLE PARKING

1. **Percentage of segment covered by designed NMV Parking – % of transit stations covered by parking (within 100m)**: This defines the transit stations in percentage that have the provision of cycle parking within a radius of 100m. This value can range from 0 to 100 and should be in percentage (%).
    a. Enter the value in percentage for transit station on the LHS that have the provision of cycle parking with 100m of their location. If standalone/independent cycle track has been selected in question 2, segment context form earlier, then enter alphabet 'X' here (without inverted commas) else the input value should range between 0 and 100 and the unit is in '%'.
    b. Enter the value in percentage for transit stations on the RHS that have the provision of cycle parking with 100m of their location. If standalone/independent cycle track has been selected in question 2, segment context form earlier, then enter alphabet 'X' here (without inverted commas) else the input value should range between 0 and 100 and the unit is in '%'.

2. **Percentage of segment covered by designed NMV Parking - % of commercial/institutional landuse served by parking (within 100m**): This defines the provision of parking within 100m of a commercial or institutional landuse. This value can range from 0 to 100 and should be in percentage (%).
    a. Enter the provision of cycle parking in percentage for a commercial / institutional landuse on the LHS of the segment.
    b. Enter the provision of cycle parking in percentage for a commercial / institutional landuse on the RHS of the segment.

3. **Parking cost rupees per day**: This defines the cost in rupees per day charged for cycle parking. The input value can vary between 0 and 1000. Incase there is no provision of cycle parking, the parking cost to be entered is 0.

MAINTENANCE

4. **Current grade or expected maintenance levels along the segment** – This defines the current or expected maintenance levels along the segment. The levels of maintenance are categorised as follows- Entirely clean, well maintained and free from debris , Partly clean but mostly free from debris and/or with minor maintenance requirements or mostly covered with debris and/or in need of urgent repairs along majority length. The user has to select any one of the below categories indicating the maintenance level:
    a. If the LHS of the identified segment is entirely clean, well maintained and free from debris
    b. If the RHS of the identified segment is entirely clean, well maintained and free from debris
    c. If the LHS of the identified segment is partly clean but mostly free from debris and/or with minor maintenance requirements
    d. If the RHS of the identified segment is partly clean but mostly free from debris and/or with minor maintenance requirements
    e. If the LHS of the identified segment is mostly covered with debris and/or in need of urgent repairs along majority length
    f. If the RHS of the identified segment is mostly covered with debris and/or in need of urgent repairs along majority length

Figure 25 shows the design data input page. The inputs required in this form have been explained below.

Figure 25: CYLOS for Corridor / Route - miscellaneous – Part 2

LANDSCAPING

5. **Grade attraction and landscaping level for cyclists along the segment** – This defines the grading of attraction and landscaping level for cyclists along the segment. The various grades for landscaping are categorised as follows- Periphery/edges include designed green cover, street furniture and varied facade, periphery/edges partly of fully include green cover but lacks interesting facade and/or street furniture along majority length and lack of designed green cover and other landscaping elements and/or has long monotonous facades along majority length. The user has to select any one of the below categories :
    a. If LHS of the identified segment has periphery/edges that include designed green cover, street furniture and varied facade
    b. If RHS of the identified segment has periphery/edges that include designed green cover, street furniture and varied facade
    c. If LHS of the identified segment has periphery/edges partly of fully include green cover but lacks interesting facade and/or street furniture along majority length
    d. If RHS of the identified segment has periphery/edges partly of fully include green cover but lacks interesting facade and/or street furniture along majority length
    e. If LHS of the identified segment has a lack of designed green cover and other landscaping elements and/or has long monotonous facades along majority length.
    f. If RHS of the identified segment has a lack of designed green cover and other landscaping elements and/or has long monotonous facades along majority length.

6. **Grade enforcement level for cyclists along the segment – select well enforced if no designated infrastructure exists along segment**. This defines the level of enforcement for cyclists along the segment. The various grades for enforcement are categorised as follows- well enforced – no encroachment by motorists and no parking along the entire segment length, partly enforced – Light motorised vehicles encroach designated cycle infrastructure near intersections but no parking and no enforcement at mid block and Lack enforcement – Motor Vehicles routinely encroach and park on designated infrastructure. The user has to select any one of the below categories :

a. If the LHS of the identified segment is well enforced i.e. no encroachment by motorists and no parking along the entire segment length
b. If the RHS of the identified segment is Well enforced i.e. no encroachment by motorists and no parking along the entire segment length
c. If the LHS of the identified segment is partly enforced i.e. light motorised vehicles encroach designated cycle infrastructure near intersections but no parking and no enforcement at mid block
d. If the RHS of the identified segment is partly enforced i.e. light motorised vehicles encroach designated cycle infrastructure near intersections but no parking and no enforcement at mid block
e. If the LHS of the identified segment lacks enforcement i.e. motor Vehicles routinely encroach and park on designated infrastructure.
f. If the RHS of the identified segment lacks enforcement i.e Lack enforcement – Motor Vehicles routinely encroach and park on designated infrastructure.

Figure 26 shows the design data input page. The inputs required in this form have been explained below.

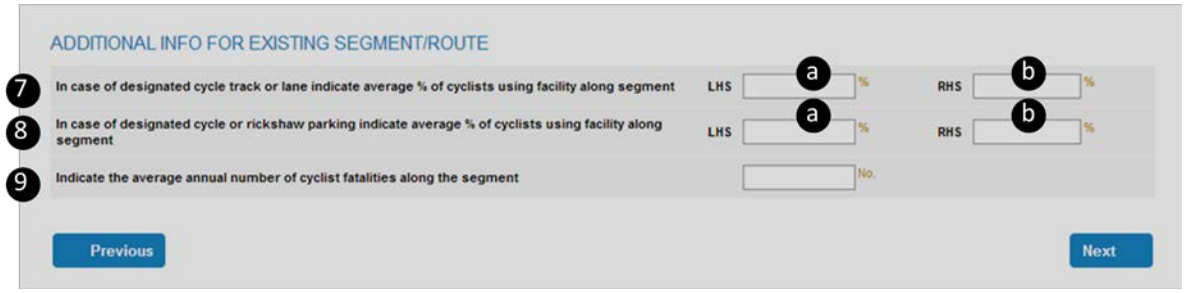


Figure 26: CYLOS for Corridor / Route - miscellaneous – Part 3

Additional Info for Existing Segment Route

7. **Incase of designated cycle track or lane, indicate average % of cyclists using facility along segment**: This refers to the cyclists using the provided cycle infrastructure i.e. track/lane along the identified segment. The value entered should be in percentage and varies between 0 and 100.
    a. Input the average percentage (%) of cyclists using the facility of designated cycle track or lane along the LHS of the segment. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, segment context form earlier, then the user should enter alphabet 'X' here (without inverted commas).
    b. Input the average percentage (%) of cyclists using the facility of designated cycle track or lane along the RHS of the segment. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, segment context form earlier, then the user should enter alphabet 'X' here (without inverted commas).

8. **Incase of designated cycle or rickshaw parking indicate average % of cyclists using facility along segment**: This refers to the percentage of the cyclists using the facility of cycle or

rickshaw parking along the segment. The input value varies between 0 and 100 and should be in percentage (%).

a. Input the average % of cyclists using the cycle or rickshaw parking facility along the LHS of the segment. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, segment context form earlier, then the user should enter alphabet 'X' here (without inverted commas).
b. Input the average % of cyclists using the cycle or rickshaw parking facility along the RHS of the segment. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, segment context form earlier, then the user should enter alphabet 'X' here (without inverted commas).

9. **Indicate the average annual number of cyclist fatalities along the segment**: This refers to the average annual number of cyclist fatalities along the identified segment. The user can input a value between 0 and 1000. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, segment context form earlier, then the user should enter alphabet 'X' here (without inverted commas).

3.1.4 Segment Evaluation Result

The output is categorized into the five design principles – coherence, safety, directness, comfort and attractiveness. Below each design principle are its sub indicators. The evaluation sheet has four columns which give the following result

a. LHS –score against the indicator for the Left Hand Side of the segment being evaluated.
b. RHS – score against the indicator for the Right Hand Side of the segment being evaluated.
c. Overall – average score of the segment
d. Maximum Score – For all indicators the maximum score is 100.

Figure 27 shows the segment evaluation result for coherence. The indicators that contribute to it are explained below

Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
1	**COHERENCE**				
a	Infrastructure Relevance and Continuity Index	14	14	14	100
b	Frequency of Crossing	14	14	14	100
c	Cycle specific Marking	14	14	14	100
d	Cycle specific Signage	14	14	14	100
e	Cycle box at intersection	14	14	14	100
f	**Overall Coherence Score**	14			

Figure 27: CYLOS for Corridor – Segment Output – Coherence

1. **Coherence**: This refers to the legibility and connectivity of the bicycle network. In design, this implies that the segments in the network should look similar to improve the legibility and usability of the bicycle infrastructure and there is provision of good connectivity

between all origins and destinations. The following are the sub indicators that contribute to this design principle.

a. **Infrastructure Relevance and Continuity Index**: This refers to how relevant is planned/constructed infrastructure to its context and whether the infrastructure is continuous or not. The weightage assigned by the tool for the infrastructure relevance is 35% for Highway, 45% for Collector/Distributor, 65% for Access and 50% for Standalone.
b. **Frequency of Crossing**: This refers to how frequent are available opportunities for cyclists to cross the road. The weightage assigned by the tool for the frequency of cycle crossings is 35% for Highway, 25% for Collector/Distributor, 5% for access and 5% for Standalone.
c. **Cycle Specific Marking**: This refers to availability of adequate pavement marking to guide, warn and regulate cyclists. The weightage assigned by the tool for the cycle specific marking is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone.
d. **Cycle specific Signage**: This refers to availability of adequate sign boards to guide, warn and regulate cyclists. The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone.
e. **Cycle Box at Intersection**: This refers to availability of cycle box marking at intersection to hold crossing cyclists. The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 5% for Standalone.

Overall Coherence Score: This refers to the overall score of the segment for its coherence.

Figure 28 shows the segment evaluation result for safety. The indicators that contribute to it are explained below.

Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
2	SAFETY				
a	Frequency of safe crossings	14	14	14	100
b	Quality of Lighting	14	14	14	100
c	Riding Safety along midblock	14	14	14	100
d	Presence of activities on street	14	14	14	100
e	Enforcement	14	14	14	100
f	Cycle Box at Intersection	14	14	14	100
g	Friction from Car Parking	14	14	14	100
	Overall Safety Score	14			

Figure 28: CyLOS for Corridor – Segment Output – Safety

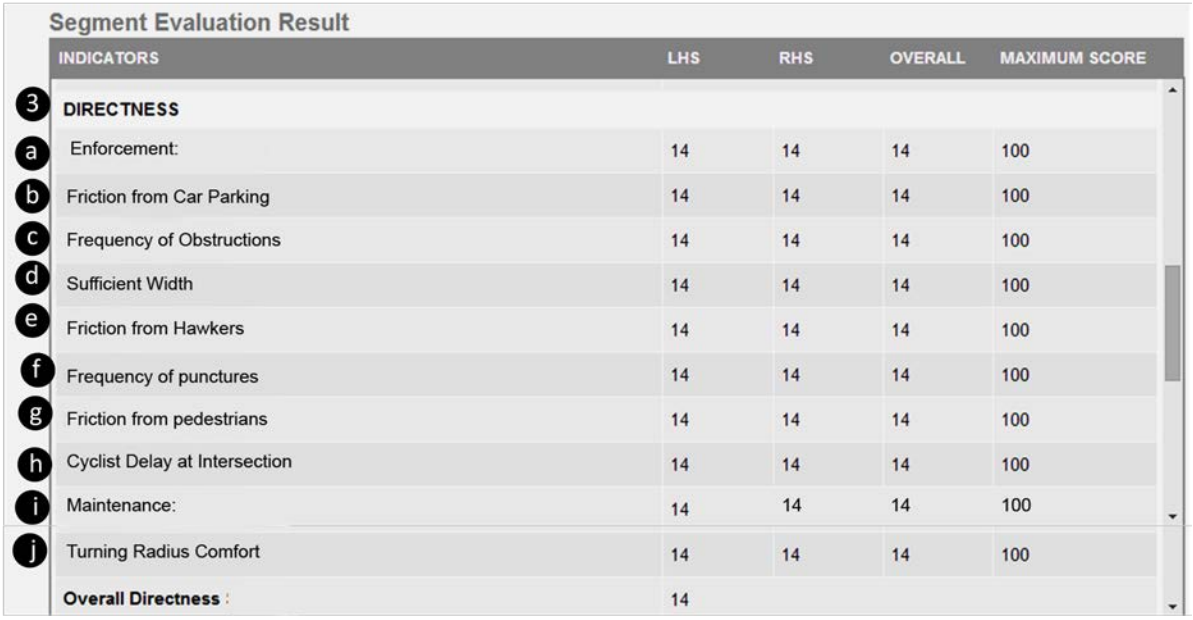
2. **Safety**: This refers to prevention of collisions and reducing the conflicts and their impact that result in a safer travel. It also includes provision of adequate and uniform lighting, integration of spaces for hawkers and vendors, support facilities provides security and the

necessary eyes on street. The following are the sub indicators that contribute to this design principle.

a. **Frequency of safe crossings**: This refers to the level of safety in terms of crash risk and severity, at cyclist crossing facilities. The weightage assigned by the tool for crossing safety index is 20% for Highway, 20% for Collector/Distributor, 5% for Access and 5% for Standalone.
b. **Quality of Lighting**: This refers to the quality of lighting in terms of level and uniformity. The weightage assigned by the tool for the lighting quality index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 20% for Standalone.
c. **Riding Safety along midblock**: This refers to the assessment of accident risk for cyclist along the carriageway. The weightage assigned by the tool for the mid block accident safety is 25% for Highway, 20% for Collector/Distributor, 15% for Access and 5% for Standalone.
d. **Presence of activities of street** : This refers to the assessment of level of activity along segment, to ensure security. The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 50% for Standalone.
e. **Enforcement**: This refers to the assessment of level of enforcement to ensure safety on carriageway. The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 10% for Standalone.
f. **Cycle Box at Intersection**: This refers to the availability of cycle box marking at intersection to hold crossing cyclists. The weightage assigned by the tool for the cycle box at intersection is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone.
g. **Friction from Car Parking**: This refers to the assessment of risk posed by street parking to commuting cyclists. The weightage assigned by the tool for the parking friction index is 10% for Highway, 15% for Collector/Distributor, 25% for Access and 5% for Standalone.

Overall Safety Score: This refers to the overall score of the segment for its safety based on the score of the above indicators.

Figure 29 shows the segment evaluation result for directness. The indicators that contribute to it are explained below.



Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
3	**DIRECTNESS**				
a	Enforcement:	14	14	14	100
b	Friction from Car Parking	14	14	14	100
c	Frequency of Obstructions	14	14	14	100
d	Sufficient Width	14	14	14	100
e	Friction from Hawkers	14	14	14	100
f	Frequency of punctures	14	14	14	100
g	Friction from pedestrians	14	14	14	100
h	Cyclist Delay at Intersection	14	14	14	100
i	Maintenance:	14	14	14	100
j	Turning Radius Comfort	14	14	14	100
	Overall Directness :	14			

Figure 29: CyLOS for Corridor – Segment Output – Directness

3. **Directness**: This refers to the amount of time and effort required by a cyclist to undertake a journey. The following are the sub indicators that contribute to this design principle.
    a. **Enforcement**: This refers to the assessment of level of enforcement to ensure minimal loss of directness to cyclists. The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 5% for Standalone.
    b. **Friction from Car Parking**: This refers to the assessment of loss of directness from friction by street parking to commuting cyclists. The weightage assigned by the tool for the parking friction index is 8% for Highway, 25% for Collector/Distributor, 20% for Access and 5% for Standalone.
    c. **Frequency of Obstructions**: This refers to the assessment of loss of directness caused by presence of obstruction in cycling path. The weightage assigned by the tool for the obstruction index is 21% for Highway, 20% for Collector/Distributor, 20% for Access and 20% for Standalone.
    d. **Sufficient Width**: This refers to the assessment of sufficiency of cycling path width with respect to vehicle size and cycle volume. The weightage assigned by the tool for width sufficient index is 21% for Highway, 15% for Collector/Distributor, 5% for Access and 25% for Standalone.
    e. **Friction from Hawkers**: This refers to the assessment of loss of directness due to friction from hawkers on cycling path. The weightage assigned by the tool for hawker sufficient index is 10% for Highway, 5% for Collector/Distributor, 8% for Access and 8% for Standalone.
    f. **Frequency of punctures**: This refers to how often is cycling lane/path crossed by vehicular path to access service lane/property entrance, etc. The weightage assigned by the tool for frequency of punctures is 8% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone.
    g. **Friction from pedestrians**: This refers to the assessment of loss of directness due to friction from pedestrians on cycle path. The weightage assigned by the tool for

pedestrian friction index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 15% for Standalone.

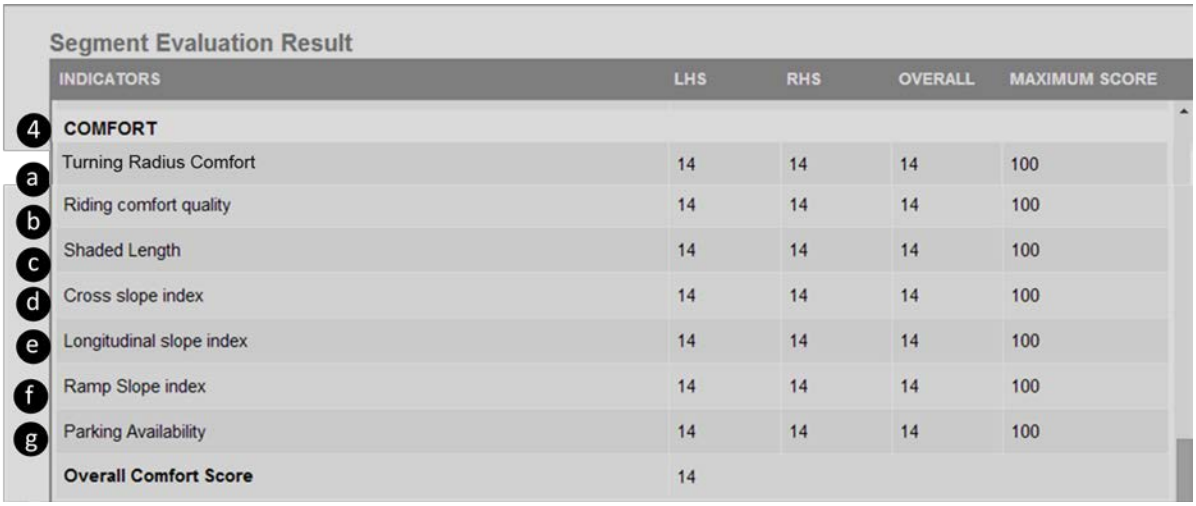
h. **Cyclist Delay at Intersection**: This refers to the assessment of loss of directness due to delay to cyclists at intersections. The weightage assigned by the tool for cyclist delay at intersection is 4% for Highway, 4% for Collector/Distributor, 6% for Access and 6% for Standalone.

i. **Maintenance**: This refers to the assessment of loss of directness due to friction cause by poor maintenance/ cleaning cycle infrastructure. The weightage assigned by the tool for maintenance is 4% for Highway, 4% for Collector/Distributor, 10% for Access and 10% for Standalone.

j. **Turning Radius Comfort**: Assessment of loss of directness due to tight turning radiuses on cycling path. The weightage assigned by the tool for turning radius is 4% for Highway, 2% for Collector/Distributor, 4% for Access and 4% for Standalone.

Overall Directness Score: This refers to the overall score of the segment for its directness based on the score of the above indicators.

Figure 30 shows the segment evaluation result for comfort. The indicators that contribute to it are explained below.



Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
4	**COMFORT**				
a	Turning Radius Comfort	14	14	14	100
b	Riding comfort quality	14	14	14	100
c	Shaded Length	14	14	14	100
d	Cross slope index	14	14	14	100
e	Longitudinal slope index	14	14	14	100
f	Ramp Slope index	14	14	14	100
g	Parking Availability	14	14	14	100
	Overall Comfort Score	14			

Figure 30: CYLOS for Corridor – Segment Output – Comfort

4. **Comfort**: This refers to riding comfort and riding surface for cyclists at the intersection should be smooth to reduce inconvenience. The following are the sub indicators that contribute to this design principle.

   a. **Turning Radius Comfort**: This refers to the assessment of loss of comfort due to tight turning radii on cycling path. The weightage assigned by the tool for turning radius is 8% for Highway, 5% for Collector/Distributor, 5% for Access and 15% for Standalone.

   b. **Riding comfort quality**: This refers to the assessment of riding comfort with reference to surface type. The weightage assigned by the tool for riding comfort index is 35% for Highway, 35% for Collector/Distributor, 35% for Access and 35% for Standalone.

c. **Shaded Length**: This refers to the assessment of protection from weather in terms of shade/shelter over cycling path. The weightage assigned by the tool for the shaded length is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone.
d. **Cross slope index**: This refers to the assessment of water runoff capability and comfortable riding cross slope. The weightage assigned by the tool for the cross slope index is 7% for Highway, 5% for Collector/Distributor, 3% for Access and 3% for Standalone.
e. **Longitudinal slope index**: This refers to the assessment of comfortable riding longitudinal slope. The weightage assigned by the tool for longitudinal slope index is 20% for Highway, 25% for Collector/Distributor, 25% for Access and 15% for Standalone.
f. **Ramp Slope Index**: This refers to the assessment of comfort of ramps provide to access egress from cycle path. The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone.
g. **Parking Availability**: This refers to the assessment of cycling comfort in terms of availability of safe and secure cycle parking. The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone.

Overall Comfort Score : This refers to the overall score of the segment for its comfort based on the score of the above indicators.

Figure 31 shows the segment evaluation result for comfort. The indicators that contribute to it are explained below.

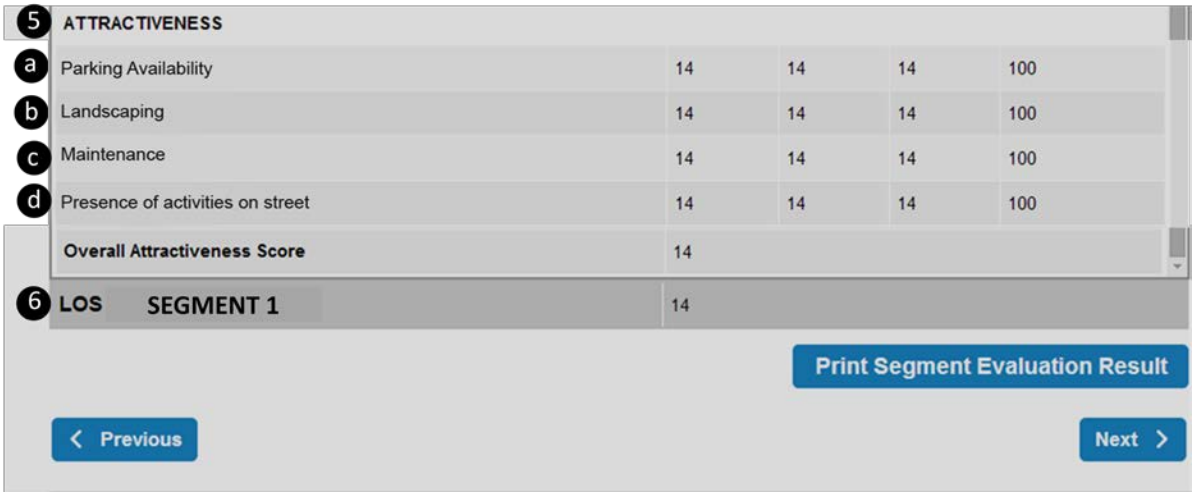


Figure 31: CyLOS for Corridor – Segment Output – Attractiveness

5. **Attractiveness**: This refers to well integrated green areas, resting spaces, etc. which are clean and well lit. The following are the sub indicators that contribute to this design principle.
    a. **Parking Availability**: This refers to the assessment of cycling comfort in terms of availability of safe and secure cycle parking. The weightage assigned by the tool for

parking availability index is 25% for Highway, 20% for Collector/Distributor, 10% for Access and 5% for Standalone.

b. **Landscaping**: This refers to attractiveness of cycling infrastructure in terms of along side landscaping/ plantation. The weightage assigned by the tool for landscaping is 15% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone.

c. **Maintenance**: This refers to attractiveness of cycling infrastructure in terms of how well it is maintained. The weightage assigned by the tool for maintenance is 40% for Highway, 40% for Collector/Distributor, 40% for Access and 30% for Standalone.

d. **Presence of activities on street**: This refers to attraction of cycling infrastructure in terms of life/ activity along cycling path. The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 40% for Standalone.

Overall Attractiveness Score: This refers to the overall score of the segment for its attractivenss based on the score of the above indicators.

6. **Segment LOS** : Based on the above scores, the user can see how the segment scores inclusive of all design principles contributing together.

3.1.5 Final Corridor Evaluation

Figure 32 shows the final evaluation layout of the corridor. This includes the output of overall corridor for each design principle as well as the final corridor LOS.

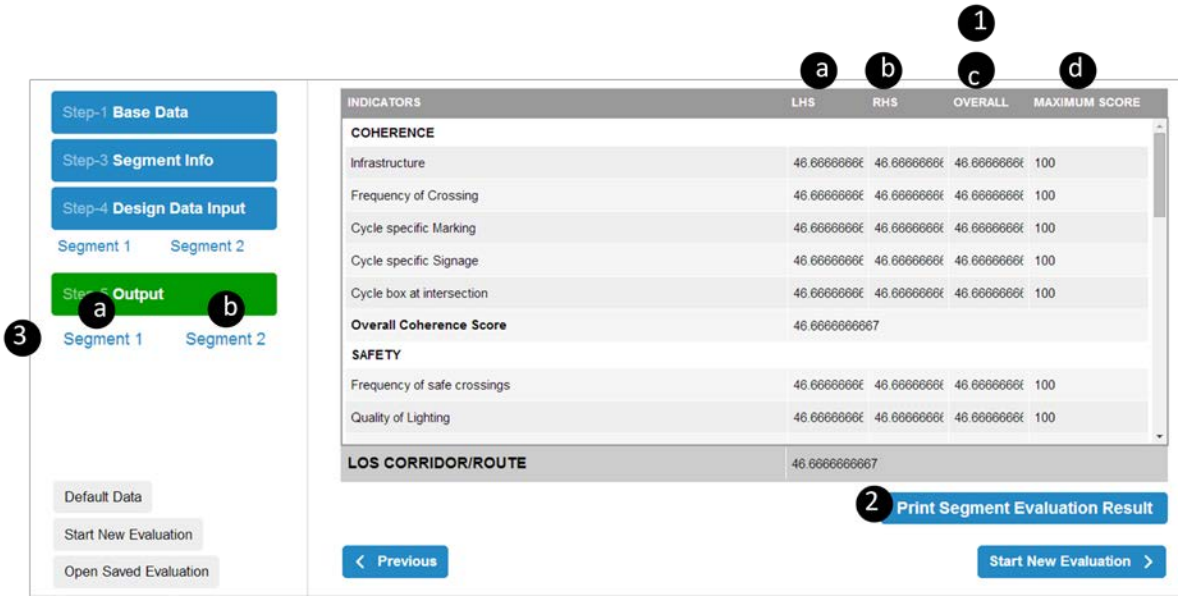


Figure 32: CyLOS for Corridor/Route – Final Evaluation

The output is categorized into the five design principles – coherence, safety, directness, comfort and attractiveness. Below each design principle are its sub indicators.

1. The evaluation sheet has four columns which give the following result
   a. LHS –score against the indicator for the Left Hand Side of the segment being evaluated.
   b. RHS – score against the indicator for the Right Hand Side of the segment being evaluated.
   c. Overall – average score of the segment
   d. Maximum Score – For all indicators the maximum score is 100.
2. **Print Segment Evaluation Result** – By clicking on this button, the user can

Figure 33 shows the segment evaluation result for coherence. The indicators that contribute to it are explained below.

Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
1	COHERENCE				
a	Infrastructure Relevance and Continuity Index	14	14	14	100
b	Frequency of Crossing	14	14	14	100
c	Cycle specific Marking	14	14	14	100
d	Cycle specific Signage	14	14	14	100
e	Cycle box at intersection	14	14	14	100
f	**Overall Coherence Score**	14			

Figure 33: CYLOS for Corridor – Overall Output – Coherence

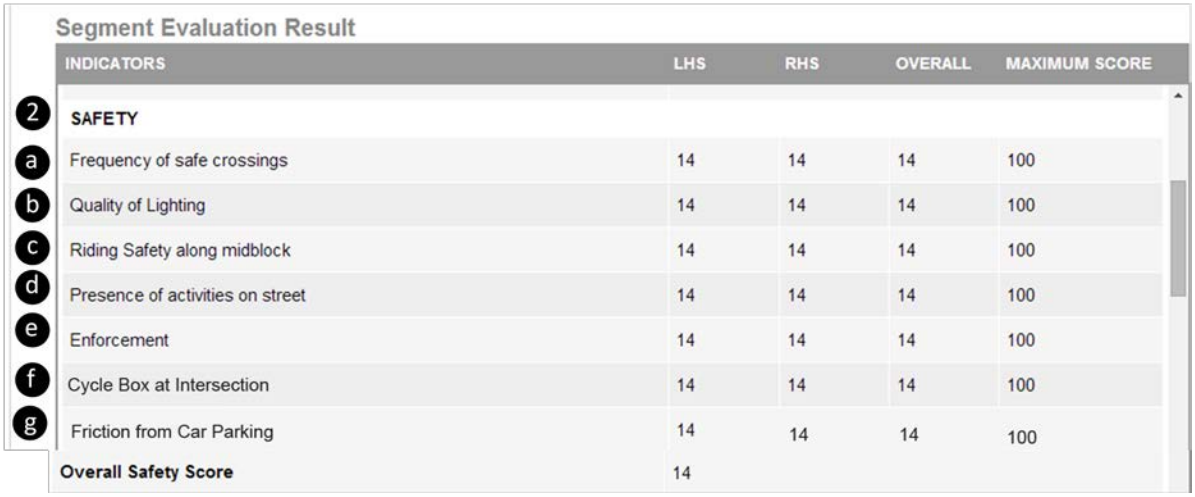
1. **Coherence**: This refers to to the legibility and connectivity of the bicycle network. In design, this implies that the segments in the network should look similar to improve the legibility and usability of the bicycle infrastructure and there is provision of good connectivity between all origins and destinations. The following are the sub indicators that contribute to this design principle.
   a. **Infrastructure Relevance and Continuity Index**: This refers to how relevant is planned/constructed infrastructure to its context and whether the infrastructure is continuous or not. The weightage assigned by the tool for the infrastructure relevance is 35% for Highway, 45% for Collector/Distributor, 65% for Access and 50% for Standalone.
   b. **Frequency of Crossing**: This refers to how frequent are available opportunities for cyclists to cross the road. The weightage assigned by the tool for the frequency of cycle crossings is 35% for Highway, 25% for Collector/Distributor, 5% for access and 5% for Standalone.
   c. **Cycle Specific Marking**: This refers to availability of adequate pavement marking to guide, warn and regulate cyclists. The weightage assigned by the tool for the cycle specific marking is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone.
   d. **Cycle specific Signage**: This refers to availability of adequate sign boards to guide, warn and regulate cyclists. The weightage assigned by the tool for the frequency of

cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone.

e. **Cycle Box at Intersection**: This refers to availability of cycle box marking at intersection to hold crossing cyclists. The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 5% for Standalone.

Overall Coherence Score: This refers to the overall score of the segment for its coherence.

Figure 34 shows the segment evaluation result for safety. The indicators that contribute to it are explained below.



Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
2	**SAFETY**				
a	Frequency of safe crossings	14	14	14	100
b	Quality of Lighting	14	14	14	100
c	Riding Safety along midblock	14	14	14	100
d	Presence of activities on street	14	14	14	100
e	Enforcement	14	14	14	100
f	Cycle Box at Intersection	14	14	14	100
g	Friction from Car Parking	14	14	14	100
	Overall Safety Score	14			

Figure 34: CyLOS for Corridor – Overall Output – Safety

2. **Safety**: This refers to prevention of collisions and reducing the conflicts and their impact that result in a safer travel. It also includes provision of adequate and uniform lighting, integration of spaces for hawkers and vendors, support facilities provides security and the necessary eyes on street. The following are the sub indicators that contribute to this design principle.
    a. **Frequency of safe crossings**: This refers to the level of safety in terms of crash risk and severity, at cyclist crossing facilities. The weightage assigned by the tool for crossing safety index is 20% for Highway, 20% for Collector/Distributor, 5% for Access and 5% for Standalone.
    b. **Quality of Lighting**: This refers to the quality of lighting in terms of level and uniformity. The weightage assigned by the tool for the lighting quality index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 20% for Standalone.
    c. **Riding Safety along midblock**: This refers to the assessment of accident risk for cyclist along the carriageway. The weightage assigned by the tool for the mid block accident safety is 25% for Highway, 20% for Collector/Distributor, 15% for Access and 5% for Standalone.
    d. **Presence of activities of street** : This refers to the assessment of level of activity along segment, to ensure security. The weightage assigned by the tool for eyes

on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 50% for Standalone.

e. **Enforcement**: This refers to the assessment of level of enforcement to ensure safety on carriageway. The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 10% for Standalone.

f. **Cycle Box at Intersection**: This refers to the availability of cycle box marking at intersection to hold crossing cyclists. The weightage assigned by the tool for the cycle box at intersection is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone.

g. **Friction from Car Parking**: This refers to the assessment of risk posed by street parking to commuting cyclists. The weightage assigned by the tool for the parking friction index is 10% for Highway, 15% for Collector/Distributor, 25% for Access and 5% for Standalone.

Overall Safety Score : This refers to the overall score of the segment for its safety based on the score of the above indicators.

Figure 35 shows the segment evaluation result for directness. The indicators that contribute to it are explained below.

Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
3	**DIRECTNESS**				
a	Enforcement:	14	14	14	100
b	Friction from Car Parking	14	14	14	100
c	Frequency of Obstructions	14	14	14	100
d	Sufficient Width	14	14	14	100
e	Friction from Hawkers	14	14	14	100
f	Frequency of punctures	14	14	14	100
g	Friction from pedestrians	14	14	14	100
h	Cyclist Delay at Intersection	14	14	14	100
i	Maintenance:	14	14	14	100
j	Turning Radius Comfort	14	14	14	100
	Overall Directness :	14			

Figure 35: CyLOS for Corridor – Overall Output – Directness

3. **Directness**: This refers to the amount of time and effort required by a cyclist to undertake a journey. The following are the sub indicators that contribute to this design principle.

   a. **Enforcement**: This refers to the assessment of level of enforcement to ensure minimal loss of directness to cyclists. The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 5% for Standalone.

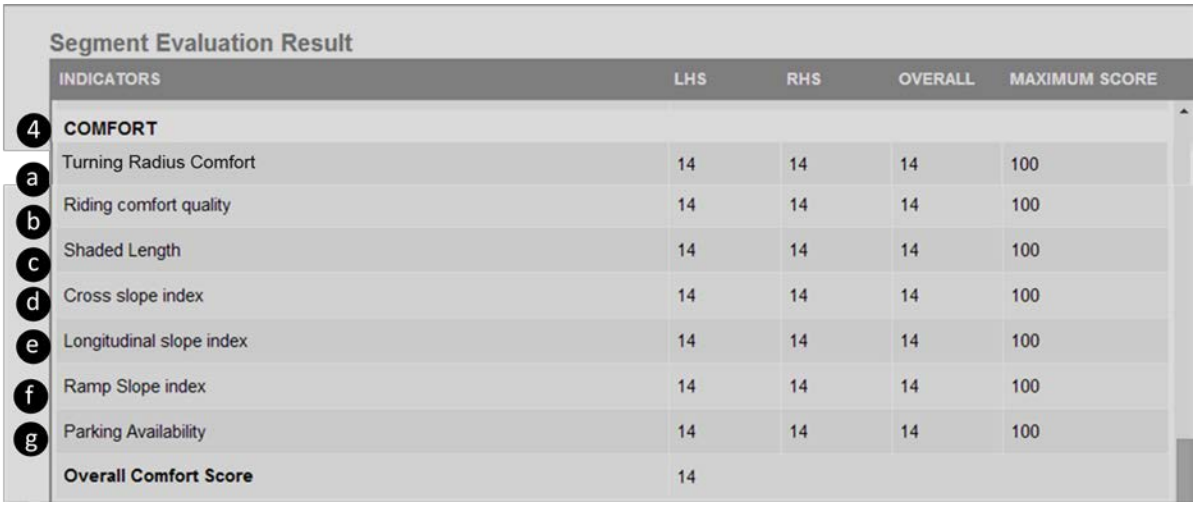
   b. **Friction from Car Parking**: This refers to the assessment of loss of directness from friction by street parking to commuting cyclists. The weightage assigned by the tool

for the parking friction index is 8% for Highway, 25% for Collector/Distributor, 20% for Access and 5% for Standalone.

c. **Frequency of Obstructions**: This refers to the assessment of loss of directness caused by presence of obstruction in cycling path. The weightage assigned by the tool for the obstruction index is 21% for Highway, 20% for Collector/Distributor, 20% for Access and 20% for Standalone.
d. **Sufficient Width**: This refers to the assessment of sufficiency of cycling path width with respect to vehicle size and cycle volume. The weightage assigned by the tool for width sufficient index is 21% for Highway, 15% for Collector/Distributor, 5% for Access and 25% for Standalone.
e. **Friction from Hawkers**: This refers to the assessment of loss of directness due to friction from hawkers on cycling path. The weightage assigned by the tool for hawker sufficient index is 10% for Highway, 5% for Collector/Distributor, 8% for Access and 8% for Standalone.
f. **Frequency of punctures**: This refers to how often is cycling lane/path crossed by vehicular path to access service lane/property entrance, etc. The weightage assigned by the tool for frequency of punctures is 8% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone.
g. **Friction from pedestrians**: This refers to the assessment of loss of directness due to friction from pedestrians on cycle path. The weightage assigned by the tool for pedestrian friction index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 15% for Standalone.
h. **Cyclist Delay at Intersection**: This refers to the assessment of loss of directness due to delay to cyclists at intersections. The weightage assigned by the tool for cyclist delay at intersection is 4% for Highway, 4% for Collector/Distributor, 6% for Access and 6% for Standalone.
i. **Maintenance**: This refers to the assessment of loss of directness due to friction cause by poor maintenance/ cleaning cycle infrastructure. The weightage assigned by the tool for maintenance is 4% for Highway, 4% for Collector/Distributor, 10% for Access and 10% for Standalone.
j. **Turning Radius Comfort**: Assessment of loss of directness due to tight turning radiuses on cycling path. The weightage assigned by the tool for turning radius is 4% for Highway, 2% for Collector/Distributor, 4% for Access and 4% for Standalone.

Overall Directness Score: This refers to the overall score of the segment for its directness based on the score of the above indicators.

Figure 36 shows the segment evaluation result for comfort. The indicators that contribute to it are explained below.



Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
4	**COMFORT**				
a	Turning Radius Comfort	14	14	14	100
b	Riding comfort quality	14	14	14	100
c	Shaded Length	14	14	14	100
d	Cross slope index	14	14	14	100
e	Longitudinal slope index	14	14	14	100
f	Ramp Slope index	14	14	14	100
g	Parking Availability	14	14	14	100
	Overall Comfort Score	14			

Figure 36: CYLOS for Corridor – Overall Output – Comfort

4. **Comfort**: This refers to riding comfort and riding surface for cyclists at the intersection should be smooth to reduce inconvenience. The following are the sub indicators that contribute to this design principle.
    a. **Turning Radius Comfort**: This refers to the assessment of loss of comfort due to tight turning radii on cycling path. The weightage assigned by the tool for turning radius is 8% for Highway, 5% for Collector/Distributor, 5% for Access and 15% for Standalone.
    b. **Riding comfort quality**: This refers to the assessment of riding comfort with reference to surface type. The weightage assigned by the tool for riding comfort index is 35% for Highway, 35% for Collector/Distributor, 35% for Access and 35% for Standalone.
    c. **Shaded Length**: This refers to the assessment of protection from weather in terms of shade/shelter over cycling path. The weightage assigned by the tool for the shaded length is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone.
    d. **Cross slope index**: This refers to the assessment of water runoff capability and comfortable riding cross slope. The weightage assigned by the tool for the cross slope index is 7% for Highway, 5% for Collector/Distributor, 3% for Access and 3% for Standalone.
    e. **Longitudinal slope index**: This refers to the assessment of comfortable riding longitudinal slope. The weightage assigned by the tool for longitudinal slope index is 20% for Highway, 25% for Collector/Distributor, 25% for Access and 15% for Standalone.
    f. **Ramp Slope Index:** This refers to the assessment of comfort of ramps provide to access egress from cycle path. The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone.
    g. **Parking Availability**: This refers to the assessment of cycling comfort in terms of availability of safe and secure cycle parking. The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone.

Overall Comfort Score : This refers to the overall score of the segment for its comfort based on the score of the above indicators.

Figure 37 shows the segment evaluation result for attractiveness. The indicators that contribute to it are explained below.

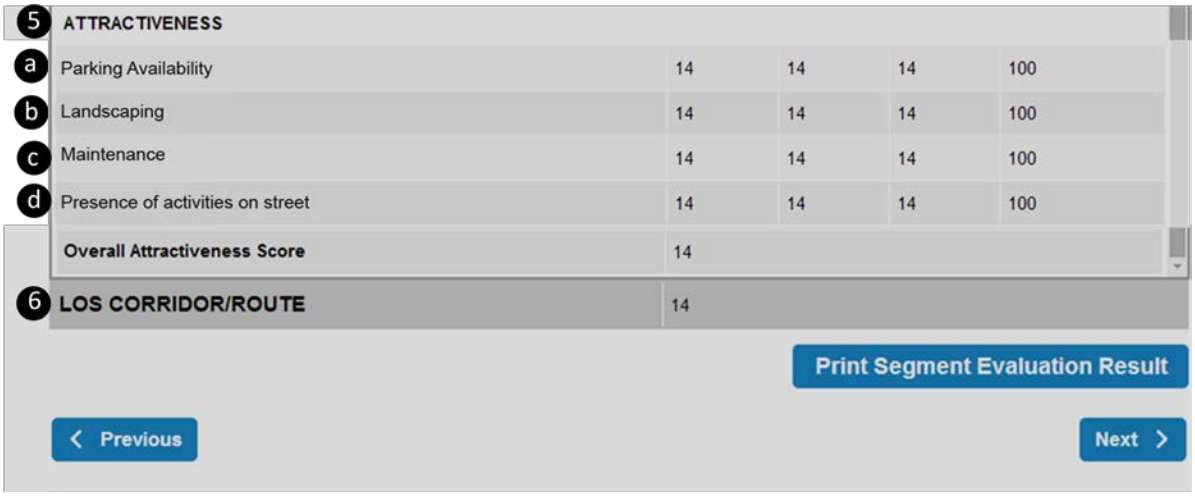


Figure 37: CyLOS for Corridor – Overall Output – Attractiveness

5. **Attractiveness**: This refers to well integrated green areas, resting spaces, etc. which are clean and well lit. The following are the sub indicators that contribute to this design principle.
    a. **Parking Availability**: This refers to the assessment of cycling comfort in terms of availability of safe and secure cycle parking. The weightage assigned by the tool for parking availability index is 25% for Highway, 20% for Collector/Distributor, 10% for Access and 5% for Standalone.
    b. **Landscaping**: This refers to attractiveness of cycling infrastructure in terms of along side landscaping/ plantation. The weightage assigned by the tool for landscaping is 15% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone.
    c. **Maintenance**: This refers to attractiveness of cycling infrastructure in terms of how well it is maintained. The weightage assigned by the tool for maintenance is 40% for Highway, 40% for Collector/Distributor, 40% for Access and 30% for Standalone.
    d. **Presence of activities on street**: This refers to attraction of cycling infrastructure in terms of life/ activity along cycling path. The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 40% for Standalone.

Overall Attractiveness Score: This refers to the overall score of the segment for its attractiveness based on the score of the above indicators.

6. **Corridor/Route LOS**: Based on the above scores, the user can see how the corridor scores inclusive of all design principles contributing together. This score is the overall cycling Level of Service of the corridor.

3.1.6 Default Form

The default form of corridor/route is divided in four categories which includes Standard, Scaling, Scoring and Weightage. The fields in these forms show the value of various parameters to be used in the tool for analysis. These values are based on standard accepted norms and some primary surveys. Changes to these values are not recommended, unless required for research and academic applications. The new values assigned by the user should be based on detail surveys. The values can also change for different context and users as per the location of the route, corridor or the city. It is strongly recommended that the user **"Restore Defaults"** before proceeding with a new analysis, as values edited in a previous session may have been retained by the tool.

3.1.6.1 Standard

The standard form is the first form of the default data input. Figure 38 shows the image of part 1 of the standard form. The inputs required in this are explained below:

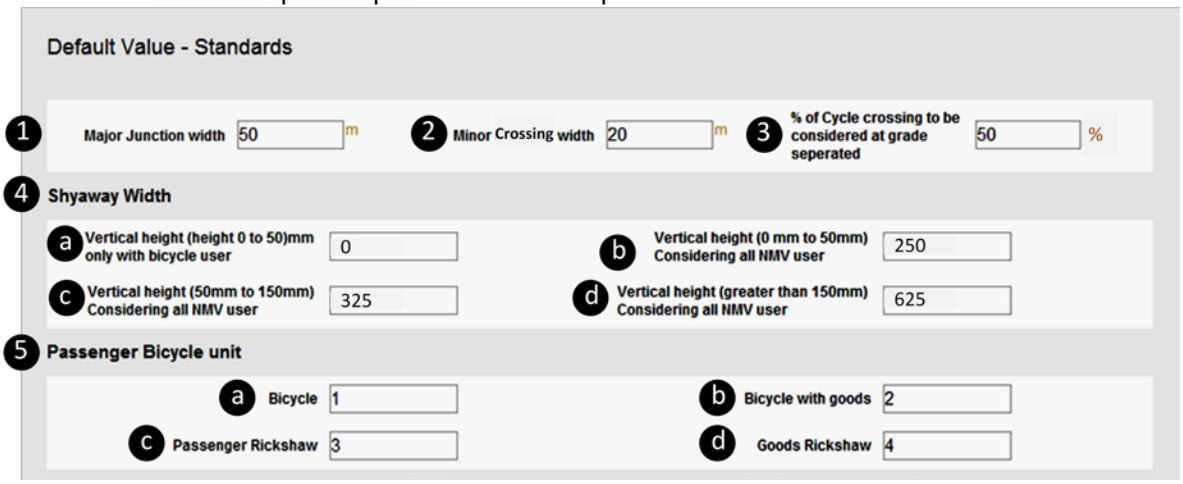


Figure 38: CYLOS for Corridor / Route - Default Form: Standard, Part 1

1. **Major Junction Width** – This defines the width of the major junction along the corridor. The default value for Major junction width is considered as 50 m. The tool gives the flexibility to the user to alter the given default value anywhere between 20m to 120m.

2. **Minor Crossing Width**- This defines the width of minor crossing along the corridor. The default value for Minor crossing width is considered as 20m. The tool gives the flexibility to the user to alter the given default value anywhere between 10m to 50m

3. **% of Cycle crossing to be considered at grade separated** – This defines the percentage of grade separated crossings provided for the cyclist along the corridor. The default value is assumed as 50%. However the tool provides the option to alter the default value anywhere between 0% and 100%.

4. **Shyaway Width –** This defines the margin between the vertical structure and cyclist on the cycle path. The default Shyaway width are assigned in the tool, based on the adjacent vertical height of the structure provided along the cycle infrastructure and the user type.
    a. If the user type is only bicycle and vertical structure height varies anywhere between greater than 0mm upto 50mm then 0mm.
    b. If the user type is comprised of cycle rickshaw as well as goods rickshaw along with bicycle user and vertical structure height varies anywhere between greater than 0mm upto 50mm then the default Shyaway width is 250mm.

c. If vertical structure height varies anywhere between greater than 50mm upto 150mm then the default Shyaway width is 325mm.
d. If vertical structure height exceeds over 150mm then the default Shyaway width is 625mm.
The default values are being fixed according to the conditions mentioned and cannot be altered by the user.

5. **Passenger Bicycle unit** - Passenger bicycle unit or PBU is termed to be a unit equivalent of a single cycle in comparison to other cycling modes discussed in the form**.** Therefore default value considered in the tool for different cycling modes are:
   a. Bicycle with passengers is 1
   b. Bicycle with passengers goods is 2
   c. Passengers rickshaws is 3 and
   d. Goods rickshaws are 4.
   The default values are being fixed according to the conditions mentioned and cannot be altered by the user.

Figure 39 shows the image of part 2 of the standard form. The inputs required in this are explained below:

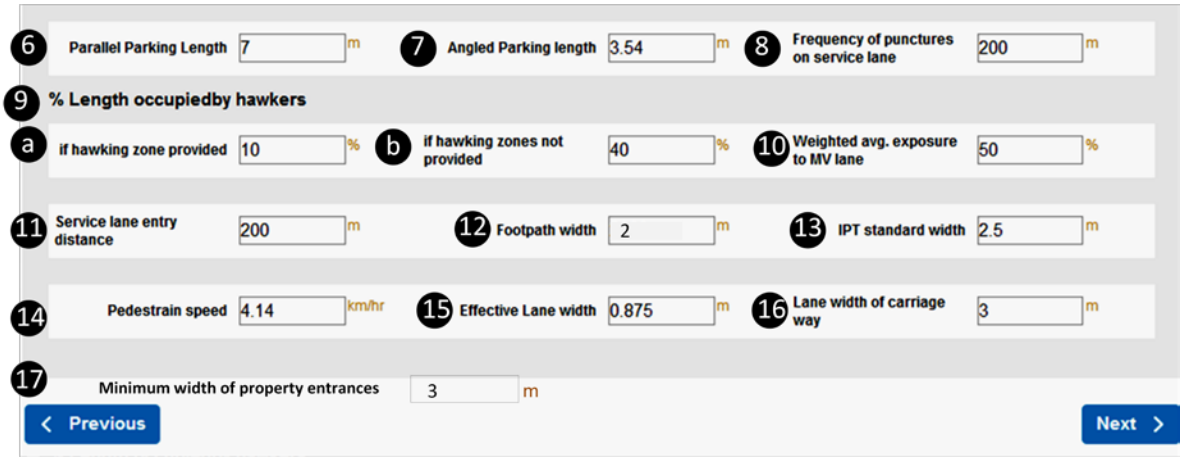


Figure 39: CYLOS for Corridor / Route - Default Form: Standard, Part 2

6. **Parallel Parking length –** This defines the length required for parallel parking along the corridor. The default value is assumed as 7 m in case of parallel parking. However, the tool gives the flexibility to the user to alter the default value anywhere between 1m to 10m.

7. **Angled Parking length –** This defines the length required for angled parking along the corridor. The default value is assumed as 4 m in case of angled parking. The tool gives the flexibility to the user to alter the default value anywhere between 1m to 10m.

8. **Frequency of punctures on service lane –** This defines the number of crossings or intersections along the cycling infrastructure. The default value is assumed as 200 m for frequency of puncture at service lane. The tool gives the flexibility to the user to alter the given default value anywhere between 0m to 500m**.**
9. **% Length occupied by hawkers –** This defines the number of hawkers present along the cycle infrastructure and the length occupied by them. The default values are provided under following categories:
   a. **If hawking zone provided** – If proper hawking zones are provided, then percentage length occupied by hawkers is assumed to be 10% as default value in the tool.

However the tool gives the flexibility to alter the default value anywhere between (1to100) percent.

b. **If hawking zones not provided** - If proper hawking zones are not provided, then the percentage length occupied by hawkers is assumed to be 40% as default value in the tool. However the tool gives the flexibility to alter the default value anywhere between (1 to100) percent.

10. **Weighted average exposure to MV-lane –** This defines the exposure of the cyclist to MV lanes while crossing along the corridor. The default value assumed as 50% in the tool. However the tool provides the option to alter the default value anywhere between 0% and 100%.

11. **Service lane entry distance –** This define the distance between the entries into the service lane along the corridor. The default value is assumed as 200 m in the tool. The tool gives the flexibility to the user to change the default value anywhere between 50m to 1000m.

12. **Footpath width –** This defines the width of the footpath along the cycle infrastructure. The default width of the footpath assumed as 2m in the tool. However the tool provides the option to alter the default value in the range of 1.2m to 3m.

13. **IPT Standard width –** This defines the width provided for Intermediate public transport (IPT) i.e. auto rickshaws or three wheeler scooters along the corridor. The default value is assumed as 2.5 m. However, the tool gives the flexibility to the user to alter the given default value anywhere between 1m to 10m

14. **Pedestrian Speed –** This defines the speed of pedestrian along the corridor. The default value is considered as 4.14 km / hr in the tool. However, the tool gives the flexibility to the user to change the default value anywhere between 1 km/hr to 10 km /hr.

15. **Effective lane width –** This defines the width required by one pedestrian along the corridor. The default value is assumed as 0.875m in the tool. However, the tool gives the flexibility of altering the assigned default scores by the users anywhere between .6m to 1.5m.

16. **Lane Width of carriageway –** This defines the width of carriageway provided along the corridor. The default value is assumed as 3m in the tool. However, the tool gives the flexibility to the user to alter the given default value anywhere between 0.5m to 100m.

17. **Minimum width of property entrances -** This defines the width of property entrances along the cycle infrastructure. The default value is assumed as 3m in the tool. However, the tool gives the flexibility to the user to alter the given default value anywhere between 3m to 15m.

3.1.6.2 Scaling

The scaling form is the second form of the default data input. Figure 40 shows the image of part 1 of the scaling form. The inputs required in this are explained below:

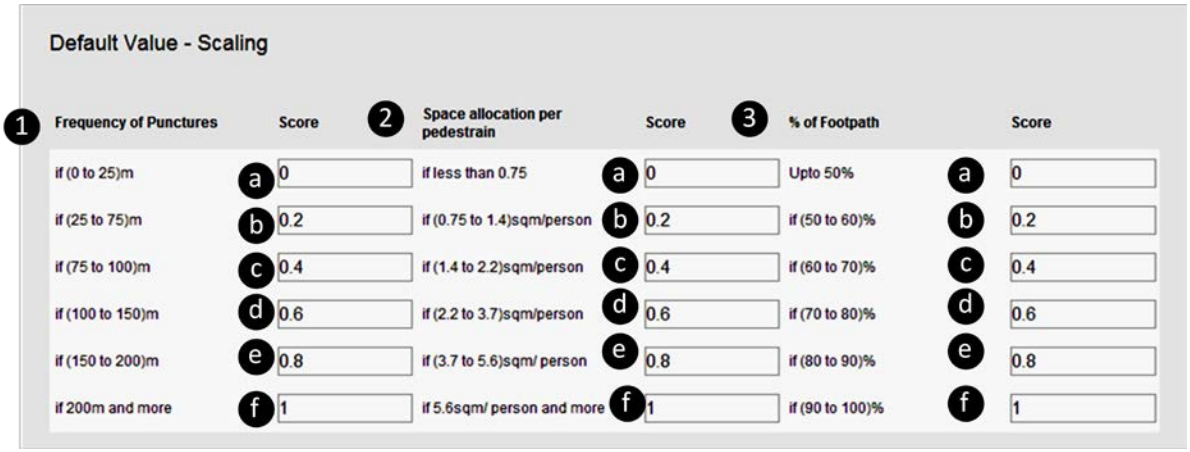


Figure 40: CYLOS for Corridor / Route - Default Form: Scaling, Part 1

1. **Frequency of punctures:** This defines the number of crossings or intersections along the cycling infrastructure. Average lower distance between the punctures creates higher negative impact on the cyclist. Therefore, if the distance between the punctures is less, the value will be lower. The default values assigned in the tool range from 0 to 1 based on the frequency of punctures such as:
    a. If a puncture exists in every (0 to 25) m then the value is 0. This value has to range between 0 to 1.
    b. If punctures exists anywhere from (25 to 75) m, then the value is 0.2. This value has to be equal to or greater than 1a.
    c. If punctures exists anywhere from (75 to 100), then the value is 0.4. This value has to be equal to or greater than 1b.
    d. If the punctures exists anywhere from (100 to 150) m, then the value is 0.6. This value has to be equal to or greater than 1c.
    e. If punctures exist anywhere from (150 to 200) m then the value is 0.8. This value has to be equal to or greater than 1d.
    f. If punctures exist at an interval of more than 200m length, then the value is 1. This value has to be equal to or greater than 1e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

2. **Space allocation per person:** This defines the space allocated per pedestrian (pedestrian density) along the cycling infrastructure. More the area provided per pedestrian, higher will be the value. The default values assigned in the tool ranges between 0 to 1 such as:
    a. If pedestrian density is less than 0.75 sqm/person then value should be 0. This value has to range between 0 to 1.
    b. If pedestrian density is between (0.75 to 1.4) sqm/person then the value should be 0.2. This value has to be equal to or greater than 2a.
    c. If pedestrian density is between (1.4 to 2.2) sqm/person then the value should be 0.4. This value has to be equal to or greater than 2b.
    d. If pedestrian density is between (2.2 to 3.7) sqm/person then the value should be 0.6. This value has to be equal to greater than 2c.
    e. If pedestrian density is between (3.7 to 5.6) sqm/person then the value is 0.8. This value has to be equal to or greater than 2d.
    f. If pedestrian density is more than 5.6 sqm/person then the value is 1. This value has to be equal to or greater than 2e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

3. **Percentage of footpath –** This defines the percentage of footpath available along the cycling infrastructure. If the percentage of footpath is more than then the value will be higher. The default values assigned in the tool ranges between 0 to 1 such as:
    a. **I**f percentage of footpath available is up to 50% then the value is 0. This value can range between 0 to 1.
    b. If percentage of footpath is between (50 % to 60%) then the value is 0.2. This value has to be equal to or greater than 3a.
    c. If percentage of footpath (A13) is between (60% to 70%) then the value is 0.4. This value has to be equal to or greater than 3b.
    d. If percentage of footpath is between (70% to 80%) then the value is 0.6. This value has to be equal to or greater than 3c.
    e. If percentage of footpath is between (80% to 90%) then the value is 0.8. This value has to be equal to or greater than 3d.
    f. If percentage of footpath is between (90% to 100%) then the value is 1. This value has to be equal to or greater than 3e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 41 shows the image of part 2 of the scaling form. The inputs required in this are explained below:

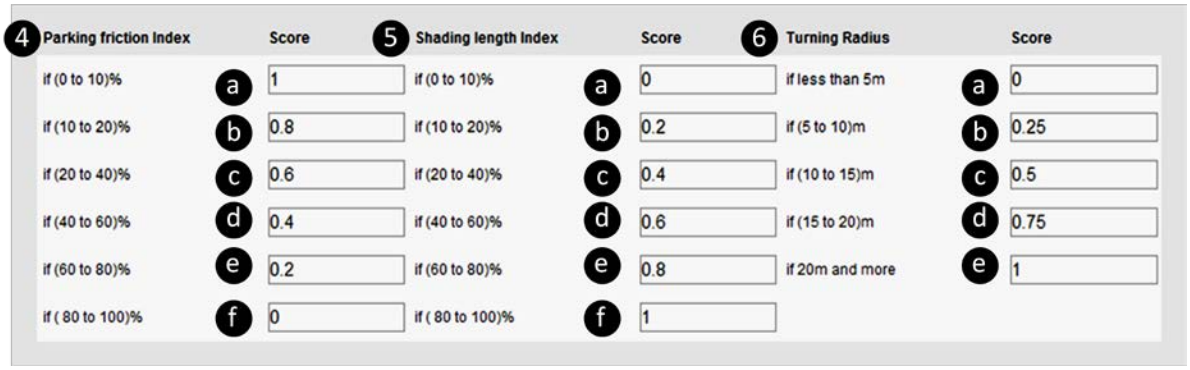


Figure 41: CYLOS for Corridor / Route - Default Form: Scaling, Part 2

4. **Parking friction Index –** This defines the friction generated to the cyclist due to parking along the cycling infrastructure. Average more parking along the cycling path, higher negative impact will be created on the cyclist. Therefore, if the parking percentage along the cycling path is high, value will be lower. The default values assigned in the tool ranges between 0 to 1 such that:
    a. If friction caused due to parking is between (0 to 10) % then the value is 1. This value can range between 0 to 1.
    b. If the friction caused due to parking is between (10 to 20) % then value is 0.8. This value has to be equal to or less than 4a.
    c. If the friction caused due to parking is between (20 to 40) % then value is 0.6. This value has to be equal to or less than 4b.
    d. If the friction caused due to parking is between (40 to 60) % then value is 0.4. This value has to be equal to or less than 4c.
    e. If the friction caused due to parking is between (60 to 80) % then value is 0.2. This value has to be equal to or less than 4d.

f. If the friction caused due to parking is between (80 to 100) % then value is 0. This value has to be equal to or less than 4e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

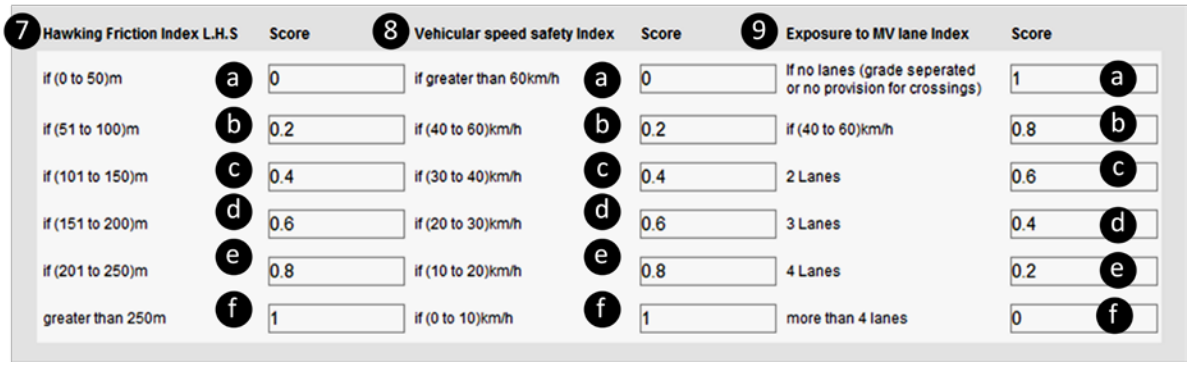
5. **Shading length Index –** This defines the percentage of shaded length available along the cycling infrastructure. If the percentage of shaded length available on the cycle path is more the value will be higher. The default values assigned in a tool ranges between 0 to 1 such as:
    a. If shaded length available is between (0 to 10) % then value is 0. This value can range between 0 to 1.
    b. If shaded length available is between (10 to 20) % then value is 0.2. This value has to be equal to or greater than 5a.
    c. If the shaded length available is between (20 to 40) % then value is 0.4. This value has to be equal to or greater than 5b.
    d. If the shaded length available is between (40 to 60) % then value is 0.6. This value has to be equal to or greater than 5c.
    e. If the shaded length available is between (60 to 80) % then value is 0.8. This value has to be equal to or greater than 5d.
    f. If the shaded length available is between (80 to 100) % then value is 1. This value has to be equal to or greater than 5e. The value cannot be greater than 1.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

6. **Turning Radius –** This defines the turning radius provided for the cyclist along the cycle infrastructure. Average less turning radius along the cycle lane creates higher negative impact on the cyclist. Therefore, if the turning radius is less, the value will be less. The default values assigned in a tool ranges between 0 to 1 such as:
    a. If the turning radius is less than 5m then value is 0. This value can range between 0 to 1.
    b. If the radius is between (5m-10m) then value is 0.25. This value has to equal to or greater than 6a.
    c. If the radius is between (10m-15m) then value is 0.5. This value has to be equal to or greater than 6b.
    d. If the radius is between (15m-20m) then value is 0.75. This value has to be equal to or greater than 6c.
    e. If the radius is greater than 20m then value is 1. This value has to be equal to or greater than 6d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 42 shows the image of part 3 of the scaling form. The inputs required in this are explained below:



7 Hawking Friction Index L.H.S		Score	8 Vehicular speed safety Index		Score	9 Exposure to MV lane Index		Score
if (0 to 50)m	a	0	if greater than 60km/h	a	0	If no lanes (grade seperated or no provision for crossings)	a	1
if (51 to 100)m	b	0.2	if (40 to 60)km/h	b	0.2	if (40 to 60)km/h	b	0.8
if (101 to 150)m	c	0.4	if (30 to 40)km/h	c	0.4	2 Lanes	c	0.6
if (151 to 200)m	d	0.6	if (20 to 30)km/h	d	0.6	3 Lanes	d	0.4
if (201 to 250)m	e	0.8	if (10 to 20)km/h	e	0.8	4 Lanes	e	0.2
greater than 250m	f	1	if (0 to 10)km/h	f	1	more than 4 lanes	f	0

Figure 42: CYLOS for Corridor / Route - Default Form: Scaling, Part 3

7. **Hawking Friction Index –** This defines the friction caused due to the presence of hawkers along the cycle infrastructure. Average lower distance between the presences of hawkers, higher negative impact is created on the cyclist. Therefore, if the distance between the hawkers is less, the value will be lower. The default values assigned in the tool range from 0 to 1 based on the frequency of punctures such as:
    a. If the friction caused due to hawkers every (0m to 50m) then value assigned is 0. This value can range between 0 to 1.
    b. If the friction caused due to hawkers is between (51m to 100m) then assigned value is 0.2. This value has to be equal to or greater than 7a.
    c. If the friction caused due to hawkers is between (100m to 150m) then assigned value is 0.4. This value has to be equal to or greater than 7b.
    d. If the friction caused due to hawkers is between (150m to 200m) then assigned value is 0.6. This value has to be equal to or greater than 7c.
    e. If the friction caused due to hawkers is between (200m to 250m) then assigned value is 0.8. This value has to be equal to or greater than 7d.
    f. If the friction caused due to hawkers exceeds than 250m then assigned value is 1. This value has to be equal to greater than 7e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

8. **Vehicular Speed Safety Index –** This defines the level of safety of cyclist with respect to the motor vehicle speed. Average higher speed of the motar vehicle, higher negative impact is created on the cyclist. Therefore, if the speed of the motar vehicles is less, the value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If the speed exceeds than 60km/hr then assigned value is 0. This value can range between 0 to 1.
    b. If speed varies between (40 to 60) km/hr then assigned value is 0.2. This value has to be equal to or greater than 8a.
    c. If the speed varies between (30 to 40) km/hr then assigned value is 0.4. This value has to be equal to or greater than 8b.
    d. If the speed varies between (20 to 30) km/hr then assigned value is 0.6. This value has to be equal to or greater than 8c.
    e. If the speed varies between (10 to 20) km/hr then assigned value is 0.8. This value has to be equal to or greater than 8d.
    f. If the speed varies between (0 to 10) km/hr then assigned value is 1. This value has to be equal to or greater than 8e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

9. **Exposure to MV lane Index:** This defines the exposure of the cyclist with respect to the motor vehicle lanes during crossing. Higher the number of lanes, more negative impact will be created on the cyclist. Therefore, if the number of lanes is more the value will be less. The default values assigned in the tool range from 0 to 1 such as:
    a. If there are no lanes provided (grade separated or no provision of crossing is provided) then value assigned is 1. This value can range between 0 to 1.
    b. If one lane provided then assigned value is 0.8. This value has to be equal to or less than 9a.
    c. If 2 lanes are provided then assigned value is 0.6. This value has to be equal to or less than 9b.
    d. If 3 lanes are provided then value is 0.4. This value has to be equal to or less than 9c.
    e. If 4 lanes are provided then assigned value is 0.2. This value has to be equal to or less than 9d.
    f. If more than 4 lanes are provided then assigned value is 0. This value has to be equal to or less than 9e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 43 shows the image of part 4 of the scaling form. The inputs required in this are explained below:

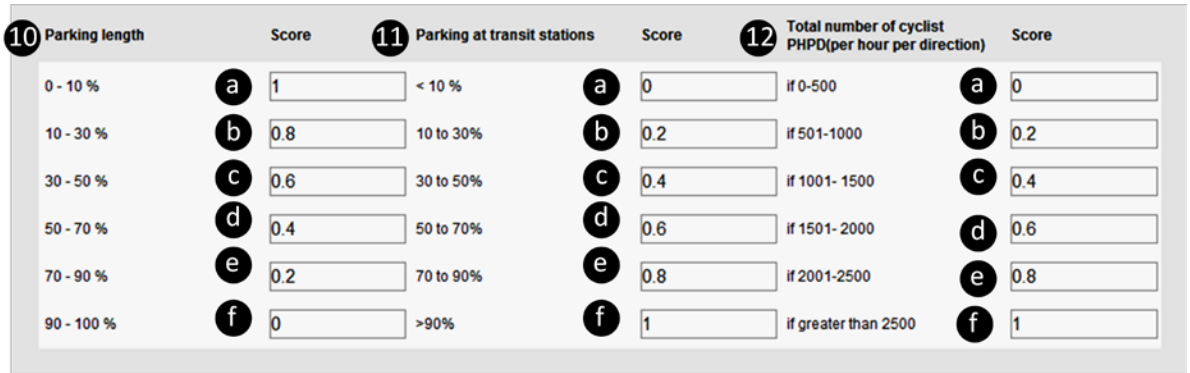


Figure 43: CYLOS for Corridor / Route - Default Form: Scaling, Part 4

10. **Parking Length** – This defines the percentage of the parking length available along the cycle infrastructure. Higher the percentage of parking length available, more negative impact will be created on the cyclist. Therefore, if the parking length percentage is more the value will be less. The default values assigned in the tool range from 0 to 1 such as:
    a. If parking length available is anywhere between (0 to 10) % then assigned value is 1. This value can range between 0 to 1.
    b. If parking length available is anywhere between (10 to 30) % then assigned value is 0.8. This value has to be equal to or less than 10a.
    c. If parking length available is anywhere between (30 to 50) % then assigned value is 0.6. This value has to be equal to or less than 10b.
    d. If parking length available is anywhere between (50 to 70) % then assigned value is 0.4. This value has to be equal to or less than 10c.
    e. If parking length available is anywhere between (70 to 90) % then assigned value is 0.2. This value has to be equal to or less than 10d.
    f. If parking length available is anywhere between (90 to 100) % then assigned value is 0. This value has to be equal to or less than10e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

11. **Parking at transit stations -** This defines the percentage of transit station parking available along the cycle infrastructure. Lower the percentage of transit station parking available, more negative impact will be created on the cyclist. Therefore, if the transit station parking percentage is more the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If parking available is less than 10 % then value is 0. This value can range between o to 1.
    b. If parking available is anywhere between (10 to 30) % then value is 0.2. This value has to be equal to or greater than 11a.
    c. If parking available is anywhere between (30 to 50) % then value is 0.4. This value has to be equal to or greater than 11b.
    d. If parking available is anywhere between (50 to 70) % then value is 0.6. This value has to be equal to or greater than 11c.
    e. If parking available is anywhere between (70 to 90) % then value is 0.8. This value has to be equal to or greater than 11d.
    f. If parking length available is more than 90 % then value is 1. This value has to be equal to or greater than 11e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

12. **Total number of cyclist PHPD (per hour per direction) -** This defines the number of cyclist per hour per direction along the cycle infrastructure. If the number of cyclist is more, the value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If number of cyclist varies between (0 to 500) then assigned value is 0. This value can range between 0 to 1.
    b. If number of cyclists varies between (500 to 1000) then assigned value is 0.2. This value has to be equal to or greater than 12a.
    c. If number of cyclist varies between (1000 to 1500) then assigned value is 0.4. This value has to be equal to or greater than 12b.
    d. If number of cyclist varies between (1500 to 2000) then assigned value is 0.6. This value has to be equal to or greater than 12c.
    e. If number of cyclist varies between (2000 to 2500) then assigned value is 0.8. This value has to be equal to or greater than 12d.
    f. If number of cyclist varies more than 2500 per direction per hour then assigned value is 1. This value has to be equal to or greater than 12e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 44 shows the image of part 5 of the scaling form. The inputs required in this are explained below:

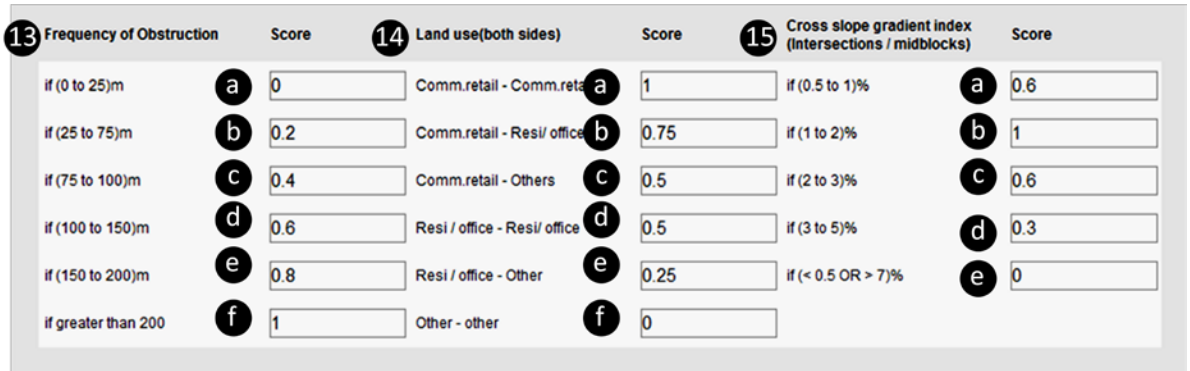


Figure 44: CYLOS for Corridor / Route - Default Form: Scaling, Part 5

13. **Frequency of Obstruction -** This defines the frequency of the obstructions along the cycle infrastructure. Lower the distance between the obstructions, more negative impact will be created on the cyclist. Therefore, if the distance between obstructions is less the value will be less. The default values assigned in the tool range from 0 to 1 such as:
    a. If the frequency of obstructions is between (0m to 25m) then value is 0. This value can range between 0 to 1.
    b. If the frequency of obstructions is between (25m to 75m) then value is 0.2. This value has to be equal to or greater than 13a.
    c. If the frequency of obstructions is between (75m to 100m) then value is 0.4. This value has to be equal to or greater than 13b.
    d. If the frequency of obstructions is between (100m to 150m) then value is 0.6. This value has to be equal to or greater than 13c.
    e. If the frequency of obstructions is between (150m to 200m) then value is 0.8. This value has to be equal to or greater than 13d.
    f. If the frequency of obstructions is more than 200m then value is 1. This value has to be equal to or greater than 13e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

14. **Land Use (both sides) -** This defines the existing land use both sides of the corridor. If the land use is commercial on both sides, more positive impact is created on the cyclist. Therefore, if the land use is commercial on both sides value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If the land use is commercial retail on both the sides then assigned value is 1. This value can range between 0 to 1.
    b. If the land use is commercial retail on one side and residential/office on the other side then assigned value is 0.75. This value has to be equal to or less than 14a.
    c. If the land use function is commercial retail on one side and others (no function /recreational /industrial /institutional / green) on the other side then assigned value is 0.5. This value has to be equal to or less than 14b.
    d. If the land use function is residential / office on both the sides then assigned value is 0.5. This value has to be equal to or less than 14c.
    e. If the land use function is Residential /office on one side and Others (no function /recreational / industrial /institutional green) on the other side then assigned value is 0.25. This value has to be equal to or less than 14d.
    f. If the land use function is others on both the sides then assigned value is 0. This value has to be equal to or less than 14e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

15. **Cross slope gradient index (Intersections/Midblock) –** This defines the percentage of slope available along the cycle infrastructure. The default values assigned in the tool range from 0 to 1 such as:
    a. If the slope varies in the range between (0.5 to 1) % then assigned value is 0.6. This value can range between 0 to 1.
    b. If the slope varies in the range between (1 to 2) % then assigned value is 1. This value has to be equal to or greater than 15a.
    c. If the slope varies in the range between (2 to 3) percent then assigned value is 0.6. This value has to be equal to or less than 15b.
    d. If the slope varies in the range between (3 to 5) percent then assigned value is 0.3. This value has to be equal to or less than 15c.
    e. If the slope is more than 7% and less 0.5% then assigned value is 0. This value has to be equal to or less than 15d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 45 shows the image of part 6 of the scaling form. The inputs required in this are explained below:

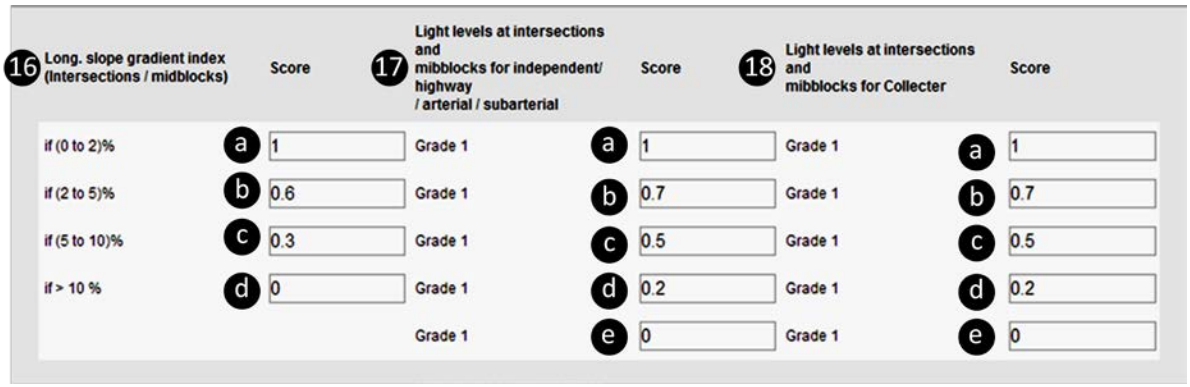


Figure 45: CYLOS for Corridor / Route - Default Form: Scaling, Part 6

16. **Long slope gradient Index (Intersections/Midblock) -** This defines the percentage of long slope gradient along the cycle infrastructure. Greater the slope, more negative impact will be created on the cyclist. Therefore, if the percentage of slope is more the value will be less. The default values assigned in the tool range from 0 to 1 such as:
    a. If the slope varies in the range between (0 to 2) % then value is 1. This value can range between 0 to 1.
    b. If the slope varies in the range between (2 to 5)% then value is 0.6. This value has to be equal to or less than 16a.
    c. If the slope varies in the range between (5 to 10)% then value is 0.3. This value has to be equal to or less than 16b.
    d. If the slope is greater than 10% then value is 0. This value has to be equal to or less than 16c.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

17. **Light levels at intersections and midblock for Independent/Highway/arterial/sub arterial -** This defines the lighting levels based on lux level at the midblock and intersections for Independent/ Highway/ Arterial and Sub Arterial. Greater the lux level along the cycle infrastructure, more positive impact will be created on the cyclist. Therefore, if the lux level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the lux level is greater than or equal to 15 lux then value is 1. This value can range between 0 to 1.
    b. If the lux level varies from (12 to 14.9) lux then value is 0.7. This value has to be equal to or less than 17a.
    c. If the lux level varies from (9 to 11.9) lux then value is 0.5. This value has to be equal to or less than 17b.
    d. If the lux level varies from (6 to 8.9) lux then value is 0.2. This value has to be equal to or less than 17c.
    e. If the lux level is smaller than 6 lux then value is 0. This value has to be equal to or less than 17d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

18. **Light levels at Intersections and Midblock for Collector -** This defines the lighting levels based on lux level at the midblock and intersections for Collector road. Greater the lux level along the cycle infrastructure, more positive impact will be created on the cyclist. Therefore, if the lux level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the lux level is greater than or equal to 8 lux then value is 1. This value can range between 0 to 1.
    b. If the lux level varies from (7 to 8) lux then value is 0.7. This value has to be equal to or less than 18a.
    c. If the lux level varies from (6 to 7) lux then value is 0.5. This value has to be equal to or less than 18b.
    d. If the lux level varies from (5 to 6) lux then value is 0.2. This value has to be equal to or less than 18c.
    e. If the lux level is smaller than 5 lux then value is 0. This value has to be equal to or less than 18d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 46 shows the image of part 7 of the scaling form. The inputs required in this are explained below:

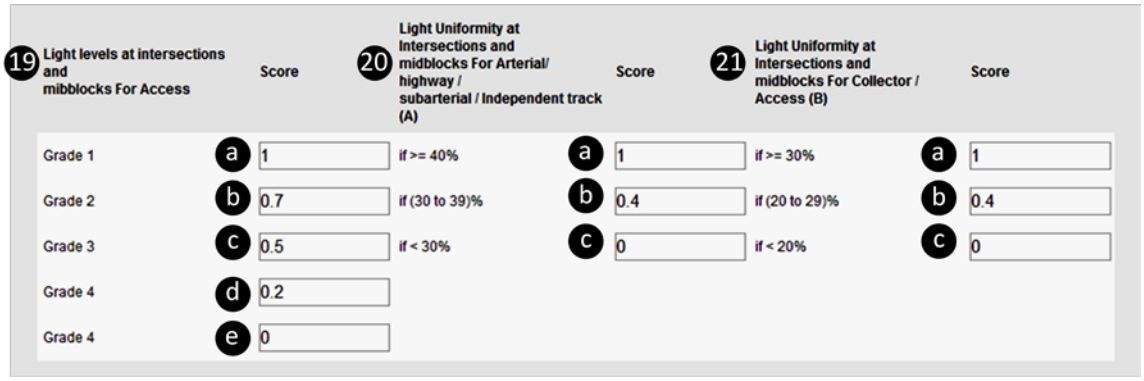


Figure 46 : CYLOS for Corridor / Route - Default Form: Scaling, Part 7

19. **Light levels at Intersections and Midblock for Access -** This defines the lighting levels based on lux level at the midblock and intersections for Access road. Greater the lux level along the cycle infrastructure, more positive impact will be created on the cyclist. Therefore, if the lux level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the lux level is greater than or equal to 4 lux then value is 1. This value can range between 0 to 1.
    b. If the lux level varies from (3.5 to 4) lux then value is 0.7. This value has to be equal to or less than 17a.
    c. If the lux level varies from (3 to 3.5) lux then value is 0.5. This value has to be equal to or less than 17b.
    d. If the lux level varies from (2.5 to 3) lux then value is 0.2. This value has to be equal to or less than 17c.
    e. If the lux level is smaller than 2.5 lux then value is 0. This value has to be equal to or less than 17d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

20. **Light Uniformity at Intersection and Midblock for Arterial/Highway/ Sub arterial/ Independent Track –** This defines the percentage of uniformity in lighting available on the arterial, sub arterial, highway and independent track. Greater the lighting uniformity percentage along the cycle infrastructure, more positive impact will be created on the cyclist. Therefore, if the percentage of uniformity level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the lighting uniformity is greater than or equal to 40 % then assigned value is 1. This value can range between 0 to 1.
    b. If the lighting uniformity varies in the between (30 to 40)% then assigned value is0.4. This value has to be equal to or less than 20a.
    c. If the lighting uniformity is less than 30% then assigned value is 0. This value has to be equal to or less than 20b.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

21. **Light Uniformity at Intersection and Midblock for Collector/Access-** This defines the percentage of uniformity in lighting available at the Intersection and midblock of Collector and Access road. Greater the lighting uniformity percentage along the cycle infrastructure, more positive impact will be created on the cyclist. Therefore, if the percentage of uniformity level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the lighting uniformity is greater than or equal to 30 % then assigned value is 1. This value can range between 0 to 1.
    b. If the lighting uniformity varies in the between (20 to 30)% then assigned value is 0.4. This value has to be equal to or less than 21a.
    c. If the lighting uniformity is less than 20% then assigned value is 0. This value has to be equal to or less than 21b.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 47 shows the image of part 8 of the scaling form. The inputs required in this are explained below:

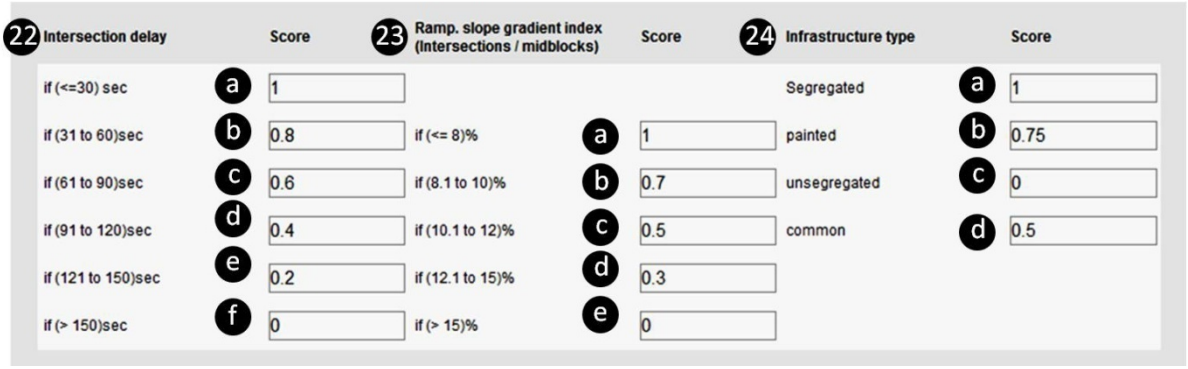


Figure 47: CYLOS for Corridor / Route - Default Form: Scaling, Part 8

22. **Intersection delay –** This defines the time delay of the cyclist at the intersections – This defines the tine delay of the cyclist at the intersections due to signal. Lesser the time delay for the cyclist, more positive impact will be created on the cyclist. Therefore, if the time delay is less, value will be higher. The default values assigned in the tool range from 0 to 1 such as:

    a. If delay is less than or equal to 30 sec then assigned value is 1. This value can range between 0 to 1.
    b. If delay varies between (30 to 60) sec then assigned value is 0.8. This value has to be equal to or less than 22a.
    c. If delay varies between (60 to 90) sec then assigned value is 0.6. This value has to be equal to or less than 22b.
    d. If delay varies between (90 to 120) sec then assigned value is 0.4. This value has to be equal to or less than 22c.
    e. If delay varies between (120 to 150) sec then assigned value is 0.2. This value has to be equal to or less than 22d.
    f. If delay is more than 150 sec then assigned value is 0. This value has to be equal to or less than 22e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

23. **Ramp slope gradient index (Intersections/midblock) –** This defines the slope of ramp on the cycle infrastructure. Lesser the ramp slope gradient, more positive impact will be created on the cyclist. Therefore, if the percentage of slope is less, value will be higher. The default values assigned in the tool range from 0 to 1 such as:

    a. If the slope is equal to or less than 8 % then assigned value is 1. This value can range between 0 to 1.
    b. If the slope varies in the range between (8 to 10)% then assigned value is 0.8. This value has to be equal to or less than 23a.
    c. If the slope varies in the range between (10 to 12)% then assigned value is 0.5. This value has to be equal to or less than 23b.
    d. If the slope varies in the range between (12 to 15)% then assigned value is 0.2. This value has to be equal to or less than 23c.
    e. If the slope is greater than or equal to 15 % then assigned value is 0. This value has to be equal to or less than 23d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

24. **Infrastructure type –** This defines the type of cycling infrastructure available along the corridor. If the cycle infrastructure is separated from the carriageway , more positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If infrastructure is segregated then assigned value is 1. This value assigned is 1. This value can range between 0 to 1.
    b. If it is painted infrastructure then assigned value is 0.75. This value has to be equal to or less than 24a.
    c. If infrastructure is unsegregated then assigned value is 0. This value has to be equal to or less than 24b.
    d. If infrastructure is common then assigned value is 0.5. This value has to be equal to or greater than 24c.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 48 shows the image of part 9 of the scaling form. The inputs required in this are explained below:

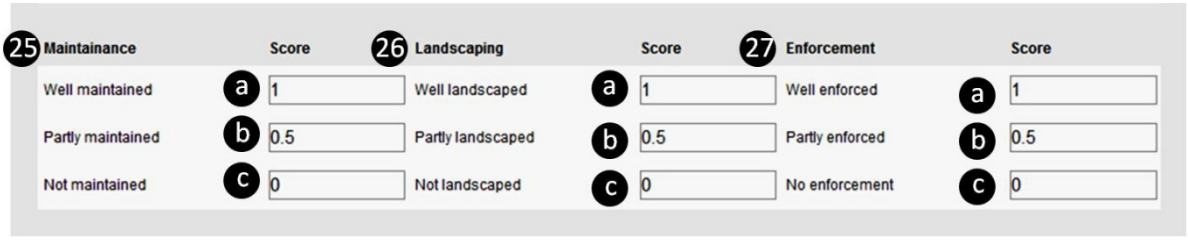


Figure 48: CYLOS for Corridor / Route - Default Form: Scaling, Part 9

25. **Maintenance –** This defines the maintenance level of the cycling infrastructure available along the corridor. If the cycle path is maintained well, more positive impact will be created

on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:

a. If the cycle infrastructure is well maintained then assigned value is 1. This value can range between 0 to 1.
b. If the cycle infrastructure is partly maintained then assigned value is 0.5. This value has to be equal to or less than 25a.
c. If cycle infrastructure is not maintained then assigned value is 0. This value has to be equal to or less than 25b.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

26. **Landscaping –** This defines the landscaping along the cycling infrastructure available on the corridor. If the areas along the cycle path are landscaped well, more positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the cycle infrastructure is well landscaped then assigned value is 1. This value can range between 0 to 1.
    b. If the cycle infrastructure is partly landscaped then assigned value is 0.5. This value has to be equal to or less than 26a.
    c. If cycle infrastructure has no landscaping then assigned value is 0. This value has to be equal to or less than 26b.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

27. **Enforcement –** This defines the level of enforcement applied on a cycle infrastructure along the corridor. If the areas along the cycle path are well enforced, more positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the cycle infrastructure is well enforced then assigned value is 1. This value can range between 0 to 1.
    b. If the cycle infrastructure is partly enforced then assigned value is 0.5. This value has to be equal to or less than 27a.
    c. If cycle infrastructure has no enforcement then assigned value is 0. This value has to be equal to or less than 27b.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 49 shows the image of part 10 of the scaling form. The inputs required in this are explained below:

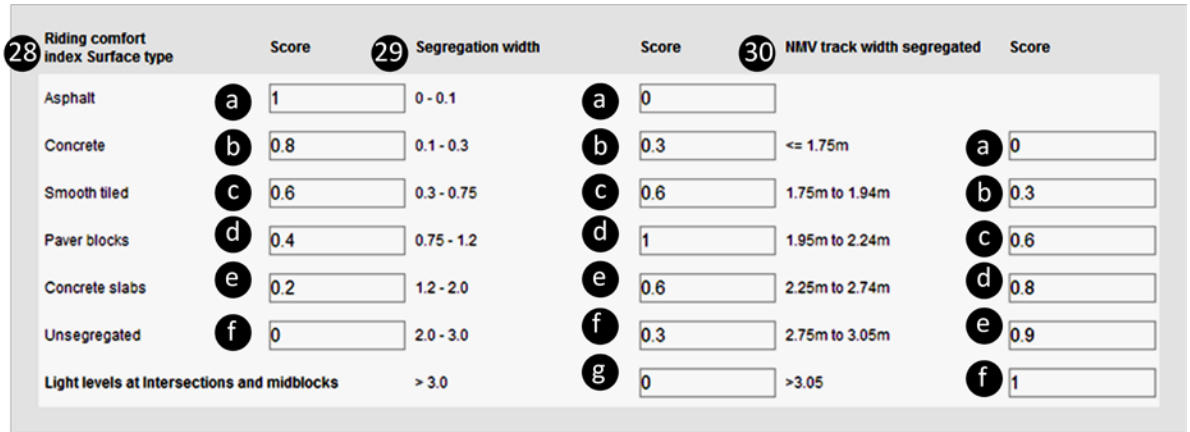


Figure 49: CYLOS for Corridor / Route - Default Form: Scaling, Part 10

28. **Riding comfort Index (Surface type) –** This defines the level of riding quality based on the surface material of the cycling infrastructure along the corridor. If proper surface material is provided along the cycle path, more positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If asphalt is used as surface material then value is 1. This value can range between 0 to 1.
    b. If concrete is used as surface material then value is 0.8. This value has to be equal to or less than 28a.
    c. If surface material is smooth tiled then value is 0.6. This value has to be equal to or less than 28b.
    d. If surface material used is paver blocks then value is 0.4. This value has to be equal to or less than 28c.
    e. If surface material used is concrete slab then value is 0.2. This value has to be equal to or less than 28d.
    f. If unsegregated then value is 0. This value has to be equal to or less than 28e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

29. **Segregation width –** This defines the width between the carriageway and cycle track along the corridor. If width provided is more, negative impact will be created on the cyclist and the value will be low. The default values assigned in the tool range from 0 to 1 such as:
    a. If the provided width of segregation is between (0 to 0.1) m then value is 0. This value can range between 0 to 1.
    b. If the provided width of segregation is between (0.1 to 0.3) m then value is 0.3. This value has to equal to or greater than 29a.
    c. If the provided width of segregation is between (0.3 to 0.75) m then value is 0.6. This value has to be equal to or greater than 29b.
    d. If the provided width of segregation is between (0.75 to 1.2) m then value is 1. This value has to be equal to or greater than 29c.
    e. If the provided width of segregation is between (1.2 to 2.0)m then value is 0.6. This value has to be equal to or less than 29d.
    f. If the provided segregation width is between (2.0 to 3.0)m then value is 0.3. This value has to be equal to or less than 29e.
    g. If the provided segregation width is greater than 3.0m then value is 0. This value has to be equal to or less than 29f.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

30. **NMV track width segregated –** This defines the width of the segregated cycle track along the corridor. If the width of the segregated cycle track is more, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the provided width is less than or equal to 1.75m then assigned value is 0. This value can range between 0 to 1.
    b. If the width is between (1.75 to 1.94)m then value is 0.3. This value has to be equal to or greater than 30a.
    c. If the width is anywhere between (1.95 to 2.24)m then value is 0.6. This value has to be equal to or greater than 30b.
    d. If the width is anywhere between (2.25 to 2.74)m then value is 0.8. This value has to be equal to or greater than 30c.
    e. If the width is anywhere between (2.75 to 3.05)m then value is 0.9. This value has to be equal to or greater than 30d.
    f. If the width is greater than 3.0m then value is 1. This value has to be equal to or greater than 30e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 50 shows the image of part 11 of the scaling form. The inputs required in this are explained below:

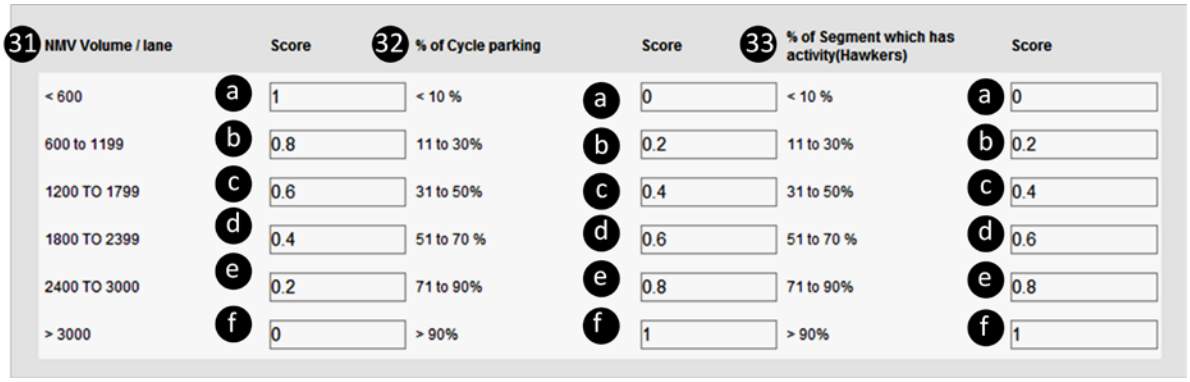


Figure 50: CYLOS for Corridor / Route - Default Form: Scaling, Part 11

31. **NMV Volume/Lane –** This defines the number of cyclist per lane along the corridor. If the NMV volume is more, negative impact will be created on the cyclist and the value will be low. The default values assigned in the tool range from 0 to 1 such as:
    a. If the volume per lane is less than 600 cyclists then assigned value is 1. This value can range between 0 to 1.
    b. If the volume per lane is anywhere between (600 to 1199) cyclists then value is 0.8. This value has to equal to or less than 31a.
    c. If the volume per lane is anywhere between (1200 to 1799) cyclists then value is 0.6. This value has to be equal to or less than 31b.
    d. If the volume per lane is anywhere between (1800 to 2399) cyclists then value is 0.4. This value has to be equal to or less than 31c.
    e. If the volume per lane is anywhere between (2400 to 3000) cyclists then value is 0.2. This value has to be equal to or less than 31d.

f. If the volume per lane is greater than 3000 cyclists then value is 0. This value has to be equal to or less than 31e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

32. **Percentage of Cycle Parking –** This defines the number of cycle parking along the cycle infrastructure on the corridor. If the percentage of cycle parking is more, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the percentage of cycle parking is less than 10 % then value is 0. This value can range between 0 to 1.
    b. If the percentage is anywhere between (11 to 30)% then value is 0.2. This value has to be equal to or greater than 32a.
    c. If the percentage of cycle parking is anywhere between (31 to 50)% then value is 0.4. This value has to be equal to or greater than 32b.
    d. If the percentage is anywhere between (51 to 70)% then value is 0.6. This value ahs to be equal to or greater than 32c.
    e. If the percentage is anywhere between (71 to 90)% then value is 0.8. This value has to be equal to or greater than 32d.
    f. If the percentage is greater than 90% then value is 1. This value has to be equal to or greater than 32e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

33. **Percentage of Segment which has activity (Hawkers) –** This defines the number of hawkers along the cycle infrastructure on the corridor. If the percentage of hawkers is more, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the percentage is less than 10 % then assigned value is 0. This value can range between 0 to 1.
    b. If the percentage is anywhere between (11 to 30)% then value is 0.2. This value has to be equal to or greater than 33a.
    c. If the percentage of cycle parking is anywhere between (31 to 50)% then value is 0.4. This has to be equal to or greater than 33b.
    d. If the percentage is anywhere between (51 to 70)% then value is 0.6. This value has to be greater than 33c.
    e. If the percentage is anywhere between (71 to 90)% then value is 0.8. This value has to be equal to or greater than 33d.
    f. If the percentage is greater than 90% then value is 1. This value has to be equal to or greater than 33e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 51 shows the image of part 12 of the scaling form. The inputs required in this are explained below:

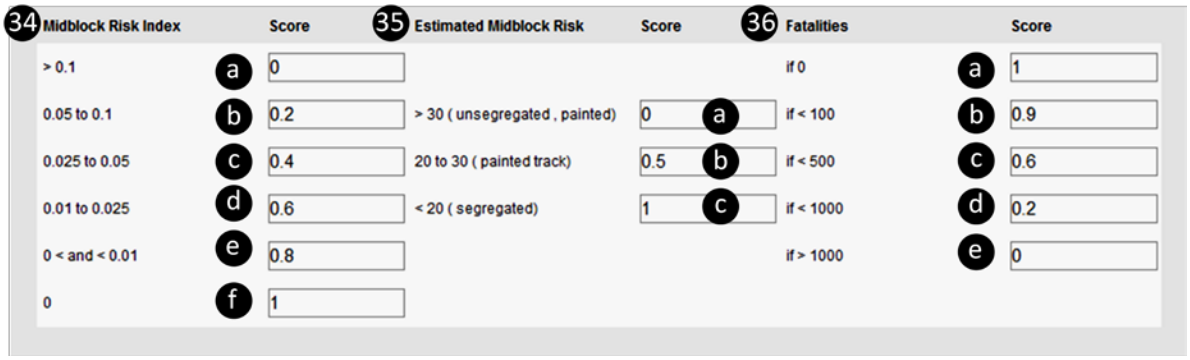


Figure 51: CYLOS for Corridor / Route - Default Form: Scaling, Part 12

34. **Midblock Risk Index –** This defines the number of fatalities at the midblock of the corridor. If the number of fatalities is more, negative impact will be created on the cyclist and the value will be low. The default values assigned in the tool range from 0 to 1 such as:
    a. If fatalities per segment length is greater than 0.1 the value is 0. This value can range between 0 to 1.
    b. If fatalities per segment is anywhere between (0.05 to 0.1) then value is 0.2. This value has to be equal to or greater than 34a.
    c. If fatalities per segment is anywhere between (0.025 to 0.05) then value is 0.4. This value has to be equal to or greater than 34b.
    d. If fatalities per segment is anywhere between (0.01 to 0.025) then value is 0.6. This value has to be equal to or greater than 34c.
    e. If fatalities per segment is anywhere between (0 to 0.01) then value is 0.8. This value has to be equal to or greater than 34d.
    f. If fatalities per segment are 0 then value is 1. This value has to be equal to or greater than 34e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

35. **Estimated Midblock Risk –** This defines the risk at the midblock based upon the speed and road typology on the corridor. If the speed is less and segregated ycle track is provided, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If speed is greater than 30 km /hr with unsegregated and painted cycle track then value is 0. This value can range between 0 to 1.
    b. If the speed is (20 to 30) km /hr with painted cycle lane then value is 0.5. This value has to be equal to or greater than 35a.
    c. If speed is less than 20 km / hr and the cycle infrastructure is segregated than value is 1. This value has to be equal to or greater than 35b.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

36. **Fatalities –** This defines the number of fatalities per segment length of the corridor. If the number of fatalities is more, negative impact will be created on the cyclist and the value will be low. The default values assigned in the tool range from 0 to 1 such as:
    a. If the number of fatalities is 0 then assigned value is 1. This value can range between 0 to 1.

b. If number of fatalities is less than 100 then assigned value is 0.2. This value has to be equal to or less than 36a.
c. If number of fatalities is less than 500 then assigned value is 0.6. This value has to be equal to or less than 36b.
d. If number of fatalities is less than 1000 then assigned value is 0.9. This value has to be equal to or less than 36c.
e. If number of fatalities is greater than 1000 then assigned value is 0. This has to be equal to or less than 36d.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 52 shows the image of part 13 of the scaling form. The inputs required in this are explained below:

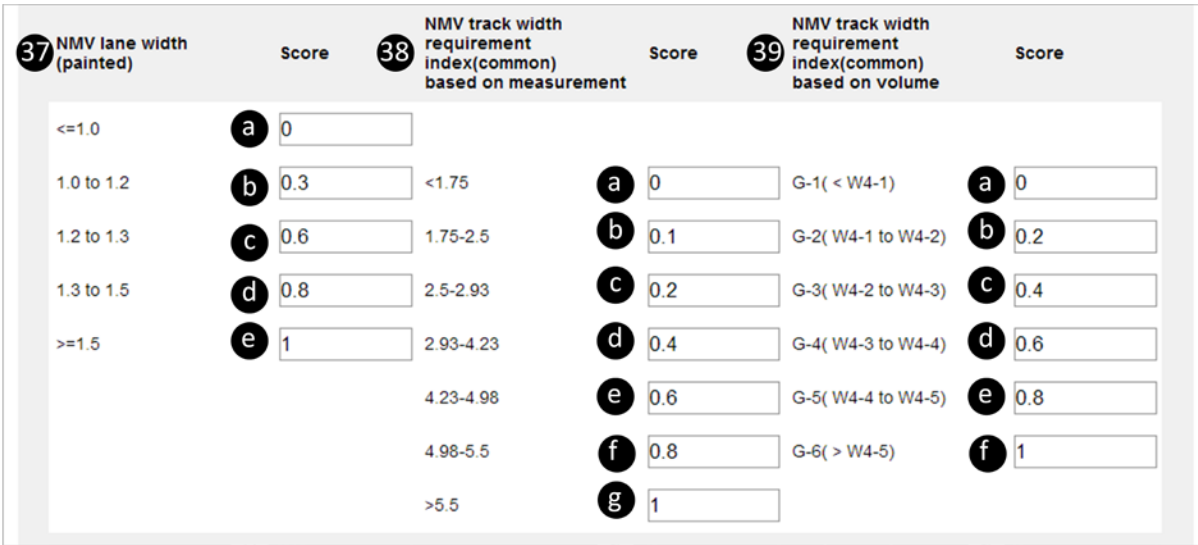


Figure 52: CYLOS for Corridor / Route - Default Form: Scaling, Part 13

37. **NMV Lane width (painted) –** This defines the painted NMV infrastructure width along the corridor. If the width is more, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the provided width is less than or equal to 1m then assigned value is 0. This value can range between 0 to 1.
    b. If the width is between (1.0 to 1.19) m then assigned value is 0.3. This value has to be equal to or greater than 37a.
    c. If the width is anywhere between (1.2 to 1.3) m then assigned value is 0.6. This value has to be equal to or greater than 37b.
    d. If the width is anywhere between (1.3 to 1.49) m then assigned value is 0.8. This value has to be equal to or greater than 37c.
    e. If the width is greater than 1.5m then assigned value is 1. This value has to be equal to or greater than 37d.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

38. **NMV track width requirement index (common) based on volume –** This defines the width of NMV track for common cycle infrastructure based on pedestrian density and cycle speed. If the width is more, the value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If the width input by the user is less than W4-1 then value is 0. This value can range between 0 to 1.
    b. If the width varies anywhere between (W4-1 to W4-2) then value is 0.2. This value has to be equal to or greater than 38a.
    c. If the width varies anywhere between (W4-2 to W4-3) then value is 0.4. This value has to be equal to or greater than 38b.
    d. If the width varies anywhere between (W4-3 to W4-4) then the value is 0.6. This value has to be equal to or greater than 38c.
    e. If the width varies anywhere between (W4-4 to W4-5) then value is 0.8. This value has to be equal to or greater than 38d.
    f. If the width is greater than W4-5 value is 1. This value has to be equal to or greater than 38e.

    Here (W4-1, W4-2, W4-3, W4-4 and W4-5) are the variable widths determined on the basis of the total volume (cyclist + pedestrian) obtained from the combination of pedestrian density and NMV volume per lane.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

39. **NMV track width requirement index (common) based on measurement-** This defines the width of NMV track for common cycle infrastructure based on measurement of the pedestrian and cyclist. If the width is more, the value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If the width is less than 1.75m then value is 0. This value can range between 0 to 1.
    b. If the width varies anywhere between (1.75 to 2.5)m then value is 0.1. This value has to be equal to or greater than 39a.
    c. If the width varies anywhere between (2.5 to 2.93) m then value is 0.2. This value has to be equal to or greater than 39b.
    d. If the width varies anywhere between (2.93 to 4.23) m then value is 0.4. This value has to be equal to or greater than 39c.
    e. If the width varies anywhere between (4.23 to 4.98) m then value is 0.6. This value has to be equal to or greater than 39d.
    f. If the width varies anywhere between (4.98 to 5.5) m then value is 0.8. This value has to be equal to or greater than 39e.
    g. If the width exceeds than 5.5m then value is 1. This value has to be equal to or greater than 39f.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

    Figure 53 shows the image of part 14 of the scaling form. The inputs required in this are explained below:

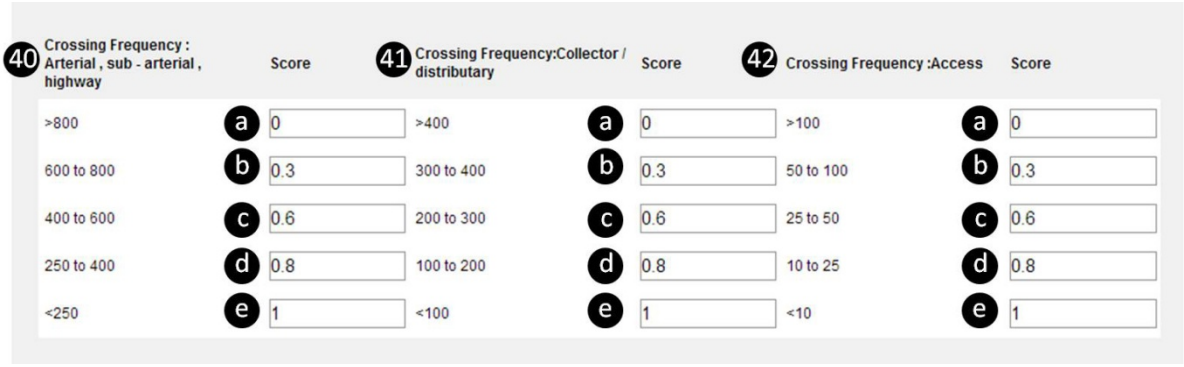


Figure 53: CYLOS for Corridor / Route - Default Form: Scaling, Part 14

40. **Crossing frequency for Arterial, Sub arterial, Highway –** This defines the frequency of crossings provided for the cyclist for Arterial, sub arterial and highway along the corridor. If safe crossing is provided at regular and less distance, positive impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the frequency of crossing is greater than 800m then default value is. This value range between 0 to 1.
    b. If frequency of crossing varies from (600 to 800)m then default value is 0.3. This value has to be equal to or greater than 40a.
    c. If frequency of crossing varies from (400 to 600)m then default value is 0.6. This value has to be equal to or greater than 40b.
    d. If frequency of crossing varies from (250 to 400)m then default value is 0.8. This value has to be equal to or greater than 40c.
    e. If frequency of crossing is less than every 250m then default value is 1. This value has to be equal to or greater than 40d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

41. **Crossing frequency for collector, Distributor –** This defines the frequency of crossings provided for the cyclist for Collector and distributor road along the corridor. If safe crossing is provided at regular and less distance, positive impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the frequency of crossing is greater than 400m then default value is 0. This value can range between 0 to 1.
    b. If frequency of crossing varies from (300 to 400)m then default value is 0.3. This value has to be equal to or greater than 41a.
    c. If frequency of crossing varies from (200 to 300)m then the default value is 0.6. This value has to be equal to or greater than 41b.
    d. If frequency of crossing varies from (100 to 200)m then default value is 0.8. This value has to be equal to or greater than 41c.
    e. If frequency of crossing is less than every 100m then default value is 1. This value has to be equal to or greater than 41d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

42. **Crossing frequency for Access –** This defines the frequency of crossings provided for the cyclist for access road along the corridor. If safe crossing is provided at regular and less distance, positive impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the frequency of crossing is greater than 100m then default value is 0. This value can range between 0 to 1.
    b. If frequency of crossing varies from (50 to 100)m then default value is 0.3. This value has to be equal to or greater than 42a.
    c. If frequency of crossing varies from (25 to 50)m then default value is 0.6. This value has to be equal to or greater than 42b.
    d. If frequency of crossing varies from (10 to 25)m then default value is 0.8. This value has to be equal to or greater than 42c.
    e. If frequency of crossing is less than every 10m then default value is 1. This value has to be equal to or greater than 42a.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 54 shows the image of part 15 of the scaling form. The inputs required in this are explained below:

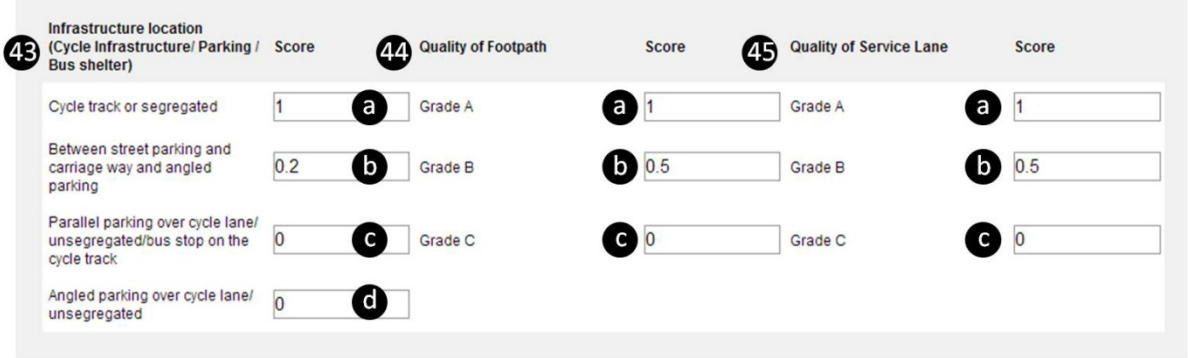


Figure 54: CYLOS for Corridor / Route - Default Form: Scaling, Part 15

43. **Infrastructure location (Cycle Infrastructure/ Parking/ Bus Shelter) –** This defines the frequency of crossings provided for the cyclist for access road along the corridor. If safe crossing is provided at regular and less distance, positive impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If segregated cycle facility or cycle track is available then default value is 1. This id fixed value and cannot be altered by the user.
    b. If cycle track exists between street parking (angled) and carriage way then default value is 0.2. This value can range between 0 to 1.
    c. If provided infrastructure is cycle lane / unsegregated cycling facility with parallel parking or location of bus- stop on the cycle facility then default value is 0. This is fixed value and cannot be altered by the user.
    d. If angled parking exists over cycle lane/ unsegregated cycling facility then value is 0. This is fixed value and cannot be modified by the user.

44. **Quality of Footpath –** This defines the quality of footpath along the corridor. The default values assigned in the tool range from 0 to 1 such as:
    a. If the quality of footpath provided is of grade A default value is 1. This value can range between 0 to 1.

b. If quality of footpath provided is of grade B then default value is 0.5. This value can range between 0 to 1.
c. If quality of footpath provided is of grade C then default value is 0. This value can range between 0 to 1.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

45. **Quality of Service Lane-** This defines the quality of service lane along the corridor. The default values assigned in the tool range from 0 to 1 such as:
    a. If the quality of service lane provided is of grade A then default value is 1. This value can range between 0 to 1.
    b. If quality of service lane provided is of grade B then default value is 0.5. This value can range between 0 to 1.
    c. If quality of service lane provided is of grade C then default value is 0. This value can range between 0 to 1.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 55 shows the image of part 16 of the scaling form. The inputs required in this are explained below:

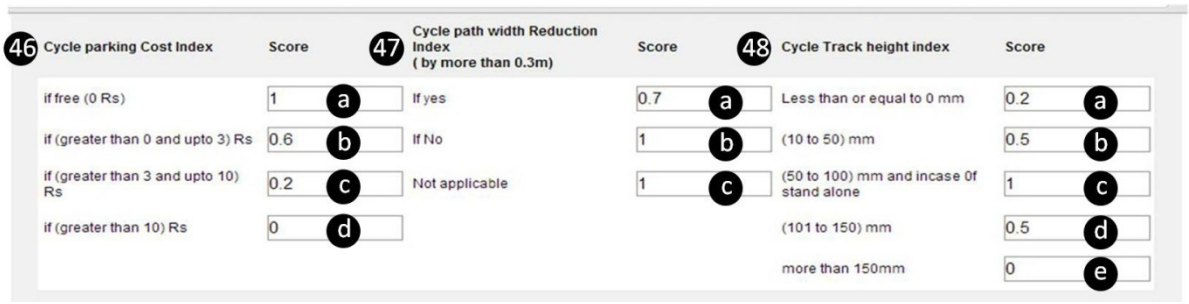


Figure 55: CYLOS for Corridor / Route - Default Form: Scaling, Part 16

Cycle Parking Cost Index- This defines the cost of cycle parking per day along the cycle infrastructure. If there is no cycle parking charges, positive impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:

a. If there is no parking charge then default value is 1. This value can range between 0 to 1.
b. If cycle parking charges is in the range of (0 > upto 3 Rs)per day then default value is 0.6. This value has to be equal to or less than 46a.
c. If cycle parking charges is in the range of (3Rs > upto 10 Rs)perday then default value is 0.2. This value has to be equal to or less than 46b.
d. If cycle parking charges is in the range of exceeds over 10 Rs per day then default value is 0. This value has to be equal to or less than 46c.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

46. **Cycle Path width Reduction Index-** This defines the reduction width of cycle path while approaching the junction. The default values range between 0 to 1 and are assigned in the tool on the basis of the width reductions such that:
    a. If the length is more than 0.3m then default value is 0.7. This value can range between 0 to 1.
    b. If it does not occur then default value is 1. This value can range between 0 to 1.
    c. If not applicable i.e. in case the length is less than 0.3m then default value is 1. This is fixed value and cannot be altered by the user.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

47. **Cycle track height Index-** This defines the height of cycle track with respect to the carriageway level along the corridor. If the height difference is between 50 to 100 mm then positive impact is created on the cyclist and value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If Height of cycle track is less than or equal to 0mm then default value is 0. This value can range between 0 to 1.
    b. If height of the cycle track is anywhere between (0.1 to 50) mm then default value is 0.5. This value has to be equal to or greater than 48a.
    c. If height of the cycle track is anywhere between (51 to 100) mm then default value is 1. This value has to be equal to or greater than 48b.
    d. If height of the cycle track is anywhere between (101 to 150) mm then default value is 0.5. This vale has to be equal to or less than 48c.
    e. If height of the cycle track exceeds over 150mm then default value is 0. This value has to be equal to or less than 48d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 56 shows the image of part 17 of the scaling form. The inputs required in this are explained below:

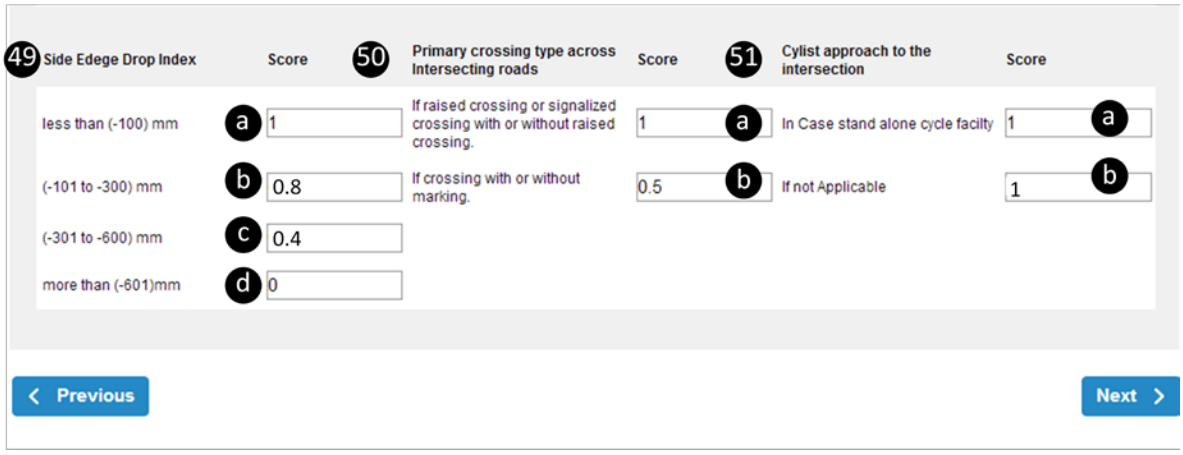


Figure 56: CYLOS for Corridor / Route - Default Form: Scaling, Part 17

48. **Side Edge Drop Index –** This defines the ground drop along the edge of the cycle infrastructure. If the side drop is less, positive impact will be created on the cyclist and value

will be high. As the drop considered is below the ground level, the values are to be entered in negative by the user and accordingly the default values will range from 0 to 1 such as:

a. If edge drop is less than or equal to (-100mm) then default value is 1. This value can range between 0 to 1.
b. If the edge drop is anywhere between (-101 to -300)mm than default value is 0.8. This value has to be equal to or less than 49a.
c. If the edge drop varies anywhere between (-301 to -600)mm then default value is 0.4. This value has to be equal to or less than 49b.
d. If the edge drop exceeds over (-600mm) then default value is 0. This value has to be equal to or less than 49c.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

49. **Primary crossing type across intersecting roads-** This defines the type of crossing available for the cyclist at intersections along the cycle infrastructure. The default values assigned in the tool range from 0 to 1 such as:
    a. If the primary crossing type is raised crossing or signalized crossing with or without raised crossing then default value is 1. This is fixed value and cannot be altered.
    b. If primary crossing type across Intersecting road is crossing with or without marking then default value is 0.5. This is fixed value and cannot be altered.

These values are fixed values and cannot be modified by the user.

50. **Cyclist approach to the intersection –** This defines the approach of the cyclist toward the intersection. The default values assigned in the tool range from 0 to 1 such as:
    a. In case of standalone approach is the default value assumed is 1. This is fixed value and cannot be altered by the user.
    b. In case there is no change in the approach to the intersection i.e. if approach to intersection is not applicable then default value is assumed as 1. This is fixed value and cannot be altered by the user.

These values are fixed values and cannot be modified by the user.

3.1.6.3 Scoring

The scoring form is the third form of the default data input. Figure 57 shows the image of part 1 of the scoring form. The inputs required in this are explained below:

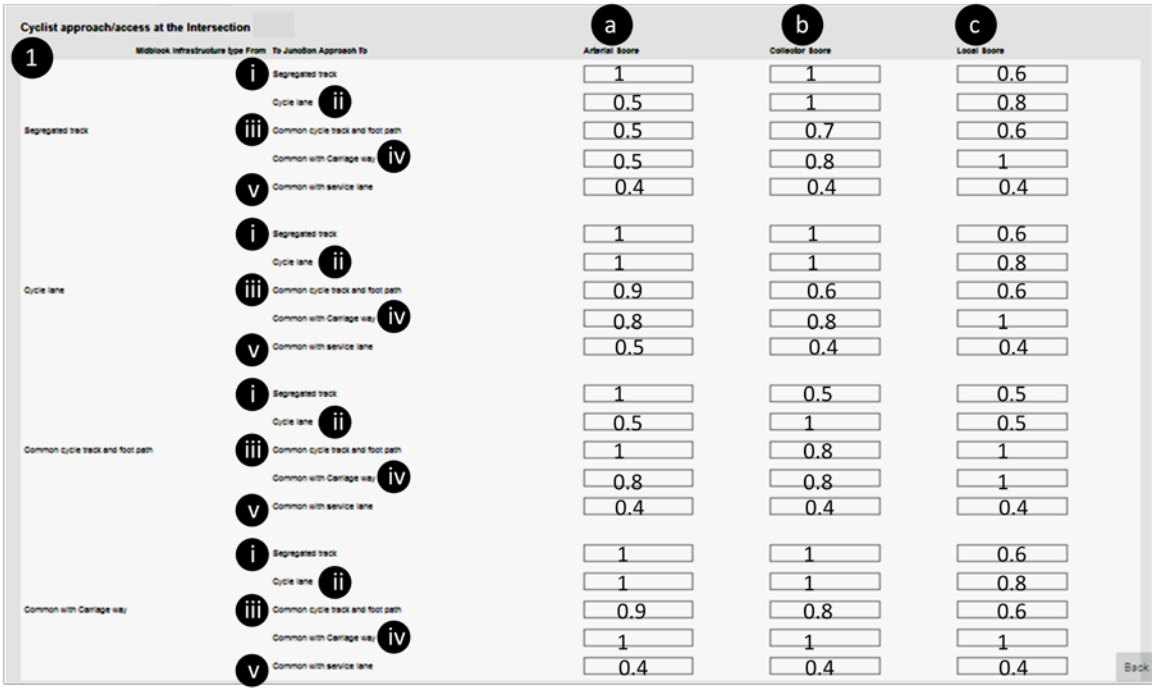


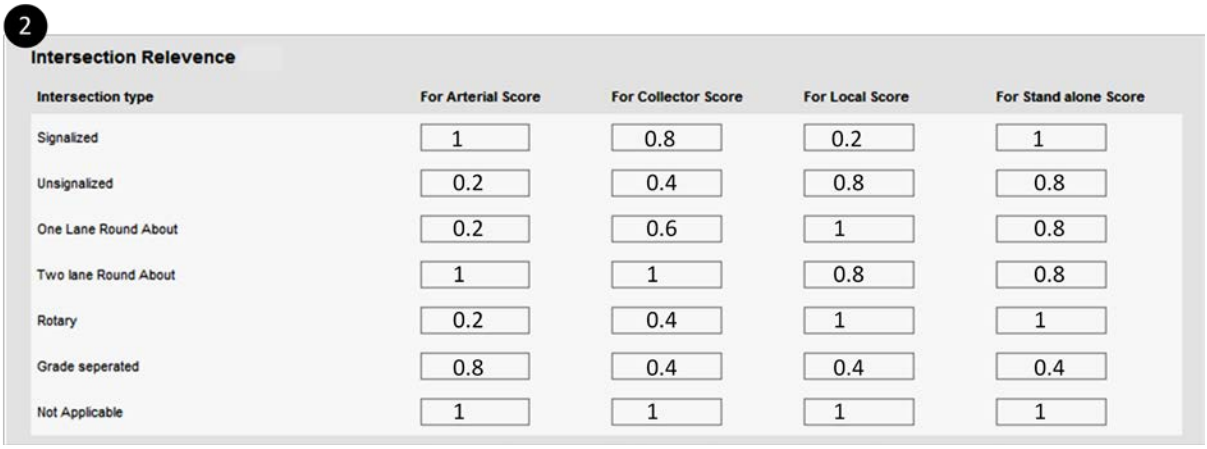
Figure 57: CYLOS for Corridor / Route - Default Form: Scoring, Part 1

1. **Cyclist approach /access to the Intersections:** Based on the cyclist approach to the Intersection relations have been developed and categorized according to the road typology and the cycle infrastructure type. Ranking of cycle path relevance in a given context as per the guidelines provided in the Non Motorised Transport Design and Planning Guideline are as following:

    a. **For Arterial road**
        i. Junction approach as segregated track
        ii. Junction approach as cycle lane
        iii. Junction approach as common cycle track and footpath
        iv. Junction approach as common with Carriage way
        v. Junction approach as common with Service lane
    b. **For Collector road**
        i. Junction approach as Cycle lane
        ii. Junction approach as segregated track
        iii. Junction approach as common with Carriage way
        iv. Junction approach as common cycle track and footpath
        v. Junction approach as common with Service lane
    c. **For Local road**
        i. Junction approach as common with Carriage way
        ii. Junction approach as Cycle lane
        iii. Junction approach as common cycle track and footpath
        iv. Junction approach as segregated track
        v. Junction approach as common with Service lane

Scores are assigned for cycle infrastructure on approach to intersection as per relative position in the ranking order above. The score will also depend on the relative change of cycle infrastructure type from midblock to approach to junction. Maximum score can be 1 and minimum score can be 0.4. The default scores mentioned in Figure 57 can be altered by the user.

Figure 58 shows the image of part 2 of the scoring form. The inputs required in this are explained below:



2

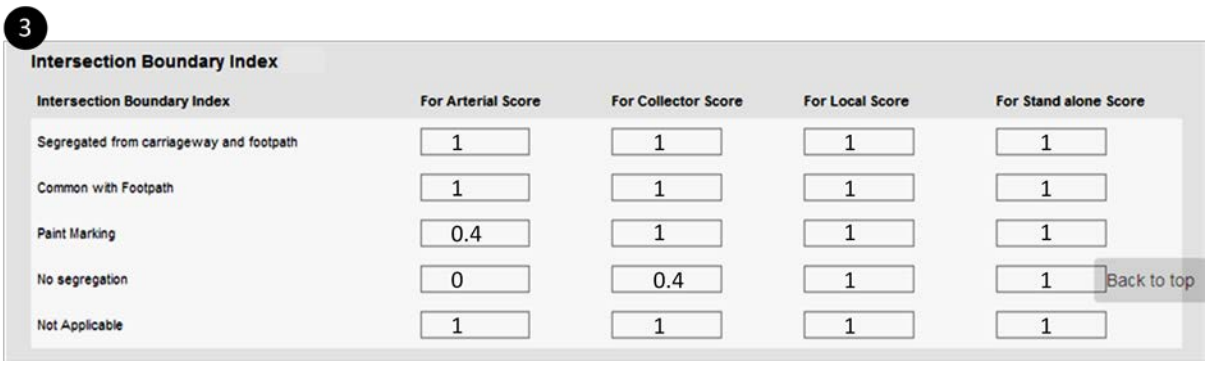
Intersection Relevence

Intersection type	For Arterial Score	For Collector Score	For Local Score	For Stand alone Score
Signalized	1	0.8	0.2	1
Unsignalized	0.2	0.4	0.8	0.8
One Lane Round About	0.2	0.6	1	0.8
Two lane Round About	1	1	0.8	0.8
Rotary	0.2	0.4	1	1
Grade seperated	0.8	0.4	0.4	0.4
Not Applicable	1	1	1	1

Figure 58: CYLOS for Corridor / Route - Default Form: Scoring, Part 2

2. **Intersection Relevance:** Based on the type of Intersection and road typology, default scores in a scale of 0 to 1 are assigned in the tool to determine the relevance of the intersection. A score matrix is developed based on these different relations. For example if there is a signalized intersection on a arterial road then value is 1 else if the intersection is two lane roundabout on a local road then value is 0.8 and likewise different other relations are being formed and assigned scores. All the relations are being presented in the default form with the respective scores assigned under different road categories. The default scores can be altered by user.

Figure 59 shows the image of part 3 of the scoring form. The inputs required in this are explained below:



3

Intersection Boundary Index

Intersection Boundary Index	For Arterial Score	For Collector Score	For Local Score	For Stand alone Score
Segregated from carriageway and footpath	1	1	1	1
Common with Footpath	1	1	1	1
Paint Marking	0.4	1	1	1
No segregation	0	0.4	1	1
Not Applicable	1	1	1	1

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Figure 59: CYLOS for Corridor / Route - Default Form: Scoring, Part 3

3. **Intersection Boundary Index:** Based on the infrastructure type available at the boundary of the intersections and different road typology, default scores in a scale of 0 to 1 are assigned in the tool to determine the relevance of the infrastructure boundary present at the intersection. A score matrix is developed based on different relations. For example if the intersection boundary is segregated from the carriageway on a arterial road then value is 1 whereas if intersection boundary type is paint marked on a arterial road then value is 0 and likewise different other relations are being formed and assigned scores. All the relations

are being presented in the default form with the respective scores assigned under different road categories mentioned. The default scores can be altered by user.

Figure 60 shows the image of part 4 of the scoring form. The inputs required in this are explained below:

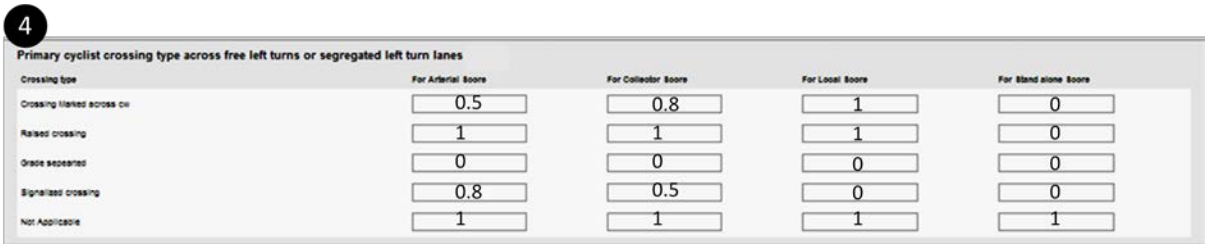


Figure 60: CYLOS for Corridor / Route - Default Form: Scoring, Part 4

4. **Primary cyclist crossing type across free left turns or segregated left turn lanes:** Based on the type of crossing available across the free left turns provided at the intersections and under different road typology ,default scores in a scale of 0 to 1 are assigned in the tool to determine the crossing relevence at the segregated left turns of a intersection. A score matrix is devaloped based on different relations. For example if there is a raised crossing type at the left turn on a arterial road then value is 1 whereas if crossing type is signalized on a local road then value is 0 and like wise different other relations are being formed and assigned scores. All the relations are being presented in the default form with the respective scores assigned under different road categories mentioned.The default scores can be altered by user.

Figure 61 shows the image of part 5 of the scoring form. The inputs required in this are explained below:

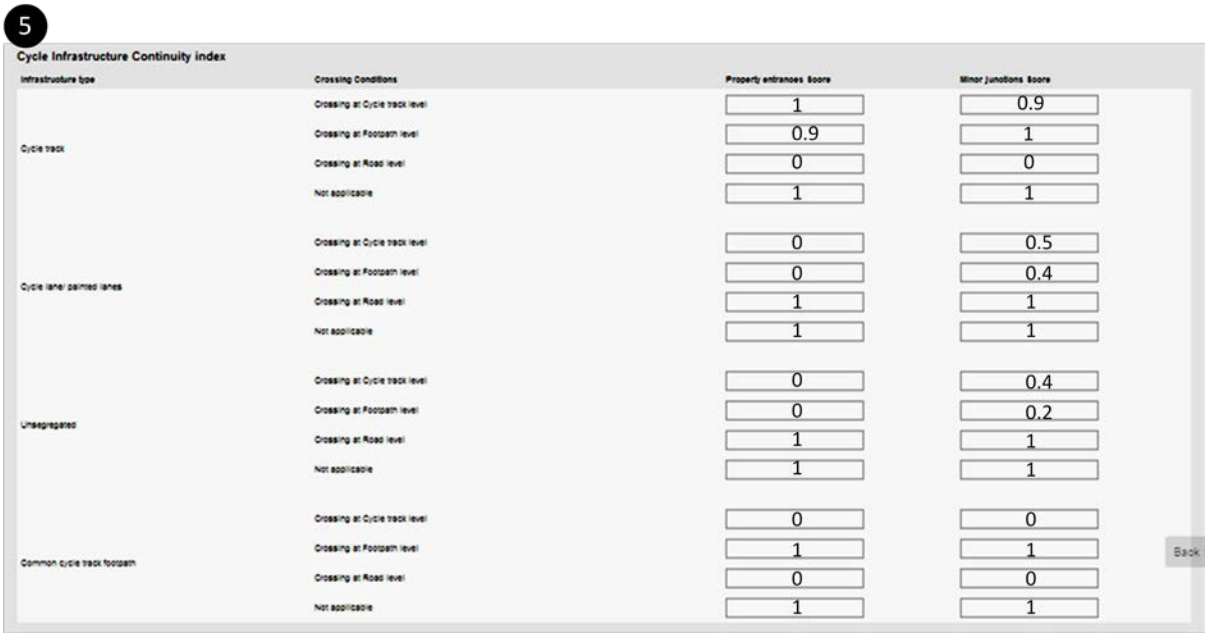


Figure 61: CYLOS for Corridor / Route - Default Form: Scoring, Part 5

5. **Cycle Infrastructure Continuity Index:** Based on the different crossing conditions available at property entrances with respect to the cycle infrastructure ,default scores in a scale of 0 to

1 are assigned in the tool to determine the continuity cycle infrastructure. A score matrix is developed based on different conditions at existing property entrances on the cycle infrastructure. For example if crossing is at cycle track level and the cycle infrastructure is segregated tracks then value is 1 else if crossing is at road level then value is 0 and likewise different other relations are being formed and assigned scores. All the relations are being presented in the default form with the respective scores assigned under different road categories mentioned. The default scores can be altered by user.

3.1.6.4 Weightage

The Weightage form is the fourth form of the default data input. Figure 62 shows the image of part 1 of the Weightage form. The inputs required in this are explained below:

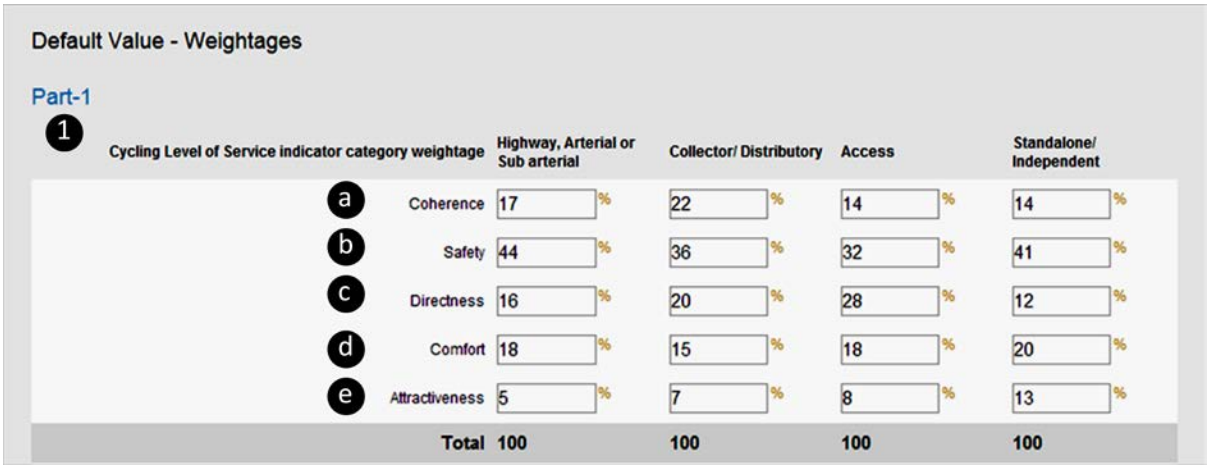


Figure 62: CYLOS for Corridor/Route: Default Form – Weightage: Part 1

Cycling level of service indicator category Weightage - Weightages indicate relative importance of indicators and indicator categories. They are used to consolidate scores under individual indicators into a single overall score for evaluation, comparision and decision making. Weightages are given and used as percentage values. All indicators within a category are given percentage weights of the sum total of which is 100 percent. Higher percentage is assigned to indicators with higher relative importance. In that sense percentage weights are representation of an indicators importance in each category.

Similarly percentage weight of each category is representation of the relative importance of that category in the overall cycling infrastructure assessment for that particular road type. Weightages have been assigned separately for indicators and indicator categories.

Indicator categories

Coherence – Coherence relates to the legibility and connectivity of the bicycle network. In design, this implies that the segments in the network should look similar to improve the legibility and usability of the bicycle infrastructure and there is provision of good connectivity between all origins and destinations. Constant width ensured through design with adequate widening at turns and rendering the same texture for typical scenarios across the network shall help not only the cyclists to identify with it but also ensure motorists to be cautious at potential locations .Elimination of any missing segments as well as standardization of intersections i.e. the shape, size and form of each category of junction solution should be similar to help the cyclist be aware of vehicular behavior in the traffic mix. Also, use of various measures like marking, signs and traffic calming measures across intersections improves coherence. Weightage value shall be between 0 to 100. Weightage specific to

road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

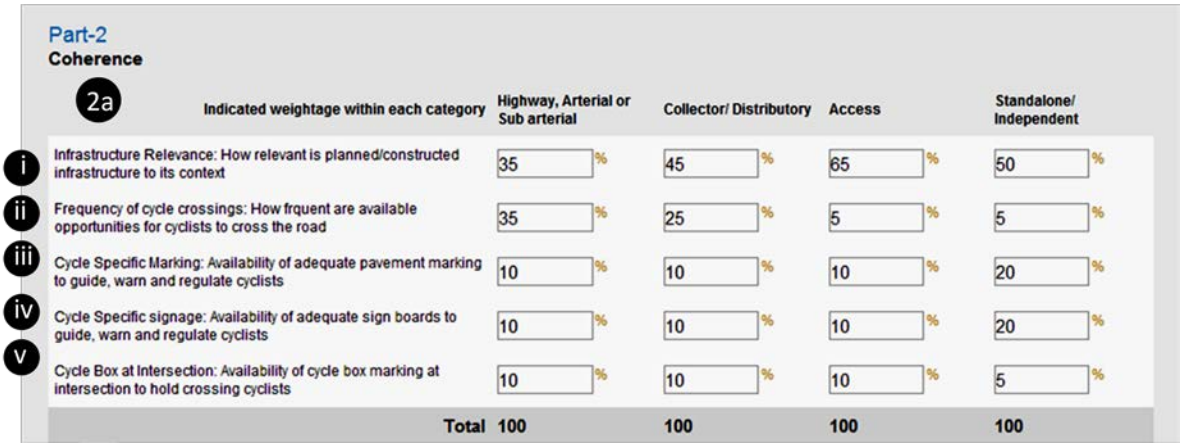
Safety – Prevention of collisions and reducing the conflicts and their impact shall result in a safer travel. Provision of adequate and uniform lighting ensures enhanced usability as well as safer streets. Integration of spaces for hawkers and vendors, support facilities provides security and the necessary eyes on street. Design of minimal conflicts (and sub-conflicts), introducing traffic calming and resolving complexity by eliminating segregated left turning lanes, etc., makes safer intersection. Weightage value shall be between 0 to 100. Weightage specific to road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

Directness – Directness of bicycle infrastructure has to do with the amount of time and effort required by a cyclist to undertake a journey. Therefore, major detours from their natural path should be avoided. As mentioned in 'Design manual for bicycle traffic' (CROW, June 2007), directness has two components: in terms of distance and time. At intersections, directness in time may be achieved by eliminating stopping/waiting for cyclists by introducing bicycle specific grade separated infrastructure, defining the cyclists right of way and signals which eliminate or reduce staged crossing and delays. Directness in distance for NMV users can be achieved by eliminating any detours or long bends for cyclists at intersections, and by reducing or eliminating stages in a crossing. Weightage value shall be between 0 to 100. Weightage specific to road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

Comfort – Riding comfort is essential to bicycle infrastructure therefore the surface should be even and free of cracks and potholes. Riding surface for cyclists at the intersection should be smooth to reduce inconvenience. Water logging in the path of cyclist areas is uncomfortable and therefore it is important that proper drainage should be provided with regular maintenance. Also at intersections, traffic nuisances should be minimum. Segregation terminating up to the stop line at high speed roads or high volume distributor and access roads will ensure cyclists their Right Of Way (ROW) not obstructed by vehicular traffic. Weightage value shall be between 0 to 100. Weightage specific to road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

Attractiveness – To ensure attractiveness, it should be taken care that the path of the cyclist should be clean and devoid of any material dumped that blocks movement. Else, it shall prevent the cyclist from using the cycle infrastructure from the initial point and use the carriageway in unsafe conditions. Location of spaces for hawkers and vendors, well integrated bus shelters, green areas, resting spaces, etc. and shaded NMT infrastructure is definitely attractive. Weightage value shall be between 0 to 100. Weightage specific to road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

Figure 63 shows the image of part 2 of the Weightage form. The inputs required in this are explained below:



Part-2
Coherence

	2a Indicated weightage within each category	Highway, Arterial or Sub arterial	Collector/ Distributory	Access	Standalone/ Independent
i	Infrastructure Relevance: How relevant is planned/constructed infrastructure to its context	35 %	45 %	65 %	50 %
ii	Frequency of cycle crossings: How frquent are available opportunities for cyclists to cross the road	35 %	25 %	5 %	5 %
iii	Cycle Specific Marking: Availability of adequate pavement marking to guide, warn and regulate cyclists	10 %	10 %	10 %	20 %
iv	Cycle Specific signage: Availability of adequate sign boards to guide, warn and regulate cyclists	10 %	10 %	10 %	20 %
v	Cycle Box at Intersection: Availability of cycle box marking at intersection to hold crossing cyclists	10 %	10 %	10 %	5 %
	Total	100	100	100	100

Figure 63: CYLOS for Corridor / Route - Default Form: Weightage, Part 2

Coherence (2a) - Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of Weightage of all indicators should be 100.

i. **Infrastructure Relevance:** The weightage assigned by the tool for the infrastructure relevance is 35% for Highway, 45% for Collector/Distributor, 65% for Access and 50% for Standalone. The user can modify this. Weightage should be assigned as per the planned or exiting infrastructure along the cycle path, in the overall evaluation.

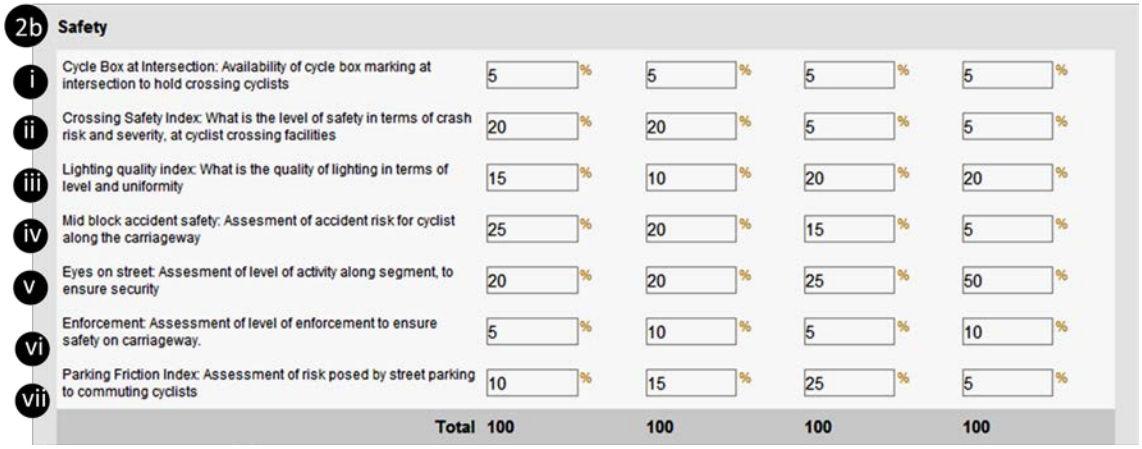
ii. **Frequency of cycle crossings:** The weightage assigned by the tool for the frequency of cycle crossings is 35% for Highway, 25% for Collector/Distributor, 5% for access and 5% for Standalone. The user can modify this. Weightage should be assigned as per the context and available frequent opportunity for cyclist to cross the road, in the overall evaluation.

iii. **Cycle specific marking:** The weightage assigned by the tool for the cycle specific marking is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone. The user can modify this. Weightage should be assigned as per the availability of the adequate pavement marking to guide, warn and regulate cyclists, in the overall evaluation.

iv. **Cycle Specific signage:** The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone. The user can modify this. Weightage should be assigned as per the availability of the adequate sign boards to guide, warn and regulate cyclists, in the overall evaluation.

v. **Cycle Box at intersection:** The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned as per the relative importance of the availability of cycle box marking at the intersections to hold the cyclists crossing the road, in the overall evaluation.

Figure 64 shows the image of part 3 of the Weightage form. The inputs required in this are explained below:



	Safety				
i	Cycle Box at Intersection: Availability of cycle box marking at intersection to hold crossing cyclists	5 %	5 %	5 %	5 %
ii	Crossing Safety Index: What is the level of safety in terms of crash risk and severity, at cyclist crossing facilities	20 %	20 %	5 %	5 %
iii	Lighting quality index: What is the quality of lighting in terms of level and uniformity	15 %	10 %	20 %	20 %
iv	Mid block accident safety: Assesment of accident risk for cyclist along the carriageway	25 %	20 %	15 %	5 %
v	Eyes on street: Assesment of level of activity along segment, to ensure security	20 %	20 %	25 %	50 %
vi	Enforcement: Assessment of level of enforcement to ensure safety on carriageway.	5 %	10 %	5 %	10 %
vii	Parking Friction Index: Assessment of risk posed by street parking to commuting cyclists	10 %	15 %	25 %	5 %
	Total	100	100	100	100

Figure 64: CYLOS for Corridor / Route - Default Form: Weightage, Part 3

Safety (2b) - Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of weightage of all indicators should be 100.

i. **Crossing Safety Index:** The weightage assigned by the tool for crossing safety index is 20% for Highway, 20% for Collector/Distributor, 5% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned as per the level of safety in terms of crash risk and severity at cyclists crossing facilities, in the overall evaluation.

ii. **Lighting Quality Index:** The weightage assigned by the tool for the lighting quality index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 20% for Standalone. The user can modify this. Weightage should be assigned as per the level of lighting quality in terms of lux level and uniformity, in the overall evaluation.

iii. **Mid block accident safety:** The weightage assigned by the tool for the mid block accident safety is 25% for Highway, 20% for Collector/Distributor, 15% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of accident risk for cyclist along the carriageway, in the overall evaluation.

iv. **Eyes on street:** The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 50% for Standalone. The user can modify this. Weightage should be assigned by assessment of level of activity along the segment to ensure safety, in the overall evaluation.

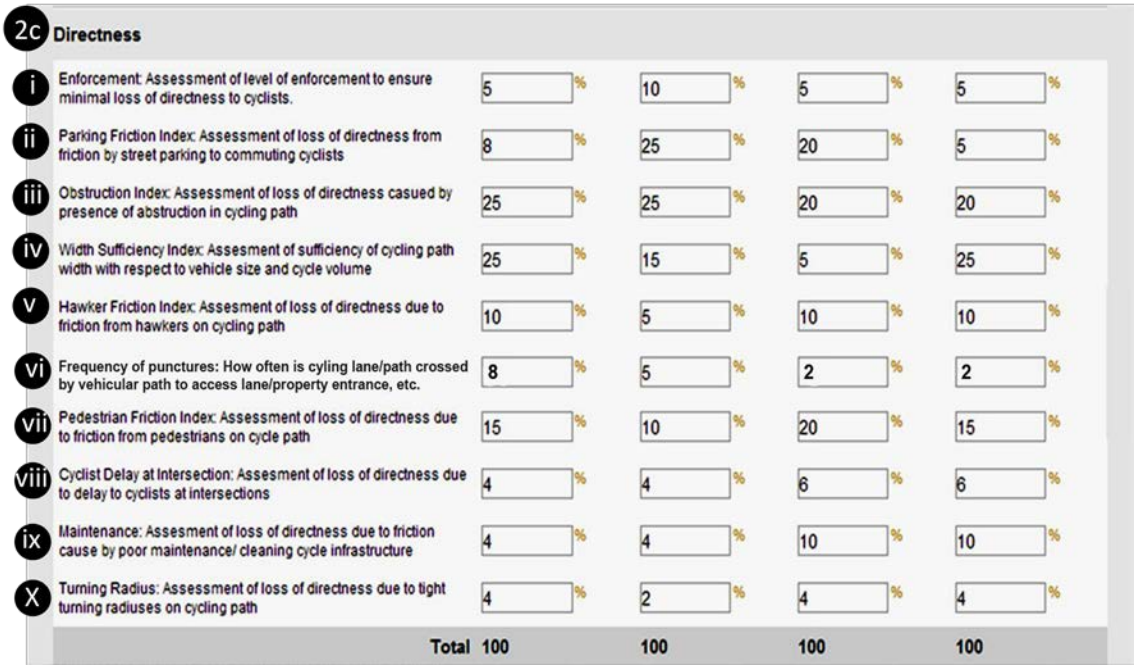
v. **Enforcement:** The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 10% for Standalone. The user can modify this. Weightage should be assigned by assessment of level of enforcement to ensure safety on carriageway, in the overall evaluation.

vi. **Cycle Box at Intersection:** The weightage assigned by the tool for the cycle box at intersection is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned as per the availability of cycle box marking at the intersection to hold crossing cyclist, in the overall evaluation.

vii. **Parking friction Index:** The weightage assigned by the tool for the parking friction index is 10% for Highway, 15% for Collector/Distributor, 25% for Access and 5% for Standalone. The

user can modify this. Weightage should be assigned by assessment of risk posed by street parking for commuting cyclist, in the overall evaluation.

Figure 65 shows the image of part 4 of the Weightage form. The inputs required in this are explained below:



2c Directness				
i Enforcement: Assessment of level of enforcement to ensure minimal loss of directness to cyclists.	5 %	10 %	5 %	5 %
ii Parking Friction Index: Assessment of loss of directness from friction by street parking to commuting cyclists	8 %	25 %	20 %	5 %
iii Obstruction Index: Assessment of loss of directness casued by presence of abstruction in cycling path	25 %	25 %	20 %	20 %
iv Width Sufficiency Index: Assesment of sufficiency of cycling path width with respect to vehicle size and cycle volume	25 %	15 %	5 %	25 %
v Hawker Friction Index: Assesment of loss of directness due to friction from hawkers on cycling path	10 %	5 %	10 %	10 %
vi Frequency of punctures: How often is cyling lane/path crossed by vehicular path to access lane/property entrance, etc.	8 %	5 %	2 %	2 %
vii Pedestrian Friction Index: Assessment of loss of directness due to friction from pedestrians on cycle path	15 %	10 %	20 %	15 %
viii Cyclist Delay at Intersection: Assesment of loss of directness due to delay to cyclists at intersections	4 %	4 %	6 %	6 %
ix Maintenance: Assesment of loss of directness due to friction cause by poor maintenance/ cleaning cycle infrastructure	4 %	4 %	10 %	10 %
X Turning Radius: Assessment of loss of directness due to tight turning radiuses on cycling path	4 %	2 %	4 %	4 %
Total	100	100	100	100

Figure 65: CYLOS for Corridor / Route - Default Form: Weightage, Part 4

Directness (2c) - Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of weightage of all indicators should be 100.

i. **Enforcement:** The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of level of enforcement to ensure minimal loss of directness to cyclists, in the overall evaluation.

ii. **Parking Friction Index:** The weightage assigned by the tool for the parking friction index is 8% for Highway, 25% for Collector/Distributor, 20% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness from friction by street parking to commuting cyclists, in the overall evaluation.

iii. **Obstruction Index:** The weightage assigned by the tool for the obstruction index is 21% for Highway, 20% for Collector/Distributor, 20% for Access and 20% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness caused by presence of obstructions in the cycling path, in the overall evaluation.

iv. **Width Sufficient Index:** The weightage assigned by the tool for width sufficient index is 21% for Highway, 15% for Collector/Distributor, 5% for Access and 25% for Standalone. The user can modify this. Weightage should be assigned by assessment of sufficiency of cycling path width with respect to vehicle size and cycle volume, in the overall evaluation.

v. **Hawker Sufficient Index:** The weightage assigned by the tool for hawker sufficient index is 10% for Highway, 5% for Collector/Distributor, 8% for Access and 8% for Standalone. The

user can modify this. Weightage should be assigned by assessment of loss of directness due to friction from hawkers on cycling path, in the overall evaluation.

vi. **Frequency of Punctures:** The weightage assigned by the tool for frequency of punctures is 8% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone. The user can modify this. Weightage should be assigned by assessment of cycling path/ lane crossed by vehicle path to access service lane/ property entrance, in the overall evaluation.

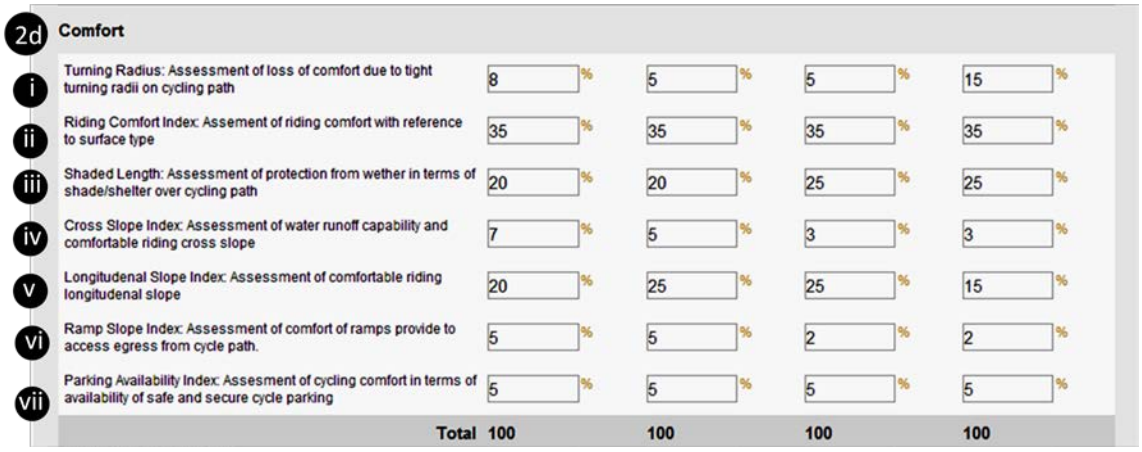
vii. **Pedestrian Friction Index:** The weightage assigned by the tool for pedestrian friction index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 15% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to friction from pedestrians on cycling path, in the overall evaluation.

viii. **Cyclist delay at Intersection:** The weightage assigned by the tool for cyclist delay at intersection is 4% for Highway, 4% for Collector/Distributor, 6% for Access and 6% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to delay to cyclists at intersections, in the overall evaluation.

ix. **Maintenance:** The weightage assigned by the tool for maintenance is 4% for Highway, 4% for Collector/Distributor, 10% for Access and 10% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to friction caused by poor maintenance and cleaning of the cycle infrastructure, in the overall evaluation.

x. **Turning radius:** The weightage assigned by the tool for turning radius is 4% for Highway, 2% for Collector/Distributor, 4% for Access and 4% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to tight turning radius on the cycling path/ lane, in the overall evaluation.

Figure 66 shows the image of part 5 of the Weightage form. The inputs required in this are explained below:



2d	Comfort				
i	Turning Radius: Assessment of loss of comfort due to tight turning radii on cycling path	8 %	5 %	5 %	15 %
ii	Riding Comfort Index: Assement of riding comfort with reference to surface type	35 %	35 %	35 %	35 %
iii	Shaded Length: Assessment of protection from wether in terms of shade/shelter over cycling path	20 %	20 %	25 %	25 %
iv	Cross Slope Index: Assessment of water runoff capability and comfortable riding cross slope	7 %	5 %	3 %	3 %
v	Longitudenal Slope Index: Assessment of comfortable riding longitudenal slope	20 %	25 %	25 %	15 %
vi	Ramp Slope Index: Assessment of comfort of ramps provide to access egress from cycle path.	5 %	5 %	2 %	2 %
vii	Parking Availability Index: Assesment of cycling comfort in terms of availability of safe and secure cycle parking	5 %	5 %	5 %	5 %
	Total	100	100	100	100

Figure 66: CYLOS for Corridor / Route - Default Form: Weightage, Part 5

Comfort (2d)- Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of weightage of all indicators should be 100.

i. **Turning radius:** The weightage assigned by the tool turning radius is 8% for Highway, 5% for Collector/Distributor, 5% for Access and 15% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to tight turning radius on the cycling path/ lane, in the overall evaluation.

ii. **Riding Comfort Index:** The weightage assigned by the tool for riding comfort index is 35% for Highway, 35% for Collector/Distributor, 35% for Access and 35% for Standalone. The user can modify this. Weightage should be assigned by assessment of riding comfort with reference to surface type, in the overall evaluation.

iii. **Shaded Length:** The weightage assigned by the tool for the shaded length is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone. The user can modify this. Weightage should be assigned by assessment of protection from weather in terms of shade over cycling path, in the overall evaluation.

iv. **Cross Slope Index:** The weightage assigned by the tool for the cross slope index is 7% for Highway, 5% for Collector/Distributor, 3% for Access and 3% for Standalone. The user can modify this. Weightage should be assigned by assessment of water runoff capability and comfortable riding cross slope, in the overall evaluation.

v. **Longitudinal Slope Index:** The weightage assigned by the tool for longitudinal slope index is 20% for Highway, 25% for Collector/Distributor, 25% for Access and 15% for Standalone. The user can modify this. Weightage should be assigned by assessment of comfortable riding along the longitudinal slope, in the overall evaluation.

vi. **Ramp Slope Index:** The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone. The user can modify this. Weightage should be assigned by assessment of comfort of ramp provided to access the egress from the cycle path, in the overall evaluation.

vii. **Parking Availability Index:** The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of cycling comfort in terms of availability of safe and secure cycle parking, in the overall evaluation.

Figure 67 shows the image of part 6 of the Weightage form. The inputs required in this are explained below:

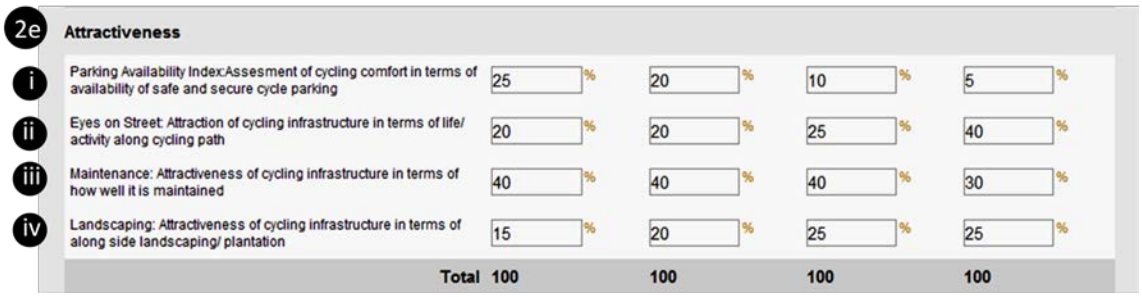


Figure 67: CYLOS for Corridor / Route - Default Form: Weightage, Part 6

Attractiveness (2e) - Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of weightage of all indicators should be 100.

i. **Parking Availability Index:** The weightage assigned by the tool for parking availability index is 25% for Highway, 20% for Collector/Distributor, 10% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of cycling comfort in terms of availability of safe and secure cycle parking, in the overall evaluation.

ii. **Eyes on street:** The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 40% for Standalone. The user can modify this. Weightage should be assigned by assessment of attraction of cycling infrastructure in terms of level of activity along the cycle path, in the overall evaluation.

iii. **Maintenance:** The weightage assigned by the tool for maintenance is 40% for Highway, 40% for Collector/Distributor, 40% for Access and 30% for Standalone. The user can modify this. Weightage should be assigned by assessment of attractiveness of cycling infrastructure in terms of its maintenance and cleanliness, in the overall evaluation.

iv. **Landscaping:** The weightage assigned by the tool for landscaping is 15% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone. The user can modify this. Weightage should be assigned by assessment of attractiveness of cycling infrastructure in terms of landscaping and plantation along the cycle path, in the overall evaluation.

Figure 68 shows the image of part 7 of the Weightage form. The inputs required in this are explained below:

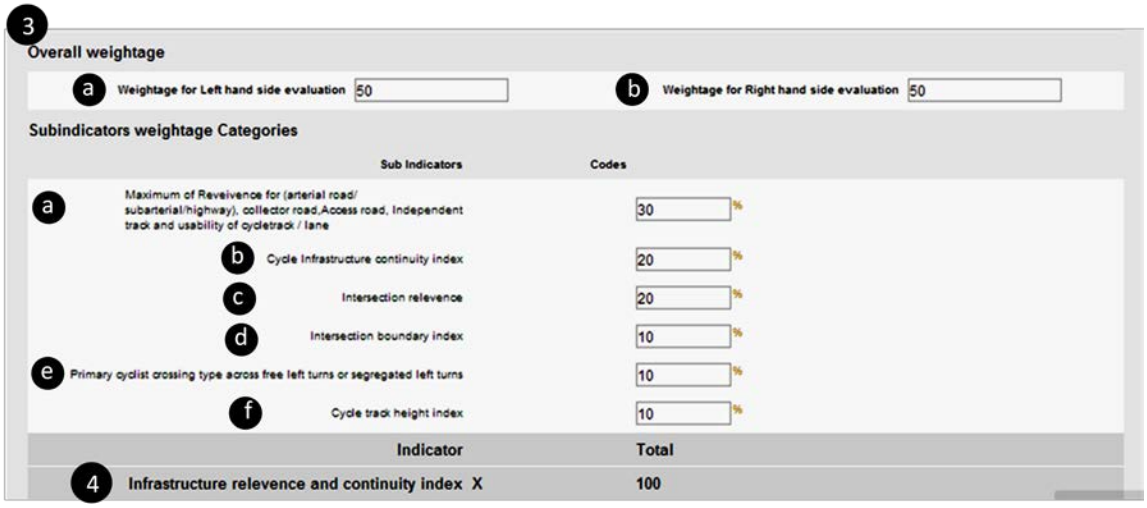


Figure 68: CYLOS for Corridor / Route - Default Form: Weightage, Part 7

3. Overall Weightage – This is used in estimating the individual indicator values. The default weightage for left hand and right hand evaluation is provided and the total should sum upto 100. The weigtage can range anywhere between 0 to 100. The user can alter the weightage.

a. Weightage of Left hand side evaluation: The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

b. Weightage of Right hand evaluation: The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

4. Infrastructure relevance and continuity Index – The values responding to this indicator contributes to the Coherence cycling principal. This indicator has six sub indicators and individual Weightage for each is provided as shown in Figure 68. The total of all sub indicator Weightages

should sum upto 100. The user can alter the Weightage as per the context and relevant sub indicator. Weightage value for all the fields should be between 0 to 100.

a. Maximum of Relevance for (arterial road/ sub arterial/highway), collector road, Access road, Independent track and usability of cycle track / lane – The default Weightage provided in the tool is 30%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Cycle Infrastructure continuity index - The default Weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
c. Intersection relevance - The default Weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
d. Intersection boundary Index - The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
e. Primary cyclist crossing type across free left turns or segregated left turns - The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
f. Cycle track height index - The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Figure 69 shows the image of part 8 of the Weightage form. The inputs required in this are explained below:

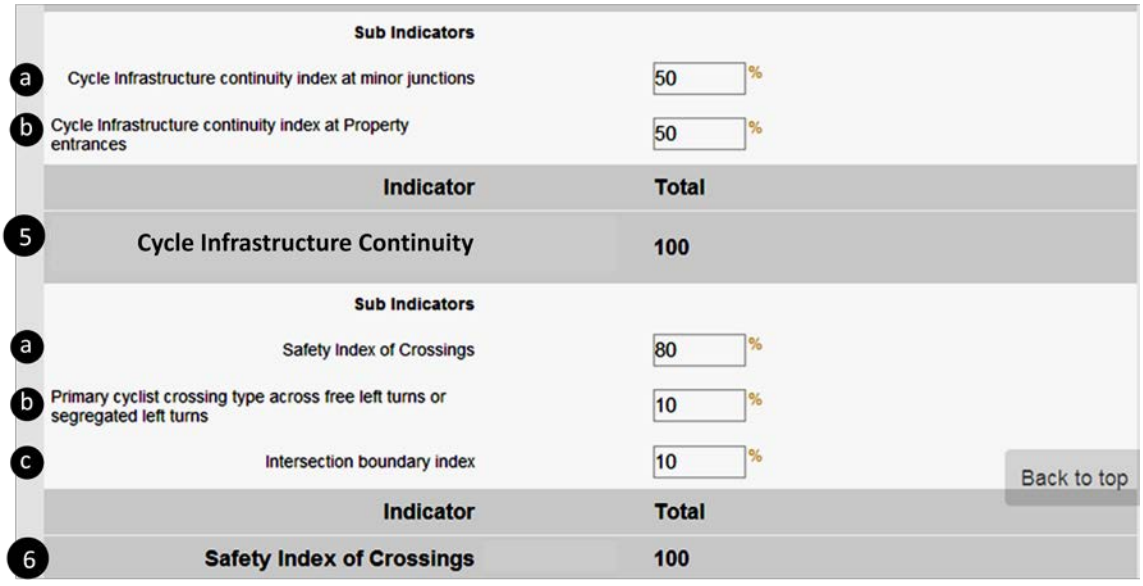


Figure 69: CYLOS for Corridor / Route - Default Form: Weightage, Part 8

5. Cycle Infrastructure Continuity – This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 69. The total of the two sub indicator weightages should add upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Cycle Infrastructure continuity index at minor junctions – The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Cycle Infrastructure continuity index at Property entrances – The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

6. Safety Index of Crossings - The values responding to this indicator contributes to the safety cycling principal. This indicator has three sub indicators and individual Weightage for each is provided as shown in Figure 69. The total of all sub indicator Weightages should add upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Safety Index of Crossings – The default Weightage provided in the tool is 80%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Primary cyclist crossing type across free left turns or segregated left turns – The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
c. Intersection boundary index – The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Figure 70 shows the image of part 9 of the Weightage form. The inputs required in this are explained below:

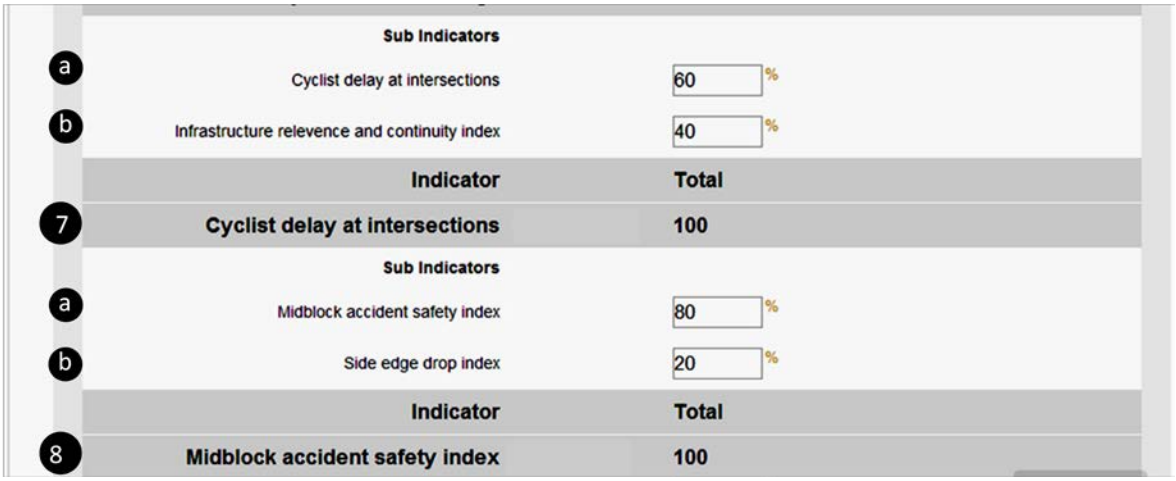


Figure 70: CYLOS for Corridor / Route - Default Form: Weightage, Part 9

7. Cyclist delay at intersections – The values responding to this indicator contributes to the directness cycling principal. This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 70. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Cyclist delay at intersections – The default Weightage provided in the tool is 60%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Infrastructure relevance and continuity index- The default Weightage provided in the tool is 40%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

8. Midblock accident safety index – The values responding to this indicator contributes to the safety cycling principal. This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 70. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Midblock accident safety index – The default Weightage provided in the tool is 80%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Side edge drop index – The default Weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Figure 71 shows the image of part 10 of the Weightage form. The inputs required in this are explained below:

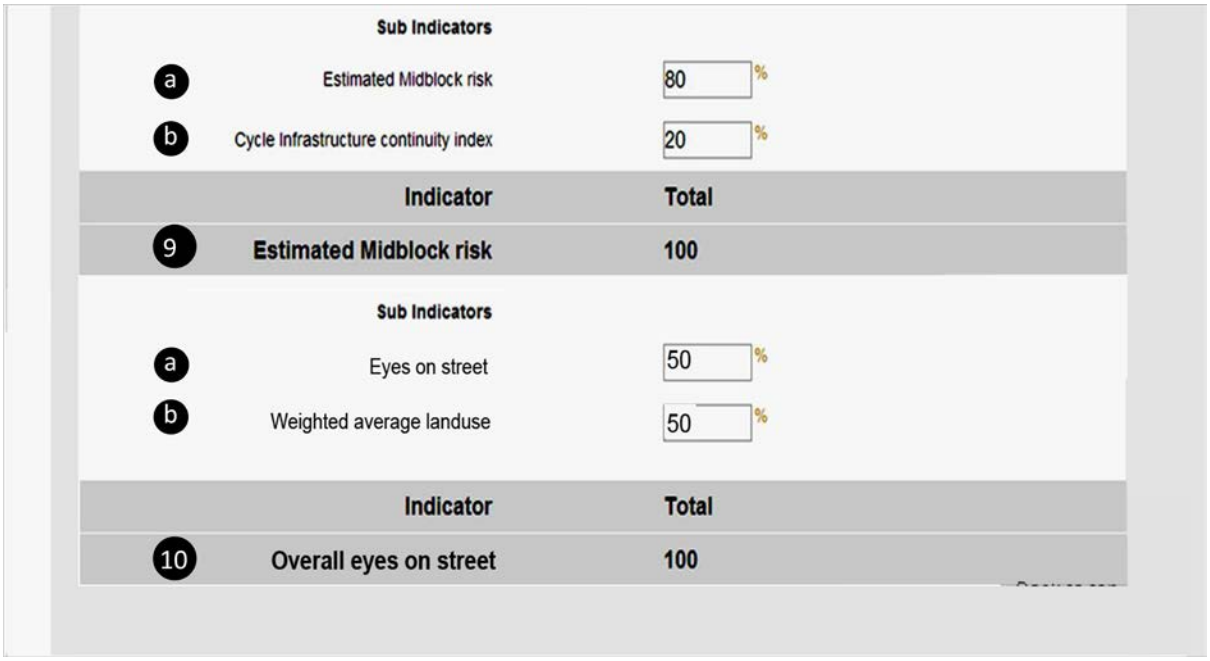


Figure 71: CYLOS for Corridor / Route - Default Form: Weightage, Part 10

9. Estimated Midblock risk – This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 71. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

b. Estimated Midblock risk- The default Weightage provided in the tool is 80%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
c. Cycle Infrastructure continuity index - The default Weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

10. Overall eyes on street - This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 71. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Eyes on street- The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Weighted average landuse- The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

3.2 Evaluation of a Transit Access Influence Area

Prior to explaining input forms in this evaluation category, Figure 72 indicates its features.

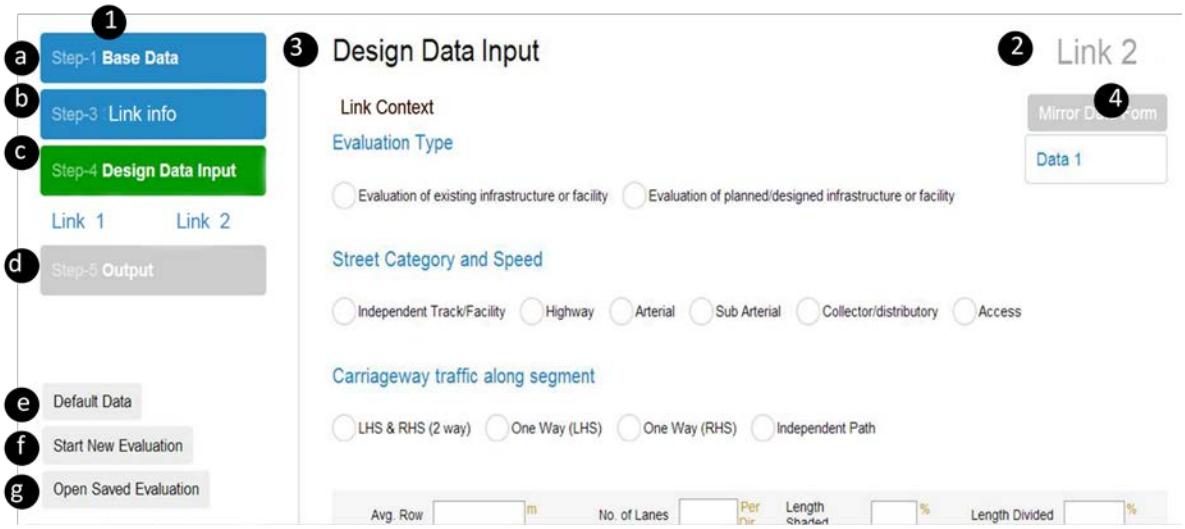


Figure 72: CYLOS for Transit Access Influence Area : Page Layout

1. **Navigation Panel**: The left side of the page is the navigation panel for this evaluation category. The active tab on which the user is working is highlighted in green color. It includes the following tabs:
    a. **Base Data**: This refers to the basic information to be entered by the user.
    b. **Link Information**: This refers to the input values that need to be filled for the various links of the primary link of the transit access influence area.
    c. **Design Data Input**: This refers to the input values that need to be entered by the user for each link. This form has four input forms.

d. **Output**: This refers to the result of the link/overall transit access influence area.
e. **Default Data**: This refers to where default values have been entered.
f. **Start New Evaluation** : Once can start a new evaluation.
g. **Open and Saved Evaluation**: The user can open a saved evaluation sheet to edit/review details.

2. **Name of the Link**– The top right corner shall include the link number which is active and data is being entered.
3. **Name of the form** – The right hand side of the page starts with the name of each form the user is currently working on. The active form is also highlighted in green colour.
4. **Mirror Data** – This appears on the top right corner below the link name, if there is more than one link of the primary link in the transit access influence area. Incase two links are identical in their context/midblock/intersection or miscellaneous inputs, the user can click on this button. The user can chose the name of the link from the list of link (appear below the button). This shall benefit the user of not filling repeated information.

The user should keep in mind that in many input values, the information to be entered is for both the Left Hand Side (LHS) and the Right Hand Side (RHS) of the primary link. These are based on the Indian context and need to be read as per increasing chainage.

3.2.1 Base Data Information

This form has a total of 8 inputs which are being shown and explained in 2 parts in the below sections. Each of the inputs is being assigned with numbers and is elaborated number wise in the respective tables for each part.

Figure 5 shows the image of part 1 of the base information form. The inputs required in this form have been explained below.

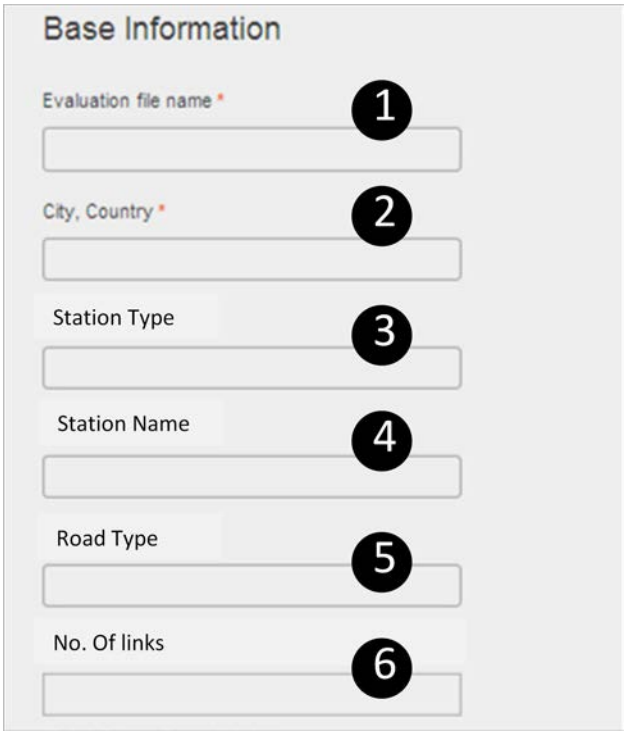


Figure 73 : CYLOS for Transit Access influence area - Base Data Information : Part 1

1. **Evaluation file name**: Enter the name of the Evaluation File. The name should be maximum 12 characters. No alphanumeric characters should be used.

   Example: 'Eval123'

2. **City, Country**: Enter the name of the city and country (separated by a comma) where the project under evaluation is proposed.

   Example: 'Delhi, India'

3. **Station Type**: Enter the type of transit station being evaluated.

   Example : 'Metro'

4. **Station Name:** Enter the name of the transit station being evaluated.

   Example: 'Rajiv Chowk'

5. **Road Type:** Enter the road type on which the transit station being evaluated is located.

   Example: 'Arterial'

6. **No. of links:** Enter the total no. of links in the transit access influence area. The value should be +ve, should be a whole number). The input value must be between 1 to 40.

   Example: '7'no.

   Links are defined as part of the transit access influence area identified as following:

   i. The transit access influence area covers 2500 m radius with the transit stop (of whose access is being evaluated) at the center. The road on which the transit stop is located is called the primary link. This can vary from 5000m – 6250m based on the road alignment. The user should enter the number of links – primary and secondary based on the conditions on the access area, which are as follows:
      a. Length of road between two intersections.
      b. Major parking type variation, i.e. major parking type defines less than 80% of the entire parking along the stretch. ROW width variation greater than ± 20%.
      c. Different street category i.e. arterial, collector, access, highway or standalone/independent cycle track.
      d. Number of lane variation along the segment.
      e. Posted speed limit or observed speed variation more than ± 20% along the stretch.

f. For independent cycle tracks/paths separate segments should be defined for conditions when footpath is common with cycle facility and where footpath is separated.
g. Applicable for min 40m length

ii. There are secondary links which join the primary link from the transit access influence area.

The user has to total only the primary and secondary links and enter the value in no. of links. This has been shown in Figure 74

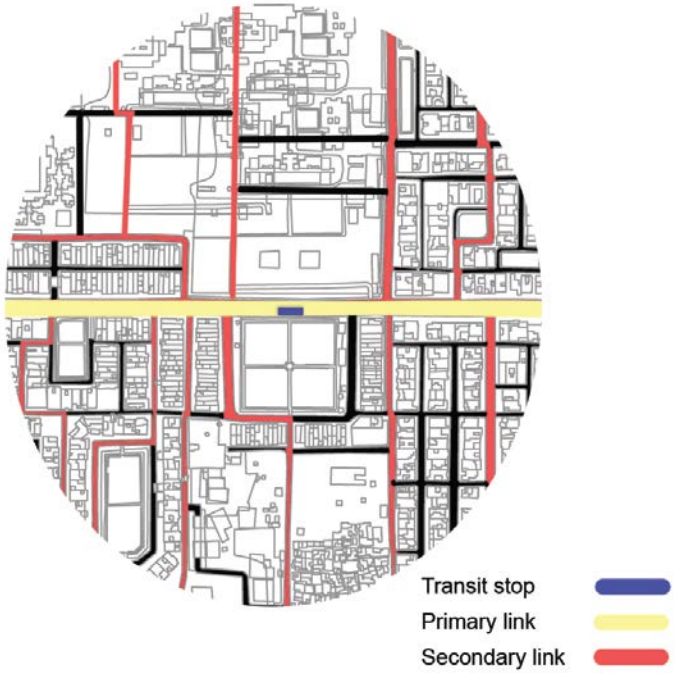


Figure 74:CyLOS for Transit Access Influence Area - Calculation of number of links

Example: '3' no.

Figure 75 shows the image of part 2 of the base information form. The inputs required in this form have been explained below.

Figure 75 : CYLOS for Transit Access influence area - Base Data Information: Part 2

7. **Image:** Upload the image of the transit access influence area with all identified links in another colour. The image should be in jpeg format and less than 1MB in size. Click on 'Choose File' tab and upload file from your system.

3.2.2 Link Information

Figure 76 shows the link information page. The inputs required in this form have been explained below.

Figure 76 : CYLOS for transit access influence area - Link Information

In the next form titled 'Link Information', the user has to fill information of the total number of links that can be identified in the access area based on the definition explained earlier in base data form point no. 6. It has to be kept in mind that the total length of the links should be equal to the diameter of the transit access influence area (5000m – 6250m) explained in base data form point no. 6.

1. **Name**: Enter the name of each segment in this column.

Example: 'L1'; "Part x".

2. **Length:** Enter the length of each segment in this column, in 'km'. The length of each segment should vary from 0.5km to 50 km.

Example: '3 km'

3. **Type and Number of Junctions**: The user has to enter the number of major and minor intersections for each link. This is divided into 5 columns:

    a. **Major Intersection**: Enter the number of major intersections in the link. The user should input whole numbers only and the input value should range between 0 and 500. It should be kept in mind that the link length should be greater than the combined width of the major intersections.

    Example: '2'

    b. **Minor Intersection (LHS)**: Enter the number of minor intersections in the left hand side (LHS) of the link. The user should input whole numbers only and the input value should range between 0 and 500. It should be kept in mind that the link length has

to be greater than the combined length of the major junction, minor junctions and property entrances of either LHS or RHS, whichever is greater.

Example: '5' no.

c. **Minor Intersection (RHS)**: Enter the number of minor intersections in the right hand side (RHS) of the link. The user should input whole numbers only and the input value should range between 0 and 500. It should be kept in mind that the link length has to be greater than the combined length of the major junction, minor junctions and property entrances of either LHS or RHS, whichever is greater.

Example: '3' no.

d. **Property Entrance (LHS):** Enter the number of property entrances in the left hand side (LHS) of the link. The user should input whole numbers only and the input value should range between 0 and 5000.

Example: '5' no.

e. **Property Entrance (RHS):** Enter the number of property entrances in the right hand side (RHS) of the link. The user should input whole numbers only and the input value should range between 0 and 5000.

Example: '7' no.

f. **Pedestrian/NMV Crossing** (signalised): Enter the total number of the signalized safe crossings in the link. The user should input whole numbers only and the input value should range between 0 and 500.

Example: '1' no.

If the user wishes to add more number of segments, select the 'BACK', edit any changes in the previous form and return back to enter the required information.

3.2.3 Design Data Input

This is the third form which includes 4 forms

a. Segment Context
b. Infrastructure at Midblock
c. Infrastructure Design at Intersections and Crossings
d. Miscellaneous

3.2.3.1 Link Context

'Link Context for CyLOS, is the first input form and has a total of 25 inputs which are being shown and explained in 5 parts in the following sections. Each of the inputs is being assigned with numbers and is elaborated number wise.

Figure 77 shows the design data input page. The inputs required in this form have been explained below.

Figure 77 : CYLOS for Transit Access Influence Area – Segment Context – Part 1

1. **Evaluation Type**: Before starting / selecting the appropriate inputs for the infrastructure the user has to select one option out of 'a' or 'b', where,

   a. Evaluation of an existing infrastructure or facility: Indicates that the transit stop being evaluated exists and is operational;

   b. Evaluation of planned/designed infrastructure or facility: Indicates a planned or a designed transit stop, which has not yet been constructed or operational.

2. **Street Category and Speed**: The selection chosen will be related to the type of street and design speed of the link being evaluation i.e. the nature and function of the roadway along this segment. The user has to select only one option out of 'a' to 'f'.
   a. **Independent Track/ Facility**: If link being evaluated is not along any motorized vehicular road (such as bike ways through parks and motor vehicle free streets) then 'a' should be selected.
   b. **Highway**: If this link is cycle facility along a highway then 'b' should be selected. Highways are intercity roads with design speeds and speed limits equal to or higher than 70km/h. If a designated highway is passing through the city and used as a city road, it should not be selected as a highway but as one of the lower hierarchy city roads as applicable.
   c. **Arterial**: For cycle facility along an arterial road 'c' should be selected. Arterial roads have design speeds and speed limits between higher than 30 but lower than 60km/h, and are generally divided and serve to carry mainly through city traffic. If the corridor is a designated highway but the link under evaluation is designed/planned or used as a lower hierarchy road should be selected accordingly. Arterial roads are generally 45m or above in ROW and provide a service lane on one or both sides (for property access).

d. **Sub-Arterial**: If the link ROW is less than 45m but greater than 24m, with through traffic function with mostly divided carriageway and design speeds or speed limits higher than 30km/h, then 'd' should be selected.
e. **Collector/Distributor** If the linkROW is equal to or less than 24m but greater than 12m, and the design speed or speed limit is less than or equal to 30km/h, the road is defined as collector road, in which case 'e' should be selected.
f. **Access**: For links with ROW less than or equal to 15m and design speed or speed limit equal to or less than 20km/h 'f' should be selected.

3. **Carriageway traffic along segment**: This input determines whether the carriageway traffic is moving in which direction on the identified link. Select if the carriageway is one way or 2 ways.
    a. Select if the traffic movement in the carriageway is two way.
    b. Select if the carriageway is one way in the increasing chainage direction.
    c. Select if carriageway is one way in decreasing chainage direction.
    d. Select if the cycle infrastructure in the segment is standalone.

The question shall be 'Not Applicable' automatically if the user selects an independent track/facility in the previous question (Number 2).

Figure 78 shows the part 2 of the link context - design data input page. The inputs required in this form have been explained below.

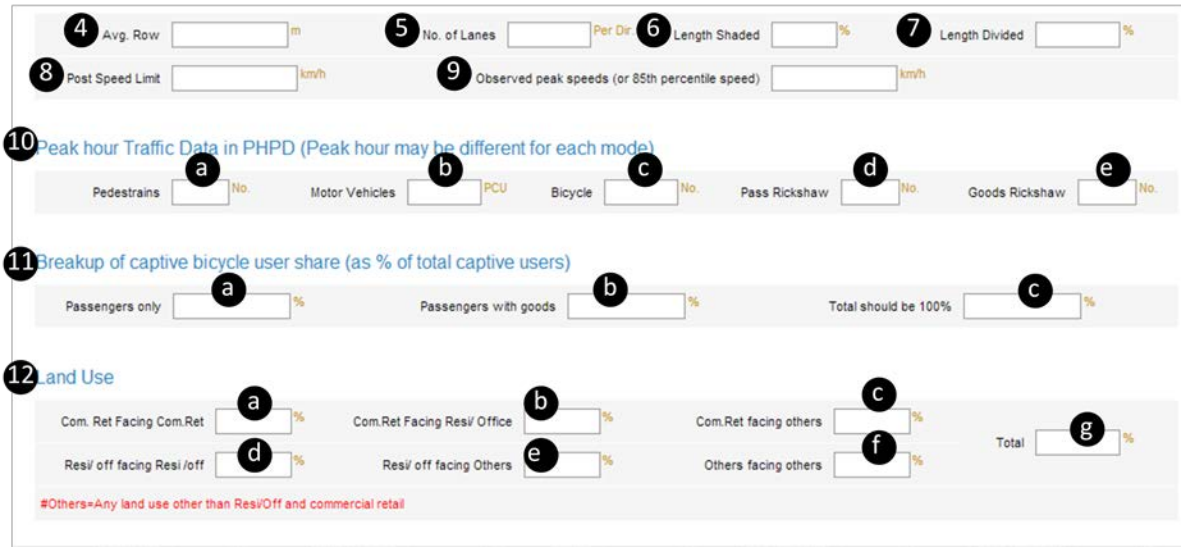


Figure 78 : CYLOS for Transit access influence area – Link Context – Part 2

4. **Average ROW**: Right of way (ROW) refers to the distance between opposite roadway edges or boundary walls on opposite sides of a roadway. The user has to input the Average ROW width for the link being evaluated. It is expected that the variation in ROW widths is not more than ± 20%. For variations more than that, a separate segment should be selected/defined. If standalone/independent cycle track has been selected in Question 2 earlier then enter alphabet 'X' here (without inverted commas) else the input value should range between 2 and 200 and the unit is in 'm'.

5. **No. of Lanes**: Enter the total no. of approximately 3m wide vehicular lanes in each direction. If standalone/independent cycle track is selected i.e. 2a is selected then enter alphabet 'X' here (without inverted commas) else enter a value between 1 and 12. Enter 1 if access or local roads are provided with less than one lane per direction traffic.

6. **Length Shaded**: Enter the % length of expected cycling path that is shaded by trees or other means. Shaded implies, protection from sun and/or rain or protection from critical elements of weather. An average shaded length of the cycling facility on both sides of carriageway should be entered and the input value ranges between 0 and 100 and is in %. If standalone/independent street category has been selected (Link Context -Question2) is selected then the user should enter alphabet 'X' here (without inverted commas).

7. **Length Divided**: Enter the % length of carriageway along the segment that is divided by means of a raised divider or physical segregator. The input value can range between 0 and 100 and is in %. If standalone/independent facility has been selected under street category (Segment Context – question 2), then enter alphabet 'X' as input value (without inverted commas). If total no. of lanes per direction is less than 2, it is assumed that there is no segregation between opposite traffic lanes and hence only '0' as a value is acceptable. If the direction of flow on the carriageway is input as one way direction (Link Context – question 3), no segregator is required and the input value should be 'X'.

8. **Posted Speed Limit**: Enter the posted or legal speed limit for motorized vehicles in km/h. If standalone/independent facility has been selected under street category then enter alphabet 'X' here (without inverted commas) else input value can range between 10 and 120.

9. **Observed peak speeds (or 85th percentile):** Enter the observed peak speeds for motorized vehicles (car specific) in km/h. The input value varies between 10 and 120 and the unit is in km/h. Only if standalone/independent facility has been selected under street category (Link Context – Question 2) then enter alphabet 'X' (without inverted commas) as the input value.

10. **Peak hour traffic data in PHPD (Peak hour may be different for each mode): E**nter the peak hour traffic data for different road users. Input data has to be specific to the peak hour of each user. In some regions, commuter cyclist peak hour is staggered from motor vehicle peak hour.

    a. **Pedestrians:** Enter the number of pedestrians observed per hour per direction during peak hour. The input value can vary between 0 and 50000. In case of a newly planned infrastructure, the user should input the estimated number of pedestrian expected to use the facility in each direction during peak hour.
    b. **Motor Vehicles**: Enter the total PCU of motor vehicular traffic per direction in peak hour. The input value should be between 0 and 50000. In case where standalone/independent facility had been selected under street category (Link Context – Question 3), the user should enter alphabet 'X' here. For a newly planned

infrastructure, the user has to estimate the PCU value of traffic for new roads where no current traffic exists.

c. **Bicycle**: Enter the no. of bicycles (both goods and passengers) observed per hour per direction during peak cycling hour. Enter a value between 0 and 50000. In case of a new planned infrastructure, input the estimated number of cyclist expected to use the facility in each direction during peak hour.
d. **Passenger Cycle Rickshaw**: Enter total number of passenger cycle rickshaws (per hour per direction) during the peak cycling hour. The input value should be between 0 and 50000.
e. **Goods cycle rickshaw**: Enter total number of good cycle rickshaw on the linkper hour per direction during peak cycling hour. Enter a value between 0 and 50000.

11. **Breakup of captive bicycle user share**(as % of total captive users) : The user has to enter the breakup of bicyclist type as percentage of total bicyclists
    a. **Passenger only**: Enter the percentage of cyclists carrying goods such as gas cylinders and other items, out of total number of bicyclists mentioned earlier (Link Context – Question 10(c)). The input value should range between 0 to 100.
    b. **Passenger with goods**: Enter the percentage of passenger cyclist with or without pillion rider, out of the total number of bicyclists quoted in A10b. Input a value between 0 to 100.
    c. Total: No user input is required here. The total of the input values entered in ‘a’& ‘b’ should sum up 100.

12. **Land Use:** This refers to the land use activity abutting the edge of the ROW on both sides along the identified link. Six different land use combinations have been listed (a to f). The user needs to input the percentage of the defined land use type on both the sides of the link (while moving in the order of increasing chainage), as percentage length (of slink) falling under each category. For land use categories which do not exist on the segment, '0' as a value should be input. Do not account for informal activities such as hawking; these are accounted for under Question 21 of link context form. Only activity based land use in built environment, whether formal or informal should be recorded here. Land use percentage under assigned combinations should be entered even if the road carries one way traffic (even if in link context- question 3, one way was selected).

    The land use combinations assigned in the form are basically distributed under three broad categories of land use functions
    - Commercial retail land use,
    - Residential / office land use category, and;
    - Other: Other land use function is comprised of Industrial, institutional, recreational and no function like blank boundary wall, railway line, a nalah /drain with no formal defined activity through any built environment intervention. If the land use along cycle path is green or recreational in nature with easy access to all, then it shall get accounted under category ‘other’. For land use which is green (like parks, etc) but closed with fence or wall, limiting or restricting access, then again it is to be accounted under 'no function' and category ‘Other’ should be chosen. If the land use along cycle path is primarily

industrial consisting of either formal or informal manufacturing units, etc., it gets accounted under industrial and category 'other' should be filled.

The user needs to input the percentage of the following land use type on both the side of the link:

a. **Commercial Retail facing Commercial Retail**: This refers to the percentage of link length which has retail commercial land use on both the side of the link. Such conditions include street/cycle path is primarily commercial with retail character; it should get accounted under this category. Do not account for hawking activity as part of retail based commercial, however if retail is functioning through kiosks or semi-permanent but fixed/static shops then these shall fall under retail based commercial activity. If built environment consists of shops and offices, then these should find place in the category which is the primary road facing/abutting function If the built environment is mix of residential and offices where both activities are less than 80% (each) of the total function, such land use shall fall under Commercial retail land use category.

b. **Commercial Retail facing Residential / Office**: This refers to the percentage of link length occupied by residential as well as office function. Residential can be formal or informal. Hence slum clusters, and land use with primary residential functions will qualify as residential land use. Also all primary office function oriented land use should be accounted under this head.

c. **Commercial Retail facing others**: This refers to the percentage of link length occupied by retail commercial land use and other land use function. Other land use function can be comprised of Industrial, institutional, recreational and No function like blank boundary wall, railway line, a nala/drain with no formal defined activity through any built environment. If the land use along cycle path is green or recreational in nature with easy access to all, then it shall get accounted under this category. For land use which is green but closed off with fence or wall, limiting or restricting access, should be accounted under 'no function' in others category. If the land use along cycle path is primarily industrial consisting of either formal or informal manufacturing units, etc., it gets accounted under industrial in other land use category.

d. **Residential/ Office facing Residential/Office**: This refers to the percentage of link length occupied by residential land use on both the side of the link. Residential can be formal or informal. Slum clusters, and land use with primary residential functions will qualify as residential land use.

e. **Residential/Office facing other**: This refers to the percentage of link length occupied by residential land use and other land use function. Residential can be formal or informal. Slum clusters, and land use with primary residential functions will qualify as residential land use where as other land use function can be comprised of Industrial, institutional, recreational and No function like blank boundary wall, railway line, a nala/drain with no formal defined activity through any built environment.

f. **Others facing others**: This refers to the percentage of link length occupied by other land use functions on both the sides. If the land use along cycle path is primarily industrial consisting of either formal or informal manufacturing units, etc., it gets accounted under industrial in this category. If the land use along cycle path is green or recreational in nature with easy access to all, then it shall get accounted under this category. For land use which is green but closed off with fence or wall, limiting or restricting access, should be accounted under 'no function' in others category.

g. **Total**: No input is required here, system generates total under all categories from a to f. Total should equal 100%.

Figure 79 shows the part 3 of link context form. The inputs required in this form have been explained below.

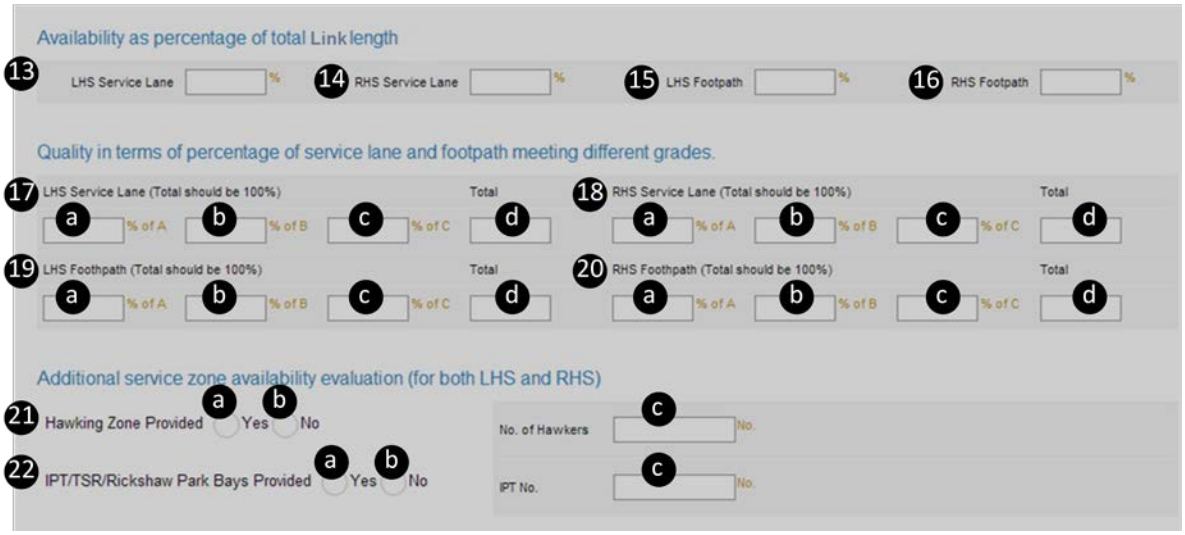


Figure 79 : CYLOS for Transit access influence area –Link Context - Part 3

13. **Availability as percentage of total link length – Service Lane (LHS):** This refers to the availability of service lane on the LHS along the link being evaluated. The user has to enter the value in percentage. Only well defined service lanes, i.e. those visually and physically distinct from carriageway and other functions qualify as service lane (or lanes serving as access function to property).The input value ranges between 0 to 100. The quality of pedestrian paths is accounted for under link context form – question 17 and 18. If the facility or path is a stand alone or independent (Link context – Question 2) then the user should input alphabet 'X' here. Note: Total curb to curb width for service lane should be 3.0m or higher to qualify as a service lane.

14. **Availability as percentage of total link length – Service Lane (RHS):** This refers to the availability of service lane on the RHS along the link being evaluated. The user has to enter the value in percentage. Only well defined service lanes, i.e. those visually and physically distinct from carriageway and other functions qualify as service lane (or lanes serving as access function to property).The input value ranges between 0 to 100. The quality of pedestrian paths is accounted for under link context form- question 17 and 18. If the facility

or path is a stand alone or independent (link context – Question 2) then the user should input alphabet 'X' here. Note: Total curb to curb width for service lane should be 3.0m or higher to qualify as a service lane.

15. **Availability as percentage of total link length – Footpath (LHS):** This refers to the availability of footpath on the LHS along the link being evaluated. The user has to enter the value in percentage. Only well defined footpaths, i.e. those visually and physically distinct from carriageway and other functions qualify as footpath. The quality of pedestrian paths is accounted for under link context form- question 19 and 20. Input should be between 0 to 100. In case of standalone or independent cycle track/facility, where cycle track and footpath are not segregated or are common, cycle track or link length should be treated as the footpath length and the input should be 100. In case of standalone or independent cycle track/facility, where cycle track and footpath are segregated, it is expected that footpath shall only be only on one side of cycling facility/path and hence value in question 15 should equal that of question 16.

16. **Availability as percentage of total link length – Footpath (RHS):** This refers to the availability of footpath on the RHS along the link being evaluated. The user has to enter the value in percentage. Only well defined footpaths, i.e. those visually and physically distinct from carriageway and other functions qualify as footpath. The quality of pedestrian paths is accounted for under segment context form- question 19 and 20. Input should be between 0 to 100. In case of standalone or independent cycle track/facility, where cycle track and footpath are not segregated or are common, cycle track or link length should be treated as the footpath length and the input should be 100. In case of standalone or independent cycle track/facility, where cycle track and footpath are segregated, it is expected that footpath shall only be only on one side of cycling facility/path and hence value in question 15 should equal that of question 16.

17. **Quality in terms of percentage of service lane and footpath meeting different grades - Service Lane (LHS):** Input percentage breakup of total service lane (on LHS) in terms of its quality or grade. Quality or grade of service lane is divided in three categories A, B and C. The total of percentage service lane on LHS falling under these categories should be 100%, if the length of service lane on LHS of the segment is more than 0%.

    a. Enter the percentage of service lane on LHS which corresponds to quality equivalent to grade A or more. Grade A quality entails that a minimum width of service lane is not less than 6.0m anywhere along the length of service lane (on LHS) and there are no movable or immovable obstructions on the service lane, and that the service lane has right slopes for surface drainage and that service lane has excellent surface quality with no need of repairs, and that the service lane has adequate lighting levels of Average 18 lux with 40% uniformity and that the service is separated from the property boundray by a functional footpath with a minimum width of 1.8m . Input alphabet 'X' if no service lane exists on the LHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.

b. Enter the percentage of service lane on LHS which corresponds to quality equivalent to grade B. Grade B quality entails that width of service lane is between 6.0 and 4.5m throughout the length of service lane (on LHS) and there are no movable or immovable obstructions on the service lane, and that the service lane has right slopes for surface drainage and that service lane has excellent surface quality with only minor needs of repairs, and that the service lane has adequate lighting levels of Average 12 lux with 33% uniformity and that the service is separated from the property boundary by a functional footpath with a width between 1.2 to 1.8m throughout the length. Input alphabet 'X' if no service lane exists on the LHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.

c. Enter the percentage of service lane on LHS which corresponds to quality equivalent to grade C. Grade C quality entails that width of service lane is no wider than 4.5m anywhere along the length of service lane (on LHS) or there are movable or immovable obstructions on the service lane, or that the service lane has improper slopes for surface drainage or that service lane has excellent surface quality with only minor needs of repairs, and that the service lane has average lighting levels of less than 15 lux or with less than 33% uniformity or that the service lane is not separated from the property boundary by a functional footpath or if the footpath width is no more than 1.2m throughout the length. Input alphabet 'X' if no service lane exists on the LHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.

d. No input is required, and is system generated. Sum total of percentage of footpath for all three grades should be 100% or the input against all three grades should be 'X'.

18. **Quality in terms of percentage of service lane and footpath meeting different grades - Service Lane (RHS):** The user has to input percentage breakup of total service lane (on RHS) in terms of its quality or grade. Quality or grade of service lane is divided in three categories A, B and C. The total of percentage service lane on RHS falling under these categories should be 100%, if the length of service lane on LHS of the segment is more than 0%.
    a. Enter the percentage of service lane on RHS which correspnds to quality equivalent to grade A or more. Grade A quality entails that a minimum width of service lane is not less than 6.0m any where along the length of service lane (on RHS) and there are no movable or immovable obstructions on the service lane, and that the service lane has right slopes for surface drainage and that service lane has excellent surface quality with no need of repairs, and that the service lane has adequate lighting levels of Average 18 lux with 40% uniformity and that the service is seperated from the property boundray by a functional footpath with a minimum width of 1.8m . Input alphabet 'X' if no service lane exists on the RHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.
    b. Enter the percentage of service lane on RHS which correspnds to quality equivalent to grade B. Grade B quality entails that width of service lane is between 6.0 and

4.5m throughout the length of service lane (on RHS) and there are no movable or immovable obstructions on the service lane, and that the service lane has right slopes for surface drainage and that service lane has excellent surface quality with only minor needs of repairs, and that the service lane has adequate lighting levels of Average 12 lux with 33% uniformity and that the service is seperated from the property boundray by a functional footpath with a width between 1.2 to 1.8m throughout the length. Input alphabet 'X' if no service lane exists on the LHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.

c. Enter the percentage of service lane on RHS which correspnds to quality equivalent to grade C. Grade C quality entails that width of service lane is no wider than 4.5m anywhere along the length of service lane (on RHS) or there are movable or immovable obstructions on the service lane, or that the service lane has improper slopes for surface drainage or that service lane has excellent surface quality with only minor needs of repairs, and that the service lane has average lighting levels of less than 15 lux or with less than 33% uniformity or that the service lane is not seperated from the property boundray by a functional footpath or if the footpath width is no more than 1.2m trhroughout the length. Input alphabet 'X' if no service lane exists on the RHS of roadway/cycle facility or if cycling facility is an independent or a standalone cycle track/facility.

d. No input is required, and is system generated. Sum total of percentage of footpath for all three grades should be 100% or the input against all three grades should be 'X'.

19. **Quality in terms of percentage of service lane and footpath meeting different grades - Footpath (LHS):** The user has to input percentage breakup of total footpath (on LHS) in terms of its quality or grade. Quality or grade of footpath is divided in three categories A, B and C. The total of percentage footpath on LHS falling under these categories should be 100%, if the length of footpath on LHS of the segment is more than 0%.

    a. Enter the percentage of footpath on LHS which corresponds to quality equivalent to grade A or more. Grade A characteristics for footpath are as follows:

        vii. Minimum width of footpath is not less than 1.8m anywhere along the length (on LHS)
        viii. There are no movable or immovable obstructions on the footpath.
        ix. The footpath is not higher than 18cm from road surface.
        x. The footpath has right slopes for surface drainage and that footpath has excellent surface quality with no need of repairs.
        xi. There are no sudden bends or drops along the footpath.
        xii. The footpath is completely barrier free (disabled friendly) throughout its length.

    Input alphabet 'X' if no footpath exists on the LHS of roadway or facility along this segment.

    b. Enter the percentage of footpath on LHS which corresponds to quality equivalent to grade B. Grade B characterises as follows:

vii. Minimum width of footpath is mostly 1.8m or more but is not less than 1.5m anywhere long Grade B length (on LHS)
viii. There is a minimum 1.2m wide clear width available on either side of any movable or immovable obstructions on the footpath.
ix. The footpath is not higher than 20cm from road surface.
x. The footpath has right slopes for surface drainage.
xi. The footpath has excellent surface quality with no or minor need of repairs.
xii. There are no sudden bends or drops along the footpath and the footpath is mostly barrier free (disabled friendly) throughout its length and may or may not include tactile directional pavers, but includes warning tiles for blind.

Input alphabet 'X' if no footpath exists on the LHS of roadway or facility along this segment.

c. Enter the percentage of footpath on LHS which corresponds to quality equivalent to grade C. Grade C characterises as follows:
vi. Maximum width of footpath is not more than 1.5m anywhere along the length (on LHS)
vii. There are movable or immovable obstructions on the footpath with clear walking width of less than 1.2m,
viii. The footpath is higher than 20cm from road surface.
ix. The footpath does not have right slopes for surface drainage or if footpath has poor surface quality with urgent needs of repairs,
x. There are sudden bends or/and drops along the footpath or if the footpath is completely inaccessible to persons with disabilities.

Input alphabet 'X' if no footpath exists on the LHS of roadway or facility along this segment.

d. No input is required, and is system generated. Sum total of percentage of footpath for all three grades should be 100% or the input against all three grades should be 'X'.

20. Quality in terms of percentage of service lane and footpath meeting different grades - Footpath (RHS): The user has to input percentage breakup of total footpath (on RHS) in terms of its quality or grade. Quality or grade of footpath is divided in three categories A, B and C. The total of percentage footpath on RHS falling under these categories should be 100%, if the length of footpath on RHS of the segment is more than 0%.

a. Enter the percentage of footpath on RHS which corresponds to quality equivalent to grade A or more. Grade A characteristics for footpath are as follows:
vii. Minimum width of footpath is not less than 1.8m anywhere along the length (on RHS)
viii. There are no movable or immovable obstructions on the footpath.
ix. The footpath is not higher than 18cm from road surface.
x. The footpath has right slopes for surface drainage and that footpath has excellent surface quality with no need of repairs.

xi. There are no sudden bends or drops along the footpath.
xii. The footpath is completely barrier free (disabled friendly) throughout its length.

Input alphabet 'X' if no footpath exists on the RHS of roadway or facility along this segment.

b. Enter the percentage of footpath on RHS which corresponds to quality equivalent to grade B. Grade B characterises as follows:

vii. Minimum width of footpath is mostly 1.8m or more but is not less than 1.5m anywhere long Grade B length (on RHS)
viii. There is a minimum 1.2m wide clear width available on either side of any movable or immovable obstructions on the footpath.
ix. The footpath is not higher than 20cm from road surface.
x. The footpath has right slopes for surface drainage.
xi. The footpath has excellent surface quality with no or minor need of repairs.
xii. There are no sudden bends or drops along the footpath and the footpath is mostly barrier free (disabled friendly) throughout its length and may or may not include tactile directional pavers, but includes warning tiles for blind.

Input alphabet 'X' if no footpath exists on the RHS of roadway or facility along this segment.

c. Enter the percentage of footpath on RHS which corresponds to quality equivalent to grade C. Grade C characterises as follows:

vi. Maximum width of footpath is not more than 1.5m anywhere along the length (on RHS)
vii. There are movable or immovable obstructions on the footpath with clear walking width of less than 1.2m,
viii. The footpath is higher than 20cm from road surface.
ix. The footpath does not have right slopes for surface drainage or if footpath has poor surface quality with urgent needs of repairs,
x. There are sudden bends or/and drops along the footpath or if the footpath is completely inaccessible to persons with disabilities.

Input alphabet 'X' if no footpath exists on the RHS of roadway or facility along this segment.

d. No input is required, and is system generated. Sum total of percentage of footpath for all three grades should be 100% or the input against all three grades should be 'X'.

21. **Additional service zone availability evaluation(for both LHS and RHS) – Provision of Hawking Zone :** This defines if the segment has a provision or a dedicated space for hawking activity in line with the existing demand and location for hawking activity.
    a. Select ‘Yes’ if more than 80% of hawkers have been accounted for in the planning process i.e. while carving out and designing spaces for hawkers.

b. Select 'No' if less than 80% of hawkers have been accounted for in the planning process i.e. while carving out and designing spaces for hawkers.

c. Input the number of hawkers observed (total for both LHS and RHS) observed during any single peak hour of the day. Input a value between 0 and 10000.

22. **Additional service zone availability evaluation (for both LHS and RHS) – Provision of iPT/TSR/Rickshaw Parking bays:** This defines if the segment has a provision or a dedicated space for feeder services like Intermediate public transport (IPT) systems such as three wheeled auto rickshaw (TSR) and cycle rickshaw, in line with the existing demand and location for the same along the segment.

a. Select 'Yes' if more than 80% of IPT demand has been accounted for in the planning process i.e. while carving out and designing spaces for formal auto rickshaw and cycle rickshaw parking and drop-off bays.

b. Select 'No' if less than 80% of IPT demand has been accounted for in the planning process i.e. while carving out and designing spaces for formal auto rickshaw and cycle rickshaw parking and drop-off bays.

c. Input the total number of parked IPT observed (total for both LHS and RHS) observed during any single peak hour of the day. Input a value between 0 and 500.

Figure 11 shows the design data input page. The inputs required in this form have been explained below.

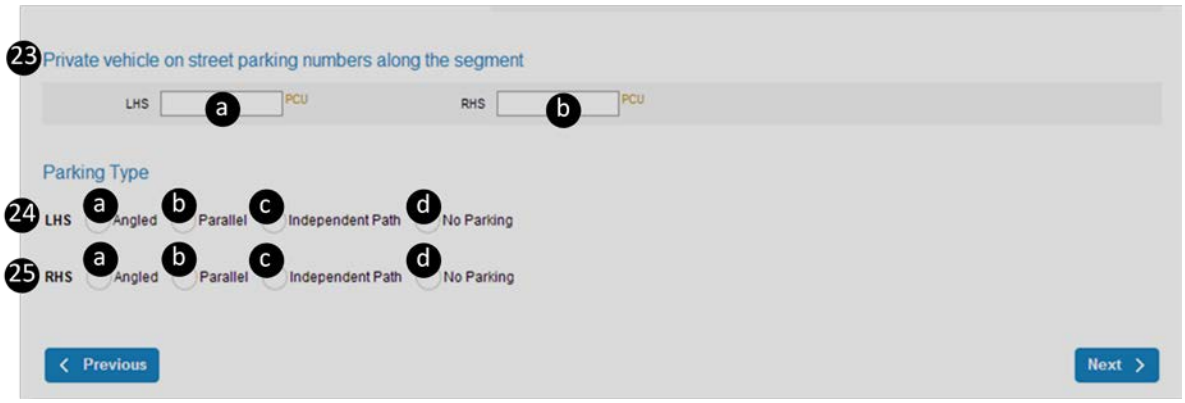


Figure 80: CyLOS for Transit Access Influence Area – Link Context – Part 4

26. **Private Vehicle on street parking (numbers along the segment)**:This refers to the total number of vehicles that are parked on the street. The user has to enter this value in PCU. The value varies between 0 and the maximum value based on the parking type, where, the total parking length should not exceed the usable segment length. The system shall generate an error if the maximum value in any case is more than 50000.

a. **LHS** : The user has to input the total number of private vehicles observed to be parked on LHS of carriageway, either in formal on street parking or informally/illegally at any time during peak hours. Insert the value as passenger car unit (PCU). If standalone/independent cycle facility is being evaluated in this segment, no private vehicular parking is expected and hence in put the alphabet 'X' in that case.

b. RHS : The user has to input the total number of private vehicles observed to be parked on RHS of carriageway, either in formal on street parking or informally/illegally at any

time during peak hours. Insert the value as passenger car unit (PCU). If standalone/independent cycle facility is being evaluated in this segment, no private vehicular parking is expected and hence in put the alphabet 'X' in that case.

27. **Parking Type (LHS):** This refers to the primary or majority (i.e. more than 80%) of observed parking type on LHS of carriageway or cycle facility. Select between (a), (b) or (c) (d).

a. **Angled** :Select if the majority parking type is perpendicular or angled (more than or equal to 30 degree parking)
b. **Parallel**: Select if the majority parking type is parallel to the carriageway (less than 30 degree from the curb edge)
c. **Segregated Parking** : Select if the majority parking type is segregated parking facility, i.e. no vehicular carriageway exists
d. **No Parking**: Select if there is no parking observed

28. **Parking Type (RHS)**: Indicate the primary or majority (i.e. more than 80%) of observed parking type on LHS of carriageway or cycle facility. Select between (a), (b) or (c) (d).

a. **Angled** :Select if the majority parking type is perpendicular or angled (more than or equal to 30 degree parking)
b. **Parallel**: Select if the majority parking type is parallel to the carriageway (less than 30 degree from the curb edge)
c. **Segregated Parking**: Select if the majority parking type is segregated parking facility, i.e. no vehicular carriageway exists
d. **No Parking**: Select if there is no parking observed

After the above 25 inputs the user can press 'Next' and go to the second design data input form i.e. infrastructure at mid block.

3.2.3.2 Infrastructure at Mid-Block

'Infrastructure at Mid-Block' for CyLOS, is the second input form and has a total of 19 inputs which are being shown and explained in 4 parts in the below sections. Each of the inputs is being assigned with numbers and is elaborated number wise in the respective tables for each part.

Figure 81 shows the part 1of infrastructure at mid block. The inputs required in this form have been explained below.

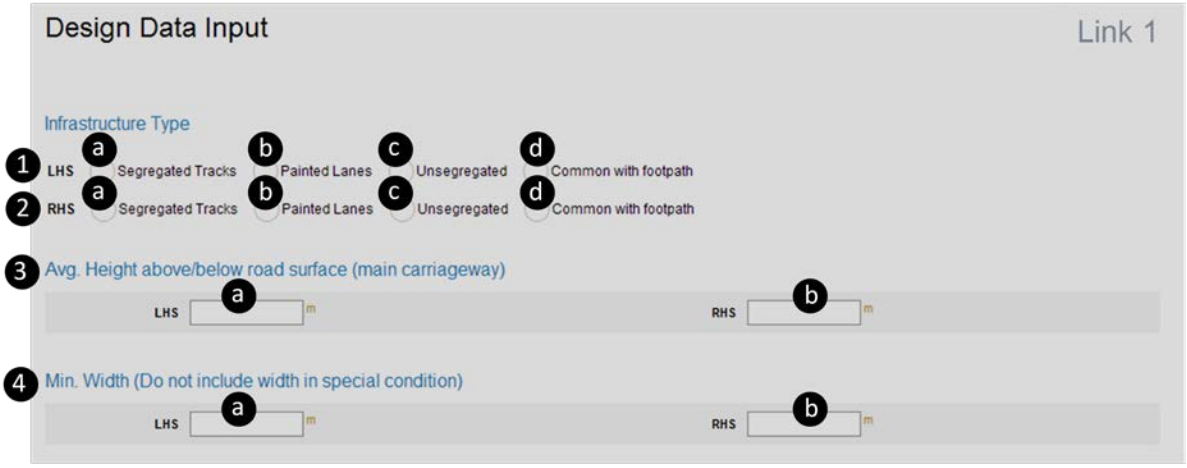


Figure 81: CYLOS for Transit Access Influence Area – Infrastructure at Midblock – Part 1

The details of the numbers (1 to 4) shown in the above figure are being tabulated below:

1. **Infrastructure Type (LHS)**: This defines the type of infrastructure provided for the cyclist on the left Hand Side (LHS) of the link. Only one option out of 'a', 'b', 'c' or 'd' can be selected. Each option has been explained below:
    a. **Segregated Tracks**: The user should select if the type of cycle infrastructure being evaluated is physically segregated from carriageway, footpath and service lane.
    b. **Painted Lanes**: The user should select if the type of cycle infrastructure being evaluated is not physically segregated from carriageway and instead it is a painted track along carriageway on LHS.
    c. **Unsegregated**: The user should select if the type of cycle infrastructure being evaluated is physically unsegregated from carriageway or service lane.
    d. **Common with footpath**: The user should select if type of cycle infrastructure being evaluated is a combined with footpath

2. **Infrastructure Type (RHS)**: This defines the type of infrastructure provided for the cyclist on the Right Hand Side (RHS) of the link. Only one out of 'a','b','c'or 'd' can be selected. Each option has been explained below:
    a. **Segregated Tracks**: Select if the type of cycle infrastructure being evaluated is physically segregated from carriageway, footpath and service lane on RHS.
    b. **Painted Lanes**: Select if the type of cycle infrastructure being evaluated is not physically segregated from carriageway and instead it is a painted track along carriageway on RHS.
    c. **Unsegregated:** Select if the type of cycle infrastructure being evaluated is physically unsegregated from carriageway or service lane on RHS.
    d. **Common with footpath:** Select if type of cycle infrastructure being evaluated is a combined with footpath on RHS.

3. **Average Height of the cycle track/lane above/below road surface (main carriageway):** The average height of the cycle infrastructure being evaluated with respect to the main carriageway road level should be input in millimetres, separately for LHS and RHS. The cycle infrastructure can be above or below the main carriageway road level. If the infrastructure is

below the carriageway level then (-) should be put before the value being input. If the infrastructure is above the carriageway level then the value has to be input.

a. Enter the average height of the cycle infrastructure on the LHS w.r.t the main carriageway in millimetres. Use a '-'sign if input value is below the main carriageway.
b. Enter the average height of the cycle infrastructure on the RHS w.r.t from the main carriageway in millimetres. Use a '-'sign if input value is below the main carriageway.

4. **Minimum width (does not include width in special conditions**): This defines the minimum width of the cycle infrastructure being evaluated excluding any special conditions. Special conditions imply any condition in the link that has different characteristics due to presence of a flyover, ROB, underpass, etc.
    a. Minimum width of the cycle infrastructure being evaluated on LHS should be entered if the type of infrastructure selected is 'Segregated Tracks' i.e. question 1(a). This width should not include the minimum width of special conditions. Special conditions implies any condition in the link being evaluated which is part of the segment but has different characteristics due to presence of a flyover, ROB, Underpass, etc. This has been explained in greater details as part of next form. If the type of infrastructure selected is not 'Segregated Tracks' i.e. other than question 1(a) then enter alphabet 'X' (without inverted commas) should be entered.
    b. Minimum width of the cycle infrastructure being evaluated on RHS should be entered if the type of infrastructure selected is 'Segregated Tracks' i.e. question 1(a). This width should not include the minimum width of special conditions. Special conditions implies any condition in the link being evaluated which is part of the segment but has different characteristics due to presence of a flyover, ROB, Underpass, etc. This has been explained in greater details as part of next form. If the type of infrastructure selected is not 'Segregated Tracks' i.e. other than than question 1(a) then enter alphabet 'X' should be entered.

Figure 82 shows the infrastructure at mid block form – part 2. The inputs required in this form have been explained below.

Figure 82 : CYLOS for Transit Access Influence Area – Infrastructure at Midblock – Part 2

5. **Primary Location of Track/Lane on Cross Section (LHS):** This refers to the primary location of the cycle track/lane in the LHS of the cross section of the link being evaluated. Only one out of 'a', 'b', 'c', 'd', 'e', 'f', or 'g' can be selected. Each option has been explained below:
    a. **Along carriageway (Main MV Lane):** Select if the primary location of track/lane being evaluated is along carriageway on the cross section on LHS.
    b. Along Footpath (footpath separates from carriageway): Select if the primary location of track/lane being evaluated is along footpath and footpath separates the carriageway and the cycle track on the cross section on LHS.
    c. **Along property edge**: Select if the primary location of track/lane being evaluated is along property edge on the cross section, does not have a service lane on other side and footpath separates the cycle track from property edge on LHS.
    d. **On the median**: Select if the primary location of track/lane being evaluated is on the median of the carriageway on the cross section on LHS.
    e. **Between on street parking and carriageway**: Select if the primary location of track/lane being evaluated is between service lane and property edge on the cross section on LHS.
    f. **Between service lane and property edge**: Select if the primary location of track/lane being evaluated is between service lane and property edge where footpath may or may not separate the cycle track from property edge on LHS.
    g. **Independent or standalone**: Selected if the primary location of track/lane being evaluated is independent or standalone on the cross section being on LHS. In case if the user has selected "independent/standalone facility in 'link context form, question 2a, then the user should select this option.

6. **Primary Location of Track/Lane on Cross Section (RHS):** This refers to the primary location of the cycle track/lane in the RHS of the cross section of the segment being evaluated. Only one out of 'a','b','c', 'd', 'e', 'f', or 'g' can be selected.
    a. **Along carriageway (Main MV Lane**): Select if the primary location of track/lane being evaluated is along carriageway on the cross section on RHS.
    b. **Along Footpath (footpath separates from carriageway)**: Select if the primary location of track/lane being evaluated is along footpath and footpath separates the carriageway and the cycle track on the cross section on RHS.
    c. **Along property edge**: Select if the primary location of track/lane being evaluated is along property edge on the cross section, does not have a service lane on other side and footpath separates the cycle track from property edge on RHS.
    d. **On the median**: Select if the primary location of track/lane being evaluated is on the median of the carriageway on the cross section on RHS.
    e. **Between on street parking and carriageway**: Select if the primary location of track/lane evaluated is between on street parking and carriageway on the cross section being on RHS.
    f. **Independent or standalone**: Select if the primary location of track/lane being evaluated is between service lane and property edge where footpath may or may not separate the cycle track from property edge on RHS.
    g. **Independent or standalone**: Select if the primary location of track/lane being evaluated is independent or standalone on the cross section being on RHS. In case if

the user has selected “independent/standalone facility “in link context form, question 2a, then the user should select this option.

7. **Primary Segregation Type from carriageway(LHS):** This refers to the primary type of segregation of the cycle track/lane from carriageway on the LHS. Only one out of 'a','b','c', 'd', 'e', 'f', or 'g' can be selected. Each option has been explained below:
    a. **Not along Carriageway**: Select if the primary segregation type from carriageway of track/lane being evaluated is not along carriageway on LHS.
    b. **Not Segregated**: Select if the primary segregation type from carriageway of track/lane being evaluated is not segregated from carriageway on LHS.
    c. **Paint Marking**: Select if the primary segregation type from carriageway of track/lane being evaluated is through paint marking on LHS.
    d. **Reflector Studs**: Select if the primary segregation type from carriageway of track/lane being evaluated is through reflector studs on LHS.
    e. **Raised Median**: Select if the primary segregation type from carriageway of track/lane being evaluated is by raised median on LHS.
    f. **Green Belt**: Select if the primary segregation type from carriageway of track/lane being evaluated is by green belt on LHS.
    g. **Open Drain**: Select if the primary segregation type from carriageway of track/lane being evaluated is by an open drain on LHS.
    h. **Vertical surface higher than 180mm:** Select if the primary segregation type from carriageway of track/lane being evaluated is by any vertical surface higher than 180mm on LHS.
    i. **Segregation width**: The user should enter the width of the segregation of track/lane being evaluated from the carriageway on LHS in metres. The input value varies between 0 and 10. Also, if the track/lane being evaluated is not segregated from the carriageway i.e. option 1(a) is not selected on LHS then alphabet 'X' (without inverted commas) should be entered

8. **Primary Segregation Type from carriageway(RHS) :** This refers to the primary type of segregation of the cycle track/lane from carriageway on the RHS. Only one out of 'a','b','c', 'd', 'e', 'f', or 'g' can be selected. Each option has been explained below:
    a. **Not along Carriageway**: Select if the primary segregation type from carriageway of track/lane being evaluated is not along carriageway on RHS.
    b. **Not Segregated**: Select if the primary segregation type from carriageway of track/lane being evaluated is not segregated from carriageway on RHS.
    c. **Paint Marking**: Select if the primary segregation type from carriageway of track/lane being evaluated is through paint marking on RHS.
    d. **Reflector Studs**: Select if the primary segregation type from carriageway of track/lane being evaluated is through reflector studs on RHS.
    e. **Raised Median**: Select if the primary segregation type from carriageway of track/lane being evaluated is by raised median on RHS.
    f. **Green Belt**: Select if the primary segregation type from carriageway of track/lane being evaluated is by green belt on RHS.

g. **Open Drain**: Select if the primary segregation type from carriageway of track/lane being evaluated is by an open drain on RHS.
h. **Vertical surface higher than 180mm:** Select if the primary segregation type from carriageway of track/lane being evaluated is by any vertical surface higher than 180mm on RHS.
i. **Segregation width**: The user should enter the width of the segregation of track/lane being evaluated from the carriageway on RHS in metres. The input value varies between 0 and 10. Also, if the track/lane being evaluated is not segregated from the carriageway i.e. option 1(a) is not selected on RHS then alphabet 'X' (without inverted commas) should be entered

Figure 83 shows the part 3 of infrastructure at mid block. The inputs required in this form have been explained below.

Figure 83: CYLOS for Transit Access Influence Area – Infrastructure at Midblock – Part 3

9. **Primary Surface Type (LHS):** This refers to the primary surface type of the cycle track/lane in LHS of the segment being evaluated. Only one out of 'a','b','c', 'd' or 'e' can be selected. The options have been explained below:
    a. **Asphalt**: Select if the primary surface type of track/lane being evaluated is Asphalt on LHS.
    b. **Concrete (in situ)**: Select if the primary surface type of track/lane being evaluated is Concrete (in situ) on LHS.
    c. **Smooth tiles**: Select if the primary surface type of track/lane being evaluated is smooth tiles on LHS.
    d. **Rough finish paver blocks**: Select if the primary surface type of of track/lane being evaluated is rough finish paver blocks on LHS.
    e. **Concrete Slab (such as drain cover)**: Select if the primary surface type of track/lane being evaluated is Concrete slabs on LHS.

10. **Primary Surface Type (LHS):** This refers to the primary surface type of the cycle track/lane in RHS of the segment being evaluated. Only one out of 'a','b','c', 'd' or 'e' can be selected. The options have been explained below:
    a. **Asphalt**: Select if the primary surface type of track/lane being evaluated is Asphalt on RHS.
    b. **Concrete (in situ)**: Select if the primary surface type of track/lane being evaluated is Concrete (in situ) on RHS.

c. **Smooth tiles**: Select if the primary surface type of track/lane being evaluated is smooth tiles on RHS.
d. **Rough finish paver blocks**: Select if the primary surface type of track/lane being evaluated is rough finish paver blocks on RHS.
e. **Concrete Slab (such as drain cover)**: Select if the primary surface type of track/lane being evaluated is Concrete slabs on RHS.

11. **Primary adjacent vertical height:** This refers to the adjacent vertical height on the left and the right hand side of the cycle track/lane. The value to be entered can be in the range of -2000mm to 2000mm. The user has to add a '-'sign where the adjacent height is lower than the cycle track/lane. Left and right side should be considered in terms of increasing chainage.
    a. **LHS (Left)**: The user has to input the value of primary adjacent vertical edge height on left side of the LHS track/lane being evaluated.
    b. **LHS (Right):** The user has to enter the value of primary adjacent vertical edge height on right side of the LHS track/lane being evaluated. In case of right hand side of the LHS, if the width of segregation is '0' of the track/lane being evaluated from the carriageway and the track/lane being evaluated is below the road surface then the value to be entered would be a whole number. Again, in case of right hand side of the LHS if the width of segregation is '0' of the track/lane being evaluated from the carriageway and the track/lane being evaluated is above the road surface then the value to be entered would be a negative (-) number.
    c. **RHS (Left):** The user has to input the value of primary adjacent vertical edge height on left side of the RHS track/lane being evaluated is to be entered
    d. **RHS (Right):** The user has to enter the value of primary adjacent vertical edge height on right side of the RHS track/lane being evaluated. In case of right hand side of the RHS if the width of segregation is '0' of the track/lane being evaluated from the carriageway and the track/lane being evaluated is below the road surface then the value to be entered would be a whole number. Again, in case of right hand side of the RHS if the width of segregation is '0' of the track/lane being evaluated from the carriageway and the track/lane being evaluated is above the road surface then the value to be entered would be a negative (-) number.

Figure 84 shows the part 4 of infrastructure at mid block. The inputs required in this form have been explained below.

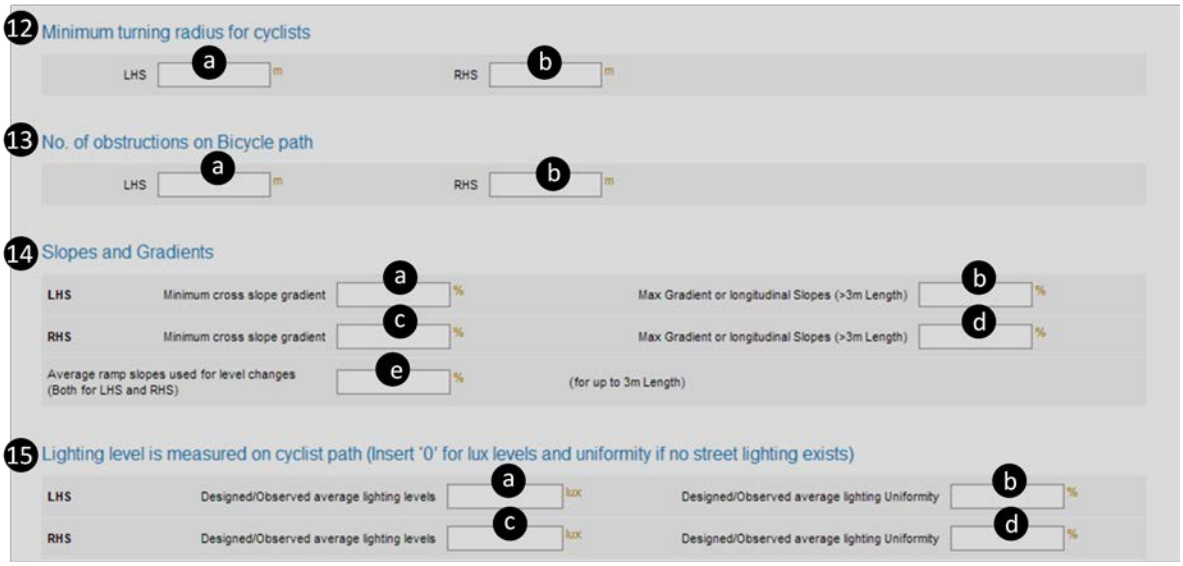


Figure 84 : CYLOS for Transit Access Influence Area – Infrastructure at Midblock – Part 4

12. **Minimum Turning Radius for Cyclists:** This refers to the minimum turning radius used for cyclists. The value can vary between 0 and 300 and is in meters.
    a. **LHS**: The user has to input the value in metres for minimum turning radius on LHS on the track/lane being evaluated.
    b. **RHS**: The user has to enter the value in metres for minimum turning radius on RHS on the track/lane being evaluated.

13. **No. of Obstructions on Bicycle Path:** This refers to the obstructions that are located on the cycle path (track / lane). The obstructions can be static as well as dynamic in nature. For example, static obstructions would include obstructions such trees, structures, poles, sign posts, etc. Similarly, dynamic obstructions could include hawkers, parking, gatherings, etc. The input value is a number and can vary between 0 and 10000.
    a. **LHS:** The user has to enter the number of obstructions on LHS on the track/lane being evaluated.
    b. **RHS**: The user has to input the number of obstructions on RHS on the track/lane being evaluated.

14. **Slopes and Gradients:** This refers to the various slopes and gradients on the cyclist path. The unit is in percentage and the value can vary between 0 and 100.
    a. **Minimum Cross Slope Gradient (LHS):** The user has to input the percentage value of minimum cross slope gradient on LHS on the track/lane being evaluated is to be entered.
    b. **Maximum gradient or longitudinal slope (for the length greater than 3m, LHS):** The user has to input the percentage value of maximum gradient or longitudinal slope (for the length greater than 3m) on LHS on the track/lane being evaluated is to be entered.
    c. **Minimum Cross Slope Gradient (RHS):** The user has to input the percentage value of minimum cross slope gradient on RHS on the track/lane being evaluated is to be entered.

d. **Maximum gradient or longitudinal slope (for the length greater than 3m, RHS):** The user has to input the percentage value of maximum gradient or longitudinal slope (for the length greater than 3m) on RHS on the track/lane being evaluated is to be entered.
e. **Average ramps slopes used for level changes (both for LHS and RHS):** The user has to input the percentage value of average slope for level changes of both LHS and RHS for the lengths of upto 3m for track/lane being evaluated has to be entered.

15. **Lighting level measured on cyclist path:** This refers to the lighting level which is measured on the cyclist path. The unit is lux and the value can vary between 0 and 100.
    a. **Designed/observed average lighting levels (LHS)**: The user has to input the average value of designed/observed lighting levels in 'Lux' for LHS on track/lane being evaluated has to be entered.
    b. Designed/observed average uniformity levels (LHS):The user has to input the average percentage value of designed/observed lighting uniformity for LHS on track/lane being evaluated has to be entered.
    c. **Designed/observed average lighting levels (RHS)**: The user has to input the average value of designed/observed lighting levels in 'Lux' for RHS on track/lane being evaluated has to be entered.
    d. **Designed/observed average uniformity levels (RHS):**The user has to input the average percentage value of designed/observed lighting uniformity for RHS on track/lane being evaluated has to be entered.

Figure 85 shows the part 5of infrastructure at mid block. The inputs required in this form have been explained below.

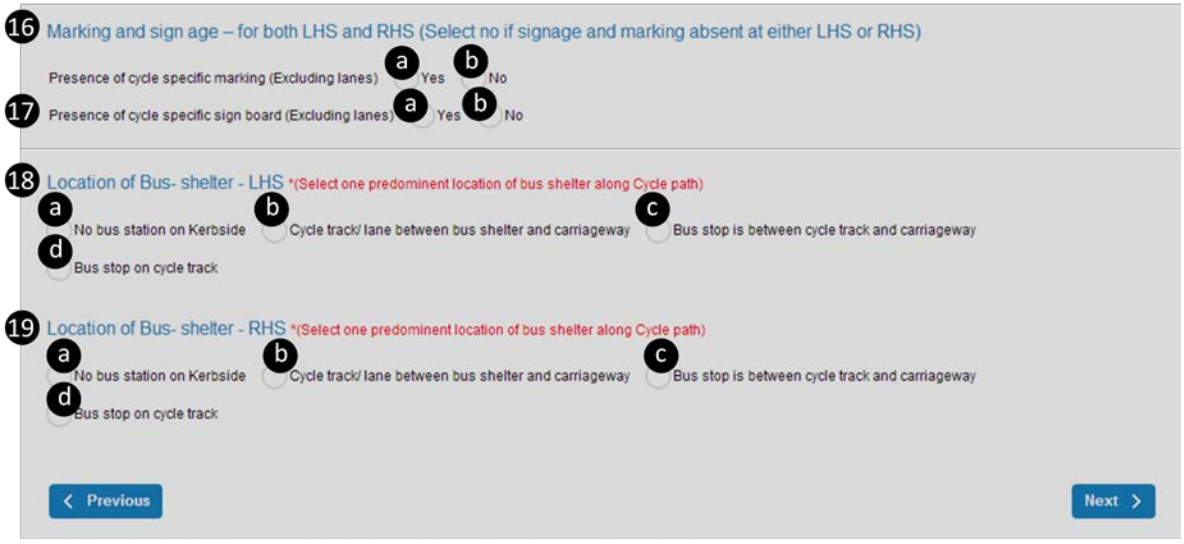


Figure 85: CYLOS for Transit Access Influence Area – Infrastructure at Midblock – Part 5

16. **Marking and Signage - Presence of cycle specific marking**: This refers to the presence of cycle specific marking excluding lane markings such as cycle box, etc. for both LHS and RHS on the track/lane being evaluated. It does not include cycle specific markings on major and minor junctions Either one of 'a' or 'b' can be selected.

a. Select if markings are present on the track/lane being evaluated.
b. Select if markings are NOT present on the track/lane being evaluated.

17. **Marking and Signage - Presence of cycle specific sign boards:** This refers to the presence of cycle specific sign boards for both LHS and RHS on the track/lane being evaluated and does not include cycle specific sign boards at major and minor intersections. Either one 'a' or 'b' can be selected.
    a. Select if cycle specific sign boards are present on the track/lane being evaluated
    b. Select if cycle specific sign boards are NOT present on the track/lane being evaluated

18. **Location of bus shelter (LHS):** This refers to the location of bus shelters for LHS on the cycle track/lane being evaluated. Only one out of 'a','b','c'or'd' can be selected. The options have been explained below:
    a. Select if there is no bus stop on kerb side and will be applicable in case if Stand alone or independent track is selected in segment context form.
    b. Select if the cycle track / lane exists between bus shelter and the carriage way.
    c. Select if the bus stop exists between cycle track and carriage way
    d. Select if bus stop is on the cycle track / lane.

20. **Location of bus shelter (RHS):** This refers to the location of bus shelters for RHS on the cycle track/lane being evaluated. Only one out of 'a','b','c'or'd' can be selected. The options have been explained below:
    a. Selected if there is no bus stop on kerb side and will be applicable in case if Stand alone or independent track is selected in segment context form.
    b. Select if the cycle track / lane exists between bus shelter and the carriage way.
    c. Select if the bus stop exists between cycle track and carriage way
    d. Select if bus stop is on the cycle track / lane.

3.2.3.3 Infrastructure Design at Intersections and Crossings

This user input form focuses on infrastructure design at intersections and crossings for the identified link.

Figure 86 shows the design data input page. This form relates to Link Information form. Incase the user has a link with no major junctions, minor junctions and property entrances, safe crossing, the user needs to fill options like 'Not Applicable', 'No' and 'x' as listed in each question. However, if the input value in link information for major junction, minor junction, property entrance and safe crossing is more than 0, the user has to inputs the following which explained below.

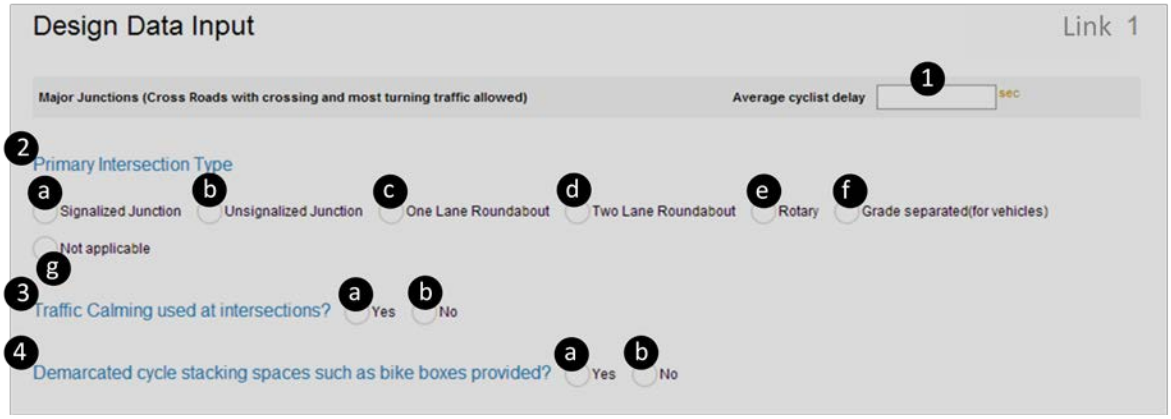


Figure 86: CYLOS for Transit Access Influence Area – Infrastructure at Intersection & Crossings – Part 1

Major junctions

1. **Average Cyclist delay at major junctions**: This refers to the average delay for cyclists at major intersection(s) on the link being evaluated. The input value varies between 0 and 1000 seconds. The major intersections on the segment being evaluated are those intersections on which right turn and/or cross traffic is allowed. Incase, the user has entered '0'as input value in segment information- major intersections (link info – 3a), the user should enter '0' as input value here.

2. **Primary Intersection Type**: This refers to the type of major intersection for the link being evaluated. The user has to select one of the categories below:
    a. Signalised Junction
    b. Un-Signalised Junction
    c. One Lane Roundabout
    d. Two Lane Roundabout
    e. Rotary
    f. Grade Separated (for vehicles)
    g. Not Applicable – Select if the user has entered '0'as input value in segment information- major intersections (Ref link information – 3a).

3. **Traffic Calming Used at Intersections**: This refers to the use of traffic calming measures like speed humps, raised crossings, etc at intersections. The user needs to select one of the following:
    a. Select 'Yes' if traffic calming has been used at the major junction of the segment being evaluated.
    b. Select 'No' if traffic calming has not been used at the major junction of the segment being evaluated. Incase, the user has entered '0'as input value in link information- major intersections (Ref link information – 3a), the user should select 'No'.

4. **Demarcated cycle stacking spaces such as bike boxes provided**: This refers to the provision of cycle stacking spaces or waiting areas called cycle boxes at the junction for cyclists to wait for green signal to move ahead of motorised traffic. The user needs to select one of the following:

a. Select 'Yes' if demarcated cycle stacking spaces such as bike boxes have been provided at the major junction of the link being evaluated.
b. Select 'No' if demarcated cycle stacking spaces such as bike boxes have not been provided at the major junction of the link being evaluated. Incase, the user has entered '0'as input value in link information- major intersections (Ref link information – 3a), the user should select 'No'.

Figure 87 shows the design data input page. The inputs required in this form have been explained below.

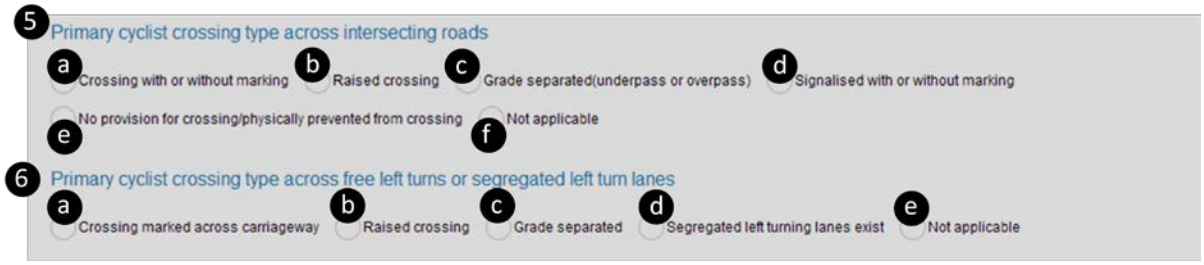


Figure 87 : CYLOS for Transit Access Influence Area – Infrastructure at Intersection & Crossings – Part 2

5. **Primary Cyclist crossing type across intersecting roads**: This refers to the primary type of crossing available on the major intersection of the link being evaluated. The user has to select one of the categories below:
    g. Crossing with or without marking: Provision of marking for cyclists to cross the road. This may be along with at grade pedestrian crossing or a separate provision of cycle marking to cross. Select this option, incase no marking is provided.
    h. Raised crossing: Provision of table top crossings.
    i. Grade separated (underpass or overpass)
    j. Signalised (with or without marking)
    k. No provision for crossing / physically prevented from crossing
    l. Not applicable - Select if the user has entered '0'as input value inlink information- major intersections (Ref link information – 3a).

6. **Primary cyclist crossing across free left turns or segregated left turns**: This refers to the type of crossing provision for cyclists across free left turns or segregated left turns at intersections. The user has to select one of the categories below:
    a. **Crossing marked across carriageway**: the type of primary crossing across free left turns or segregated left turns on the major junction of the link being evaluated is crossing marked across carriageway
    b. **Raised Crossing**: the type of primary crossing across free left turns or segregated left turns on the major junction of the segment being evaluated is raised crossing.
    c. **Grade Separated** : the type of primary crossing across free left turns or segregated left turns on the major junction of the segment being evaluated is grade separated (underpass or overpass).
    d. **Segregated left turning lanes exist** : the type of primary crossing across free left turns or segregated left turns exists as segregated left turning lane on the major junction of the segment being evaluated is grade separated (underpass or overpass).

e. **Not applicable**: Select if the user has entered ‘0’as input value in segment information- major intersections (Ref segment information – 3a).

Figure 88 shows the part 3 of the infrastructure design at intersections and crossings page. The inputs required in this form have been explained below.

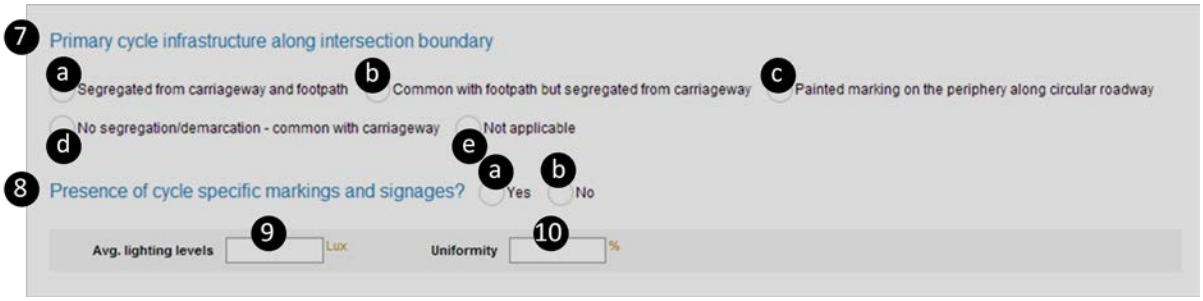


Figure 88: CYLOS for Transit Access Influence Area – Infrastructure at Intersection & Crossings – Part 3

7. **Primary cycle infrastructure along intersection boundary**: This refers to the type of cycle infrastructure along intersection boundary. Only one out of 'a','b', 'c' or 'd' can be selected.
    a. **Segregated from carriageway and footpath**: Select if the type of primary cycle infrastructure along the intersection boundary is segregated from the carriage way and footpath on the major junction of the link.
    b. **Common with footpath but segregated from carriageway**: Select if the type of primary cycle infrastructure along the intersection boundary is common with footpath but segregated from the carriage way on the major junction of the link.
    c. **Painted marking on the periphery along circular roadway**: Select if the type of primary cycle infrastructure along the intersection boundary is painted on the periphery along the circular roadway on the major junction of the link.
    d. **No segregation/demarcation – common with carriageway**: Select if the type of primary cycle infrastructure along the intersection boundary is non segregated / demarcated but common with carriage way on the major junction of the link.
    e. **Not applicable**: Select if the user has entered ‘0’as input value in link information- major intersections (Link Information – 3a).

8. **Presence of cycle specific marking and signages**: This refers to presence of cycle specific markings and signages at major intersections. Only one out of 'Yes' or 'No' can be selected.
    a. Select 'Yes' if cycle specific markings and signages are present at the major intersection.
    b. Select 'No' if cycle specific markings and signages are not present at the major intersection. Incase, the user has entered ‘0’as input value in link information- major intersections (Link information – 3a), the user should select ‘No’.

9. **Average Lighting Levels** : The user has to input the average value of designed/observed lighting levels in 'Lux' for cycle track/lane on the major junction has to be entered. Incase, the user has entered ‘0’as input value in link information- major intersections (Link Information – 3a), the user should enter alphabet 'X' here (without inverted commas).

10. **Lighting Uniformity**: In D9, the average percentage value of designed/observed lighting uniformity for track/lane on the major junction being evaluated has to be entered. Incase, the user has entered '0'as input value in link information- major intersections (Link Information 3a), the user should enter alphabet 'X' here (without inverted commas).

Figure 89 shows the part 4 of the infrastructure design at intersections and crossings. The inputs required in this form have been explained below.

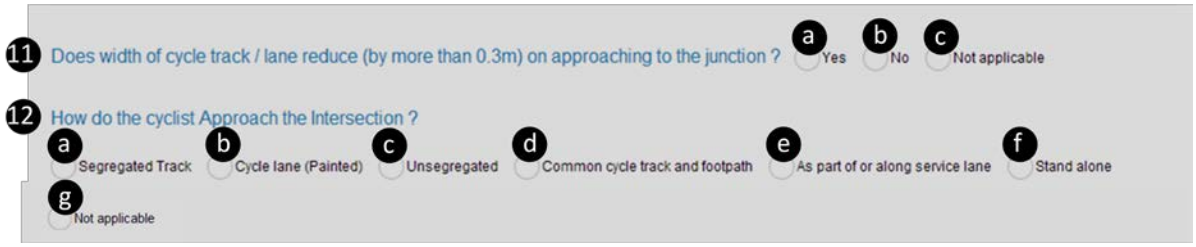


Figure 89: CYLOS for Transit Access Influence Area – Infrastructure at Intersection & Crossings – Part 4

11. **Does width of cycle track/lane reduce (by more than 0.3m) on approaching to the junction**? : This refers to any change more than 0.3m in the width of cycle track while approaching the junction? This needs to be filled only for the LHS where the cyclist approaches the intersection.
    a. Select 'Yes' if the width of cycle track/lane changes more than 0.3m while approaching the junction.
    b. Select 'No' if the width of cycle track does not change more than 0.3m while approaching the junction.
    c. Not applicable: Select if the user has entered '0'as input value in link information- major intersections (Ref link information – 3a).

12. **How does the cyclist approach the intersection**? This refers to the way the cyclist approaches the intersection. Only one out of 'a','b','c'or 'd' can be selected.
    a. **Segregated Track**: Select if the type of cycle infrastructure being evaluated is physically segregated from carriageway, footpath and service lane on RHS.
    b. **Cycle lane (painted)**: Select if the type of cycle infrastructure being evaluated is not physically segregated from carriageway and instead it is a painted track along carriageway on RHS.
    c. **Unsegregated**: Select if the type of cycle infrastructure being evaluated is physically unsegregated from carriageway or service lane on RHS.
    d. **Common cycle track and footpath**: Select if type of cycle infrastructure being evaluated is a combined with footpath on RHS.
    e. **As part of or along the service lane**
    f. **Stand alone**
    g. **Not Applicable**: Select if the user has entered '0'as input value in link information- major intersections (Ref link information – 3a).

Minor junctions

Figure 90 shows the part 5 of the infrastructure design at intersections and crossings. This form relates to Link information form. Incase, the user has a link with no minor junctions (as entered in Ref link information – 3b,3c), the user needs to fill options like 'Not Applicable', 'No' and 'x' as listed in each question. However, if the input value in link information for minor junction is greater than 0, the user has enter the following inputs.

The inputs required in this form have been explained below.

Figure 90: CYLOS for Transit Access Influence Area – Infrastructure at Intersection & Crossings – Part 5

13. **Location of cycle track/lane changed from mid block design**: This refers to change in location of cycle track/lane being evaluated on RHS at minor junction. Either 'Yes' or 'No' can be selected.
    a. Select 'Yes' if the location of cycle track/lane changes from mid block design at minor junctions on LHS
    b. Select 'No' if the location of cycle track/lane does not change from mid block design at minor junctions on RHS. Incase, the user has entered '0'as input value in link information- minor intersections (link information – 3b), the user should select 'No'.
    c. Select 'Yes' if the location of cycle track/lane changes from mid block design at minor junctions on LHS
    d. Select 'No' if the location of cycle track/lane does not change from mid block design at minor junctions on RHS. Incase, the user has entered '0'as input value in link information- minor intersections (link information– 3c), the user should select 'No'.

14. **Primary type of crossing for cyclist across vehicular path (LHS):** This refers to primary type of crossing for cyclists across vehicular path on LHS. Only one out of 'a', 'b' or 'c' can be selected
    a. **At carriageway level**: Select if on LHS the primary type of crossing for cyclists across vehicular path is at carriageway level
    b. **Level of cycle track remains same (above carriageway)**: Select if on LHS the level of cycle track remains same (above carriageway) for the primary type of crossing for cyclists across vehicular path.
    c. **At footpath level**: Select if on LHS the cycle track is at footpath level for the primary type of crossing for cyclists across vehicular path

d. **Not applicable**: Select if the user has entered ‘0’as input value in link information-minor intersections (link information – 3b).

15. **Primary type of crossing for cyclist across vehicular path (RHS**): This refers to primary type of crossing for cyclists across vehicular path on RHS. Only one out of ‘a’, 'b' or 'c' can be selected.
    a. **At carriageway level**: 'a' should be selected if on RHS the primary type of crossing for cyclists across vehicular path is at carriageway level.
    b. **Level of cycle track remains same (above carriageway**): Select if on RHS the level of cycle track remains same (above carriageway) for the primary type of crossing for cyclists across vehicular path.
    c. **At footpath level**: Select if on RHS the cycle track is at footpath level for the primary type of crossing for cyclists across vehicular path.
    d. **Not applicable**: Select if the user has entered ‘0’as input value in link information-minor intersections (link information – 3c).

16. **Provision of warning such as blinkers and sign boards**: This refers to the provision of warnings such as blinkers and sign boards for cyclists on LHS. Either 'Yes' or 'No' can be selected.
    a. Select 'Yes' if warnings such as blinkers and sign boards for cyclists have been provided on LHS
    b. Select 'No' if warnings such as blinkers and sign boards for cyclists have not been provided on LHS. Incase, the user has entered ‘0’as input value in link information-minor intersections (link information– 3c), the user should select ‘No’.
    c. Select 'Yes' if warnings such as blinkers and sign boards for cyclists have been provided on RHS.
    d. Select 'No' if warnings such as blinkers and sign boards for cyclists have not been provided on RHS. Incase, the user has entered ‘0’as input value in link information-minor intersections (link information – 3c), the user should select ‘No’.

Property Entrances

Figure 91 shows the part 6 of the infrastructure design at intersections and crossings. This form relates toSLinkt Information form. Incase, the user has a segment with no property entrances (as entered in Ref link information3.1.2 – 3d,3e), the user needs to fill options like ‘Not Applicable’, ‘No’ and ‘x’ as listed in each question. However, if the input value in link information for minor junction is greater than 0, the user has enter the following inputs.

The inputs required in this form have been explained below.

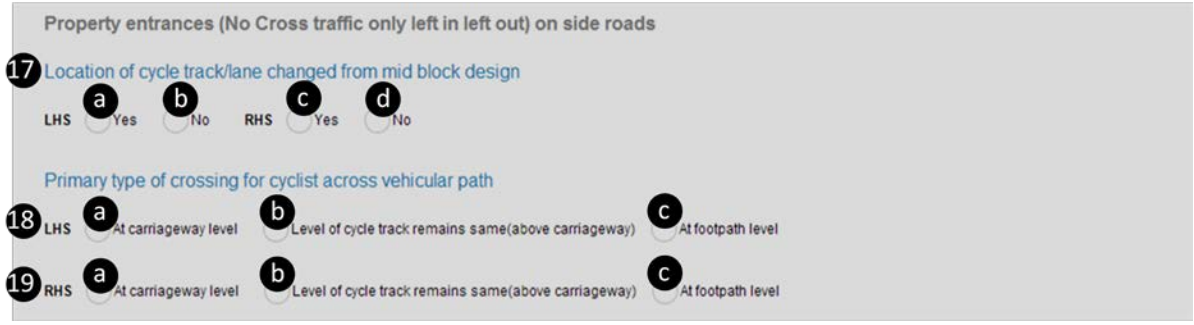


Figure 91 : CYLOS for Transit Access Influence Area – Infrastructure at Intersection & Crossings – Part 6

17. **Location of cycle track/lane changed from mid block design**: This refers to change in location of cycle track/lane at property entrances (No cross traffic, only left in and left out) on LHS and RHS. Either 'Yes' or 'No' can be selected.
    a. Select 'Yes' should be selected if there is change in location of cycle track/lane at property entrances on LHS.
    e. Select 'No' should be selected if there is no change in location of cycle track/lane at property entrances on LHS. Incase, the user has entered '0'as input value in link information- property entrances (Ref link information – 3d), the user should select 'No'.
    b. Select 'Yes' if there is change in location of cycle track/lane at property entrances on RHS.
    c. Select 'No' if there is no change in location of cycle track/lane at property entrances on RHS. Incase, the user has entered '0'as input value in link information- property entrances (Ref link information– 3e), the user should select 'No'.

18. **Primary type of crossing for cyclist across vehicular path (LHS**): This refers to primary type of crossing for cyclists across vehicular path at property entrances on LHS. Only one out of 'a', 'b' or 'c' or 'd'can be selected
    a. No carriageway level: Select if on LHS the primary type of crossing for cyclists across vehicular path is at carriageway level.
    b. Level of cycle track remains same (above carriageway): Select if on LHS the level of cycle track remains same (above carriageway) for the primary type of crossing for cyclists across vehicular path.
    c. At footpath level: Select if on LHS the cycle track is at footpath level for the primary type of crossing for cyclists across vehicular path.
    d. Not applicable: Select if the user has entered '0'as input value in link information- property entrances (link information – 3d).

19. **Primary type of crossing for cyclist across vehicular path (RHS):** This refers to primary type of crossing for cyclists across vehicular path at property entrances on RHS. Only one out of 'a', 'b' , 'c'or 'd' can be selected.
    a. No carriageway level: Select if on RHS the primary type of crossing for cyclists across vehicular path is at carriageway level.

b. Level of cycle track remains same (above carriageway): Select if on RHS the level of cycle track remains same (above carriageway) for the primary type of crossing for cyclists across vehicular path.
c. At footpath level: Select if on RHS the cycle track is at footpath level for the primary type of crossing for cyclists across vehicular path.
d. Not applicable: Select if the user has entered '0'as input value in link information-property entrance (link information – 3e).

Figure 92 shows the part 7 of the infrastructure design at intersections and crossings. The inputs required in this form have been explained below.

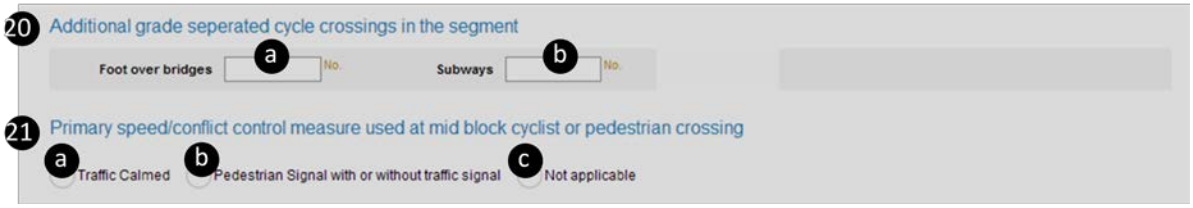


Figure 92 : CYLOS for Transit Access Influence Area – Infrastructure at Intersection & Crossings – Part 7

20. **Additional grade separated cycle crossings in the segment**: This refers to additional grade separated cycle crossings in the link being evaluated.
    a. **Foot Over Bridges**: The number of foot over bridges should be entered in D24a. The input value ranges between 0 and 100.
    b. **Subways**: The number of subways should be entered in D24b. The input value ranges between 0 and 100.

21. **Primary speed/conflict control measure used at mid block for vehicles**: This refers to primary cyclist crossing type across intersecting roads (Independent of intersections or not combined with major intersections). Only one out of 'a' or 'b' or 'c'.
    a. **Traffic Calmed**: 'a' should be selected if the primary cyclist crossing type across intersecting roads is traffic calmed.
    b. **Pedestrian signal with Traffic without signal**: Select if the primary cyclist crossing type across intersecting roads is pedestrian signal with or without traffic signal
    c. **Not applicable**: Select if the user has entered '0'as input value in link information-pedestrian/nmv crossing (Ref link information – 3f).

3.2.3.4 Miscellaneous

The final form of the Design data input for a segment indicates the other factors that influence cycle infrastructure. These vary from provision of cycle parking, maintenance, landscaping, enforcement, etc.

Figure 93 shows the part 1 of the miscellaneous form. The inputs required in this form have been explained below.

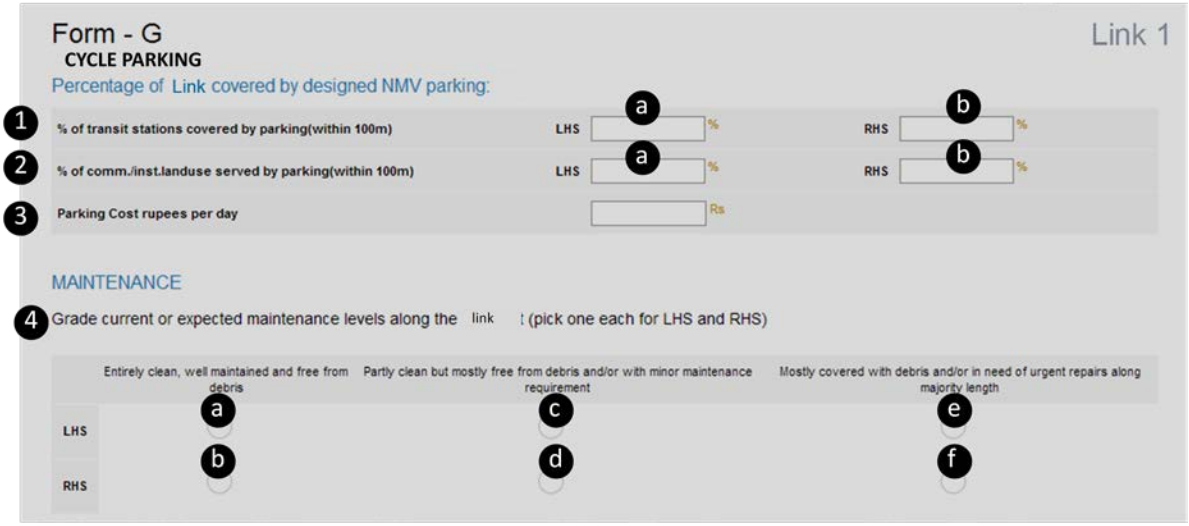


Figure 93: CYLOS for Transit access influence area – miscellaneous- Part 1

CYCLE PARKING

a. **Percentage of segment covered by designed NMV Parking – % of transit stations covered by parking (within 100m)**: This defines the transit stations in percentage that have the provision of cycle parking within a radius of 100m. This value can range from 0 to 100 and should be in percentage (%).
    a. Enter the value in percentage for transit station on the LHS that have the provision of cycle parking with 100m of their location. If standalone/independent cycle track has been selected in question 2, link context form earlier, then enter alphabet 'X' here (without inverted commas) else the input value should range between 0 and 100 and the unit is in '%'.
    b. Enter the value in percentage for transit stations on the RHS that have the provision of cycle parking with 100m of their location. If standalone/independent cycle track has been selected in question 2, link context form earlier, then enter alphabet 'X' here (without inverted commas) else the input value should range between 0 and 100 and the unit is in '%'.

b. **Percentage of segment covered by designed NMV Parking - % of commercial/institutional landuse served by parking (within 100m**): This defines the provision of parking within 100m of a commercial or institutional landuse. This value can range from 0 to 100 and should be in percentage (%).
    a. Enter the provision of cycle parking in percentage for a commercial / institutional landuse on the LHS of the link.
    b. Enter the provision of cycle parking in percentage for a commercial / institutional landuse on the RHS of the link.

c. **Parking cost rupees per day**: This defines the cost in rupees per day charged for cycle parking. The input value can vary between 0 and 1000. Incase there is no provision of cycle parking, the parking cost to be entered is 0.

MAINTENANCE

d. **Current grade or expected maintenance levels along the link** – This defines the current or expected maintenance levels along the link. The levels of maintenance are categorised as follows- Entirely clean, well maintained and free from debris , Partly clean but mostly free from debris and/or with minor maintenance requirements or mostly covered with debris and/or in need of urgent repairs along majority length. The user has to select any one of the below categories indicating the maintenance level:
    a. If the LHS of the identified link is entirely clean, well maintained and free from debris
    b. If the RHS of the identified segment is entirely clean, well maintained and free from debris
    c. If the LHS of the identified link is partly clean but mostly free from debris and/or with minor maintenance requirements
    d. If the RHS of the identified link is partly clean but mostly free from debris and/or with minor maintenance requirements
    e. If the LHS of the identified link is mostly covered with debris and/or in need of urgent repairs along majority length
    f. If the RHS of the identified link is mostly covered with debris and/or in need of urgent repairs along majority length

Figure 94 shows the part 2 of the miscellaneous form. The inputs required in this form have been explained below.

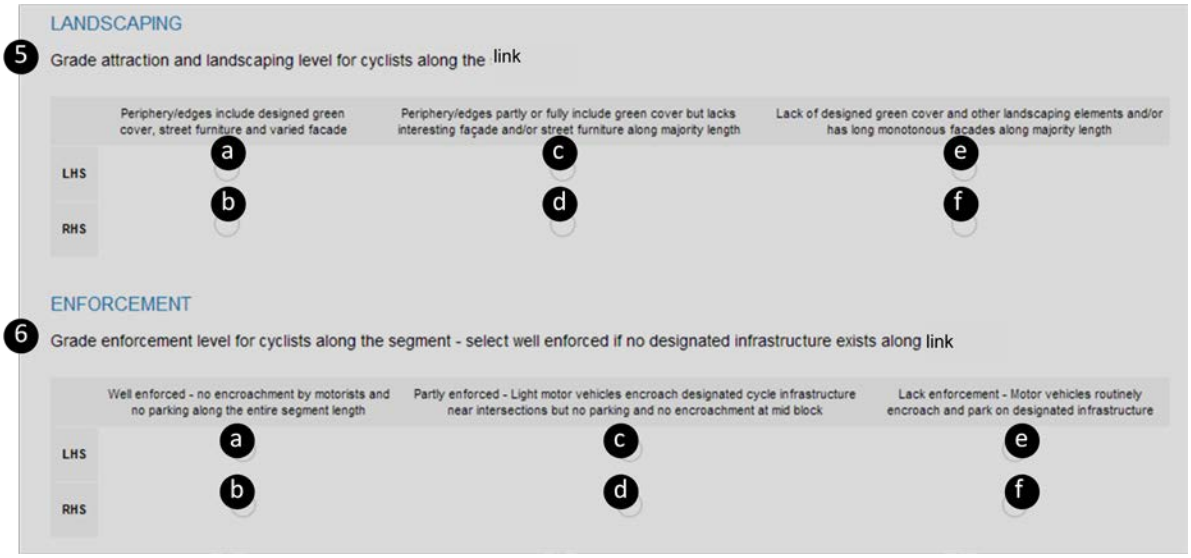


Figure 94: CYLOS for Transit access influence area – miscellaneous – Part 2

LANDSCAPING

e. **Grade attraction and landscaping level for cyclists along the link** – This defines the grading of attraction and landscaping level for cyclists along the link. The various grades for landscaping are categorised as follows- Periphery/edges include designed green cover, street furniture and varied facade, periphery/edges partly of fully include green cover but lacks interesting facade and/or street furniture along majority length and lack of designed

green cover and other landscaping elements and/or has long monotonous facades along majority length. The user has to select any one of the below categories :

f. If LHS of the identified link has periphery/edges that include designed green cover, street furniture and varied facade
    a. If RHS of the identified link has periphery/edges that include designed green cover, street furniture and varied facade
    b. If LHS of the identified link has periphery/edges partly of fully include green cover but lacks interesting facade and/or street furniture along majority length
    c. If RHS of the identified link has periphery/edges partly of fully include green cover but lacks interesting facade and/or street furniture along majority length
    d. If LHS of the identified link has a lack of designed green cover and other landscaping elements and/or has long monotonous facades along majority length.
    e. If RHS of the identified link has a lack of designed green cover and other landscaping elements and/or has long monotonous facades along majority length.

g. **Grade enforcement level for cyclists along the link – select well enforced if no designated infrastructure exists along link**. This defines the level of enforcement for cyclists along the link. The various grades for enforcement are categorised as follows- well enforced – no encroachment by motorists and no parking along the entire link length, partly enforced – Light motorised vehicles encroach designated cycle infrastructure near intersections but no parking and no enforcement at mid block and Lack enforcement – Motor Vehicles routinely encroach and park on designated infrastructure. The user has to select any one of the below categories :
    a. If the LHS of the identified link is well enforced i.e. no encroachment by motorists and no parking along the entire link length
    b. If the RHS of the identified link is Well enforced i.e. no encroachment by motorists and no parking along the entire link length
    c. If the LHS of the identified link is partly enforced i.e. light motorised vehicles encroach designated cycle infrastructure near intersections but no parking and no enforcement at mid block
    d. If the RHS of the identified link is partly enforced i.e. light motorised vehicles encroach designated cycle infrastructure near intersections but no parking and no enforcement at mid block
    e. If the LHS of the identified link lacks enforcement i.e. motor Vehicles routinely encroach and park on designated infrastructure.
    f. If the RHS of the identified link lacks enforcement i.e Lack enforcement – Motor Vehicles routinely encroach and park on designated infrastructure.

Figure 95 shows part 3 of the miscellaneous form. The inputs required in this form have been explained below.

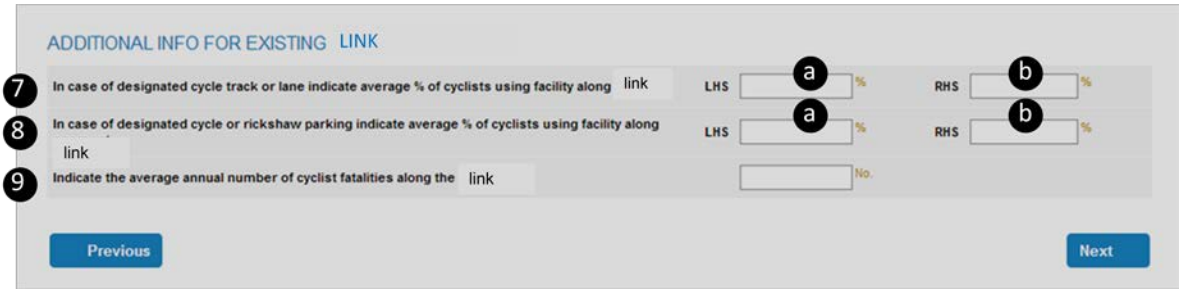


Figure 95: CYLOS for Transit access influence area – miscellaneous – Part 3

Additional Info for Existing Link

h. **Incase of designated cycle track or lane, indicate average % of cyclists using facility along link**: This refers to the cyclists using the provided cycle infrastructure i.e. track/lane along the identified link. The value entered should be in percentage and varies between 0 and 100.
    a. Input the average percentage (%) of cyclists using the facility of designated cycle track or lane along the LHS of the link. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, link context form earlier, then the user should enter alphabet 'X' here (without inverted commas).
    b. Input the average percentage (%) of cyclists using the facility of designated cycle track or lane along the RHS of the link. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, link context form earlier, then the user should enter alphabet 'X' here (without inverted commas).

i. **Incase of designated cycle or rickshaw parking indicate average % of cyclists using facility along link**: This refers to the percentage of the cyclists using the facility of cycle or rickshaw parking along the link. The input value varies between 0 and 100 and should be in percentage (%).
    a. Input the average % of cyclists using the cycle or rickshaw parking facility along the LHS of the link. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, link context form earlier, then the user should enter alphabet 'X' here (without inverted commas).
    b. Input the average % of cyclists using the cycle or rickshaw parking facility along the RHS of the link. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, link context form earlier, then the user should enter alphabet 'X' here (without inverted commas).

j. **Indicate the average annual number of cyclist fatalities along the segment**: This refers to the average annual number of cyclist fatalities along the identified link. The user can input a value between 0 and 1000. If 'evaluation of planned/designed infrastructure or facility' has been selected in question 1, link context form earlier, then the user should enter alphabet 'X' here (without inverted commas).

3.2.4 Link Evaluation Result

The output is categorized into the five design principles – coherence, safety, directness, comfort and attractiveness. Below each design principle are its sub indicators. The evaluation sheet has four columns which give the following result

a. LHS –score against the indicator for the Left Hand Side of the link being evaluated.
b. RHS – score against the indicator for the Right Hand Side of the link being evaluated.
c. Overall – average score of the link
d. Maximum Score – For all indicators the maximum score is 100.

Figure 96 shows the segment evaluation result for coherence. The indicators that contribute to it are explained below

Link Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
1	COHERENCE				
a	Infrastructure Relevance and Continuity Index	14	14	14	100
b	Accessibility Index	14	14	14	100
c	Cycle specific Marking	14	14	14	100
d	Cycle specific Signage	14	14	14	100
e	Cycle box at intersection	14	14	14	100
f	**Overall Coherence Score**	14			

Figure 96: CYLOS for Transit access influence area – Link Output – Coherence

6. **Coherence**: This refers to the legibility and connectivity of the bicycle network. In design, this implies that the links in the area should look similar to improve the legibility and usability of the bicycle infrastructure and there is provision of good connectivity between all origins and destinations. The following are the sub indicators that contribute to this design principle.
    a. **Infrastructure Relevance and Continuity Index**: This refers to how relevant is planned/constructed infrastructure to its context and whether the infrastructure is continuous or not. The weightage assigned by the tool for the infrastructure relevance is 35% for Highway, 45% for Collector/Distributor, 65% for Access and 50% for Standalone.
    b. **Frequency of Crossing**: This refers to how frequent are available opportunities for cyclists to cross the road. The weightage assigned by the tool for the frequency of cycle crossings is 35% for Highway, 25% for Collector/Distributor, 5% for access and 5% for Standalone.
    c. **Cycle Specific Marking**: This refers to availability of adequate pavement marking to guide, warn and regulate cyclists. The weightage assigned by the tool for the cycle specific marking is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone.
    d. **Cycle specific Signage**: This refers to availability of adequate sign boards to guide, warn and regulate cyclists. The weightage assigned by the tool for the frequency of

cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone.

e. **Cycle Box at Intersection**: This refers to availability of cycle box marking at intersection to hold crossing cyclists. The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 5% for Standalone.

Overall Coherence Score: This refers to the overall score of the segment for its coherence.

Figure 97 shows the link evaluation result for safety. The indicators that contribute to it are explained below.

Link Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
2	**SAFETY**				
a	Frequency of safe crossings	14	14	14	100
b	Quality of Lighting	14	14	14	100
c	Riding Safety along midblock	14	14	14	100
d	Presence of activities on street	14	14	14	100
e	Enforcement	14	14	14	100
f	Cycle Box at Intersection	14	14	14	100
g	Friction from Car Parking	14	14	14	100
	Overall Safety Score	14			

Figure 97: CyLOS for for Transit access influence area – Link Output – Safety

7. **Safety**: This refers to prevention of collisions and reducing the conflicts and their impact that result in a safer travel. It also includes provision of adequate and uniform lighting, integration of spaces for hawkers and vendors, support facilities provides security and the necessary eyes on street. The following are the sub indicators that contribute to this design principle.
    a. **Frequency of safe crossings**: This refers to the level of safety in terms of crash risk and severity, at cyclist crossing facilities. The weightage assigned by the tool for crossing safety index is 20% for Highway, 20% for Collector/Distributor, 5% for Access and 5% for Standalone.
    b. **Quality of Lighting**: This refers to the quality of lighting in terms of level and uniformity. The weightage assigned by the tool for the lighting quality index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 20% for Standalone.
    c. **Riding Safety along midblock**: This refers to the assessment of accident risk for cyclist along the carriageway. The weightage assigned by the tool for the mid block accident safety is 25% for Highway, 20% for Collector/Distributor, 15% for Access and 5% for Standalone.
    d. **Presence of activities of street**: This refers to the assessment of level of activity along segment, to ensure security. The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 50% for Standalone.

e. **Enforcement**: This refers to the assessment of level of enforcement to ensure safety on carriageway. The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 10% for Standalone.
f. **Cycle Box at Intersection**: This refers to the availability of cycle box marking at intersection to hold crossing cyclists. The weightage assigned by the tool for the cycle box at intersection is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone.
g. **Friction from Car Parking**: This refers to the assessment of risk posed by street parking to commuting cyclists. The weightage assigned by the tool for the parking friction index is 10% for Highway, 15% for Collector/Distributor, 25% for Access and 5% for Standalone.

Overall Safety Score: This refers to the overall score of the link for its safety based on the score of the above indicators.

Figure 98 shows the link evaluation result for directness. The indicators that contribute to it are explained below.

Link Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
3	**DIRECTNESS**				
a	Enforcement:	14	14	14	100
b	Friction from Car Parking	14	14	14	100
c	Frequency of Obstructions	14	14	14	100
d	Sufficient Width	14	14	14	100
e	Friction from Hawkers	14	14	14	100
f	Frequency of punctures	14	14	14	100
g	Friction from pedestrians	14	14	14	100
h	Cyclist Delay at Intersection	14	14	14	100
i	Maintenance:	14	14	14	100
j	Turning Radius Comfort	14	14	14	100
	Overall Directness :	14			

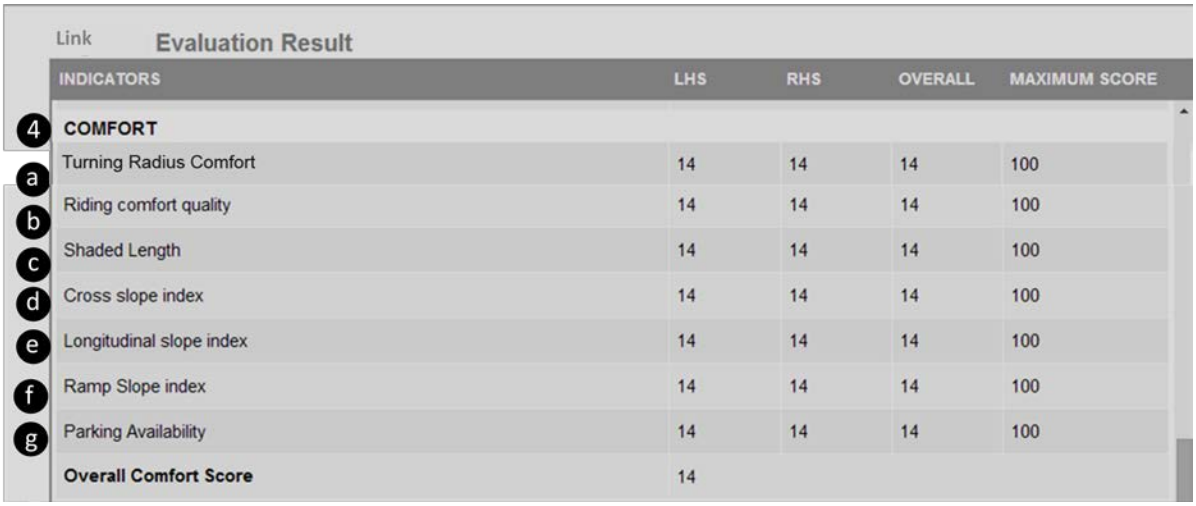
Figure 98: CyLOS for Transit access influence area – Link Output – Directness

8. **Directness**: This refers to the amount of time and effort required by a cyclist to undertake a journey. The following are the sub indicators that contribute to this design principle.
    a. **Enforcement**: This refers to the assessment of level of enforcement to ensure minimal loss of directness to cyclists. The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 5% for Standalone.
    b. **Friction from Car Parking**: This refers to the assessment of loss of directness from friction by street parking to commuting cyclists. The weightage assigned by the tool for the parking friction index is 8% for Highway, 25% for Collector/Distributor, 20% for Access and 5% for Standalone.

c. **Frequency of Obstructions**: This refers to the assessment of loss of directness caused by presence of obstruction in cycling path. The weightage assigned by the tool for the obstruction index is 21% for Highway, 20% for Collector/Distributor, 20% for Access and 20% for Standalone.
d. **Sufficient Width**: This refers to the assessment of sufficiency of cycling path width with respect to vehicle size and cycle volume. The weightage assigned by the tool for width sufficient index is 21% for Highway, 15% for Collector/Distributor, 5% for Access and 25% for Standalone.
e. **Friction from Hawkers**: This refers to the assessment of loss of directness due to friction from hawkers on cycling path. The weightage assigned by the tool for hawker sufficient index is 10% for Highway, 5% for Collector/Distributor, 8% for Access and 8% for Standalone.
f. **Frequency of punctures**: This refers to how often is cycling lane/path crossed by vehicular path to access service lane/property entrance, etc. The weightage assigned by the tool for frequency of punctures is 8% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone.
g. **Friction from pedestrians**: This refers to the assessment of loss of directness due to friction from pedestrians on cycle path. The weightage assigned by the tool for pedestrian friction index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 15% for Standalone.
h. **Cyclist Delay at Intersection**: This refers to the assessment of loss of directness due to delay to cyclists at intersections. The weightage assigned by the tool for cyclist delay at intersection is 4% for Highway, 4% for Collector/Distributor, 6% for Access and 6% for Standalone.
i. **Maintenance**: This refers to the assessment of loss of directness due to friction cause by poor maintenance/ cleaning cycle infrastructure. The weightage assigned by the tool for maintenance is 4% for Highway, 4% for Collector/Distributor, 10% for Access and 10% for Standalone.
j. **Turning Radius Comfort**: Assessment of loss of directness due to tight turning radiuses on cycling path. The weightage assigned by the tool for turning radius is 4% for Highway, 2% for Collector/Distributor, 4% for Access and 4% for Standalone.

Overall Directness Score: This refers to the overall score of the link for its directness based on the score of the above indicators.

Figure 99 shows the link evaluation result for comfort. The indicators that contribute to it are explained below.



Link Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
4	**COMFORT**				
a	Turning Radius Comfort	14	14	14	100
b	Riding comfort quality	14	14	14	100
c	Shaded Length	14	14	14	100
d	Cross slope index	14	14	14	100
e	Longitudinal slope index	14	14	14	100
f	Ramp Slope index	14	14	14	100
g	Parking Availability	14	14	14	100
	Overall Comfort Score	14			

Figure 99: CYLOS for Transit access influence area – Link Output – Comfort

9. **Comfort**: This refers to riding comfort and riding surface for cyclists at the intersection should be smooth to reduce inconvenience. The following are the sub indicators that contribute to this design principle.
    a. **Turning Radius Comfort**: This refers to the assessment of loss of comfort due to tight turning radii on cycling path. The weightage assigned by the tool for turning radius is 8% for Highway, 5% for Collector/Distributor, 5% for Access and 15% for Standalone.
    b. **Riding comfort quality**: This refers to the assessment of riding comfort with reference to surface type. The weightage assigned by the tool for riding comfort index is 35% for Highway, 35% for Collector/Distributor, 35% for Access and 35% for Standalone.
    c. **Shaded Length**: This refers to the assessment of protection from weather in terms of shade/shelter over cycling path. The weightage assigned by the tool for the shaded length is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone.
    d. **Cross slope index**: This refers to the assessment of water runoff capability and comfortable riding cross slope. The weightage assigned by the tool for the cross slope index is 7% for Highway, 5% for Collector/Distributor, 3% for Access and 3% for Standalone.
    e. **Longitudinal slope index**: This refers to the assessment of comfortable riding longitudinal slope. The weightage assigned by the tool for longitudinal slope index is 20% for Highway, 25% for Collector/Distributor, 25% for Access and 15% for Standalone.
    f. **Ramp Slope Index**: This refers to the assessment of comfort of ramps provide to access egress from cycle path. The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone.
    g. **Parking Availability**: This refers to the assessment of cycling comfort in terms of availability of safe and secure cycle parking. The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone.

Overall Comfort Score : This refers to the overall score of the link for its comfort based on the score of the above indicators.

Figure 100 shows the segment evaluation result for comfort. The indicators that contribute to it are explained below.

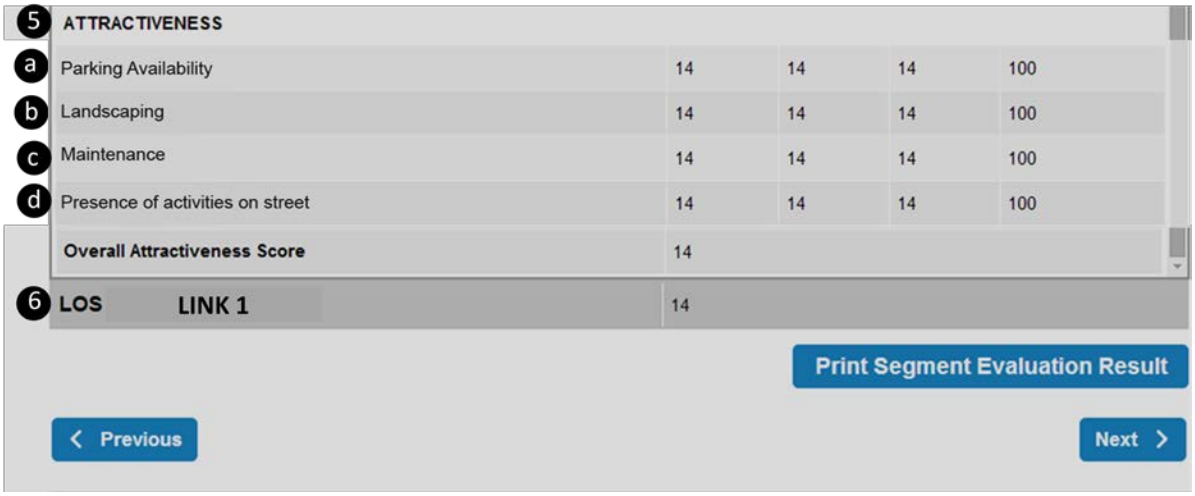


Figure 100: CyLOS for Transit access influence area – Link Output – Attractiveness

10. **Attractiveness**: This refers to well integrated green areas, resting spaces, etc. which are clean and well lit. The following are the sub indicators that contribute to this design principle.
    a. **Parking Availability**: This refers to the assessment of cycling comfort in terms of availability of safe and secure cycle parking. The weightage assigned by the tool for parking availability index is 25% for Highway, 20% for Collector/Distributor, 10% for Access and 5% for Standalone.
    b. **Landscaping**: This refers to attractiveness of cycling infrastructure in terms of along side landscaping/ plantation. The weightage assigned by the tool for landscaping is 15% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone.
    c. **Maintenance**: This refers to attractiveness of cycling infrastructure in terms of how well it is maintained. The weightage assigned by the tool for maintenance is 40% for Highway, 40% for Collector/Distributor, 40% for Access and 30% for Standalone.
    d. **Presence of activities on street**: This refers to attraction of cycling infrastructure in terms of life/ activity along cycling path. The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 40% for Standalone.

Overall Attractiveness Score: This refers to the overall score of the link for its attractivenss based on the score of the above indicators.

7. **Link LOS** : Based on the above scores, the user can see how the link scores inclusive of all design principles contributing together.

3.2.5 Transit access influence area evaluation

Figure 101 shows the final evaluation layout of the corridor. This includes the output of overall transit access influence area for each design principle as well as the final corridor LOS.

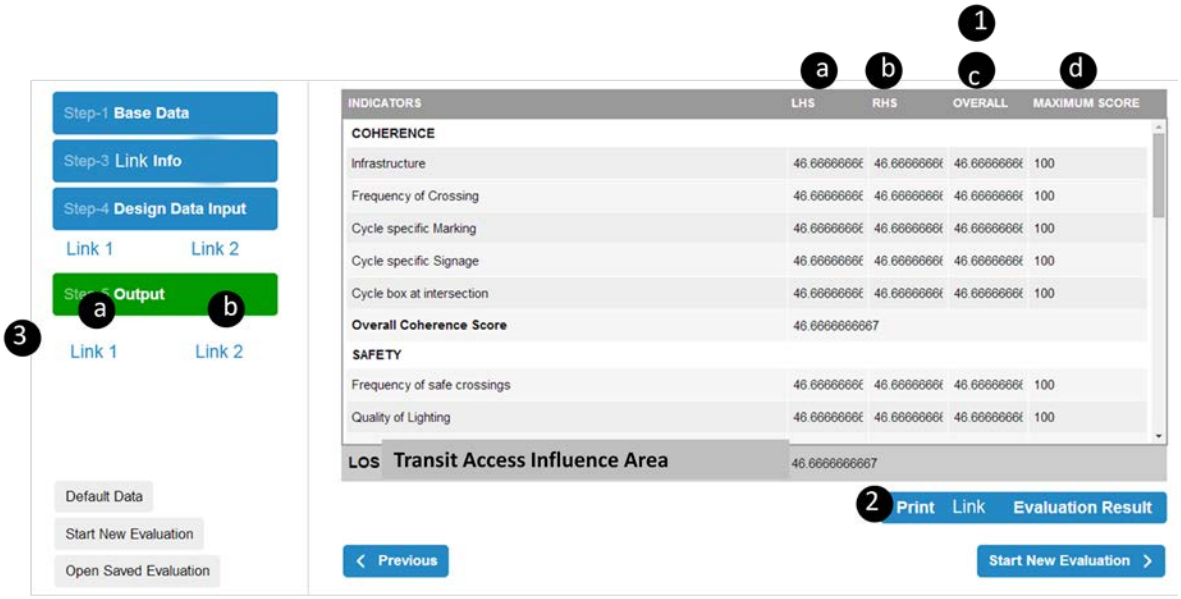


Figure 101: CyLOS for Transit access influence area – Final Evaluation

The output is categorized into the five design principles – coherence, safety, directness, comfort and attractiveness. Below each design principle are its sub indicators.

3. The evaluation sheet has four columns which give the following result
   a. LHS –score against the indicator for the Left Hand Side of the segment being evaluated.
   b. RHS – score against the indicator for the Right Hand Side of the segment being evaluated.
   c. Overall – average score of the segment
   d. Maximum Score – For all indicators the maximum score is 100.
4. **Print Segment Evaluation Result** – By clicking on this button, the user can

Figure 102 shows the segment evaluation result for coherence. The indicators that contribute to it are explained below.

Segment Evaluation Result

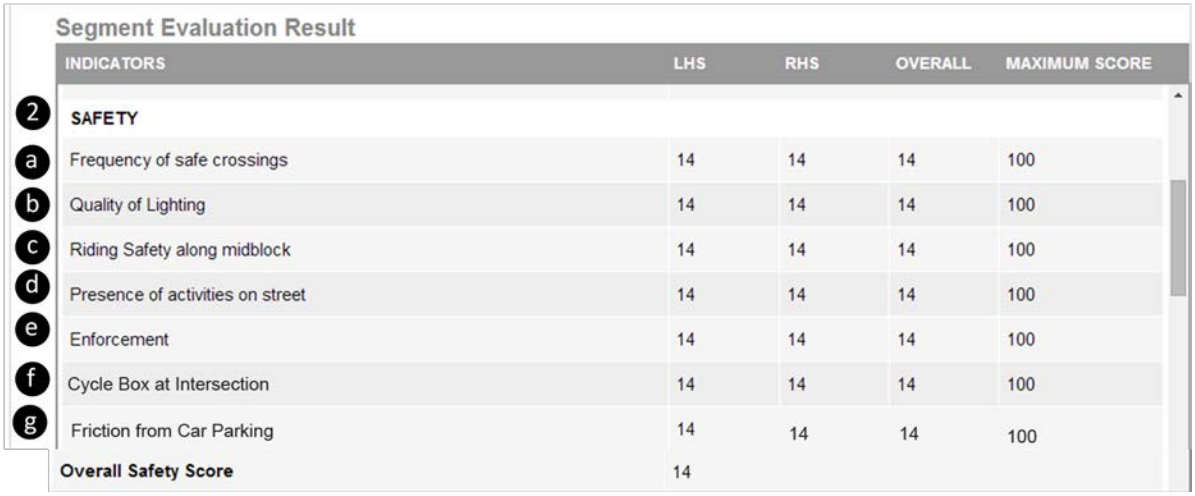
	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
1	COHERENCE				
a	Infrastructure Relevance and Continuity Index	14	14	14	100
b	Frequency of Crossing	14	14	14	100
c	Cycle specific Marking	14	14	14	100
d	Cycle specific Signage	14	14	14	100
e	Cycle box at intersection	14	14	14	100
f	**Overall Coherence Score**	14			

Figure 102: CYLOS for Transit access influence area – Final- Output – Coherence

5. **Coherence**: This refers to the legibility and connectivity of the bicycle network. In design, this implies that the segments in the network should look similar to improve the legibility and usability of the bicycle infrastructure and there is provision of good connectivity between all origins and destinations. The following are the sub indicators that contribute to this design principle.
    a. **Infrastructure Relevance and Continuity Index**: This refers to how relevant is planned/constructed infrastructure to its context and whether the infrastructure is continuous or not. The weightage assigned by the tool for the infrastructure relevance is 35% for Highway, 45% for Collector/Distributor, 65% for Access and 50% for Standalone.
    b. **Frequency of Crossing**: This refers to how frequent are available opportunities for cyclists to cross the road. The weightage assigned by the tool for the frequency of cycle crossings is 35% for Highway, 25% for Collector/Distributor, 5% for access and 5% for Standalone.
    c. **Cycle Specific Marking**: This refers to availability of adequate pavement marking to guide, warn and regulate cyclists. The weightage assigned by the tool for the cycle specific marking is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone.
    d. **Cycle specific Signage**: This refers to availability of adequate sign boards to guide, warn and regulate cyclists. The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone.
    e. **Cycle Box at Intersection**: This refers to availability of cycle box marking at intersection to hold crossing cyclists. The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 5% for Standalone.

Overall Coherence Score: This refers to the overall score of the segment for its coherence.

Figure 103Figure 34 shows the segment evaluation result for safety. The indicators that contribute to it are explained below.



Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
2	**SAFETY**				
a	Frequency of safe crossings	14	14	14	100
b	Quality of Lighting	14	14	14	100
c	Riding Safety along midblock	14	14	14	100
d	Presence of activities on street	14	14	14	100
e	Enforcement	14	14	14	100
f	Cycle Box at Intersection	14	14	14	100
g	Friction from Car Parking	14	14	14	100
	Overall Safety Score	14			

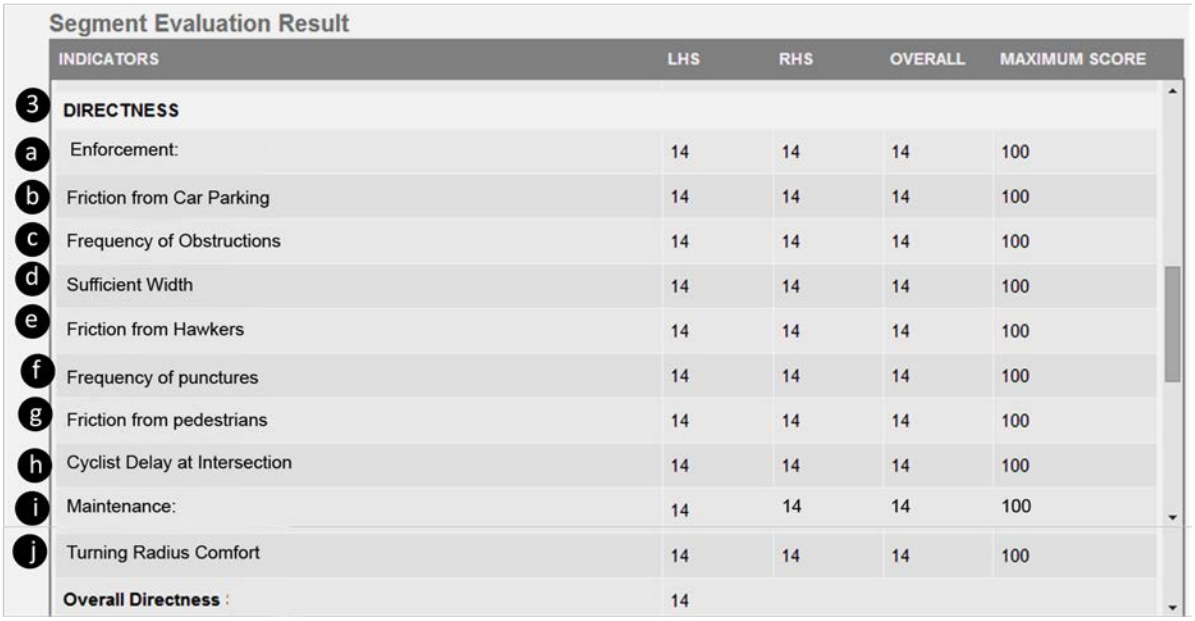
Figure 103: CyLOS for Transit access influence area – Final Output – Safety

6. **Safety**: This refers to prevention of collisions and reducing the conflicts and their impact that result in a safer travel. It also includes provision of adequate and uniform lighting; integration of spaces for hawkers and vendors, support facilities provides security and the necessary eyes on street. The following are the sub indicators that contribute to this design principle.
    a. **Frequency of safe crossings**: This refers to the level of safety in terms of crash risk and severity, at cyclist crossing facilities. The weightage assigned by the tool for crossing safety index is 20% for Highway, 20% for Collector/Distributor, 5% for Access and 5% for Standalone.
    b. **Quality of Lighting**: This refers to the quality of lighting in terms of level and uniformity. The weightage assigned by the tool for the lighting quality index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 20% for Standalone.
    c. **Riding Safety along midblock**: This refers to the assessment of accident risk for cyclist along the carriageway. The weightage assigned by the tool for the mid block accident safety is 25% for Highway, 20% for Collector/Distributor, 15% for Access and 5% for Standalone.
    d. **Presence of activities of street** : This refers to the assessment of level of activity along segment, to ensure security. The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 50% for Standalone.
    e. **Enforcement**: This refers to the assessment of level of enforcement to ensure safety on carriageway. The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 10% for Standalone.
    f. **Cycle Box at Intersection**: This refers to the availability of cycle box marking at intersection to hold crossing cyclists. The weightage assigned by the tool for the cycle box at intersection is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone.
    g. **Friction from Car Parking**: This refers to the assessment of risk posed by street parking to commuting cyclists. The weightage assigned by the tool for the

parking friction index is 10% for Highway, 15% for Collector/Distributor, 25% for Access and 5% for Standalone.

Overall Safety Score : This refers to the overall score of the segment for its safety based on the score of the above indicators.

Figure 104 shows the segment evaluation result for directness. The indicators that contribute to it are explained below.



Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
3	**DIRECTNESS**				
a	Enforcement:	14	14	14	100
b	Friction from Car Parking	14	14	14	100
c	Frequency of Obstructions	14	14	14	100
d	Sufficient Width	14	14	14	100
e	Friction from Hawkers	14	14	14	100
f	Frequency of punctures	14	14	14	100
g	Friction from pedestrians	14	14	14	100
h	Cyclist Delay at Intersection	14	14	14	100
i	Maintenance:	14	14	14	100
j	Turning Radius Comfort	14	14	14	100
	Overall Directness :	14			

Figure 104: CyLOS for Transit access influence area – Final Output – Directness

7. **Directness**: This refers to the amount of time and effort required by a cyclist to undertake a journey. The following are the sub indicators that contribute to this design principle.
    a. **Enforcement**: This refers to the assessment of level of enforcement to ensure minimal loss of directness to cyclists. The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 5% for Standalone.
    b. **Friction from Car Parking**: This refers to the assessment of loss of directness from friction by street parking to commuting cyclists. The weightage assigned by the tool for the parking friction index is 8% for Highway, 25% for Collector/Distributor, 20% for Access and 5% for Standalone.
    c. **Frequency of Obstructions**: This refers to the assessment of loss of directness caused by presence of obstruction in cycling path. The weightage assigned by the tool for the obstruction index is 21% for Highway, 20% for Collector/Distributor, 20% for Access and 20% for Standalone.
    d. **Sufficient Width**: This refers to the assessment of sufficiency of cycling path width with respect to vehicle size and cycle volume. The weightage assigned by the tool for width sufficient index is 21% for Highway, 15% for Collector/Distributor, 5% for Access and 25% for Standalone.
    e. **Friction from Hawkers**: This refers to the assessment of loss of directness due to friction from hawkers on cycling path. The weightage assigned by the tool for

hawker sufficient index is 10% for Highway, 5% for Collector/Distributor, 8% for Access and 8% for Standalone.

f. **Frequency of punctures**: This refers to how often is cycling lane/path crossed by vehicular path to access service lane/property entrance, etc. The weightage assigned by the tool for frequency of punctures is 8% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone.

g. **Friction from pedestrians**: This refers to the assessment of loss of directness due to friction from pedestrians on cycle path. The weightage assigned by the tool for pedestrian friction index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 15% for Standalone.

h. **Cyclist Delay at Intersection**: This refers to the assessment of loss of directness due to delay to cyclists at intersections. The weightage assigned by the tool for cyclist delay at intersection is 4% for Highway, 4% for Collector/Distributor, 6% for Access and 6% for Standalone.

i. **Maintenance**: This refers to the assessment of loss of directness due to friction cause by poor maintenance/ cleaning cycle infrastructure. The weightage assigned by the tool for maintenance is 4% for Highway, 4% for Collector/Distributor, 10% for Access and 10% for Standalone.

j. **Turning Radius Comfort**: Assessment of loss of directness due to tight turning radiuses on cycling path. The weightage assigned by the tool for turning radius is 4% for Highway, 2% for Collector/Distributor, 4% for Access and 4% for Standalone.

Overall Directness Score: This refers to the overall score of the segment for its directness based on the score of the above indicators.

Figure 105Figure 36 shows the segment evaluation result for comfort. The indicators that contribute to it are explained below.

Segment Evaluation Result

	INDICATORS	LHS	RHS	OVERALL	MAXIMUM SCORE
4	**COMFORT**				
a	Turning Radius Comfort	14	14	14	100
b	Riding comfort quality	14	14	14	100
c	Shaded Length	14	14	14	100
d	Cross slope index	14	14	14	100
e	Longitudinal slope index	14	14	14	100
f	Ramp Slope index	14	14	14	100
g	Parking Availability	14	14	14	100
	Overall Comfort Score	14			

Figure 105: CYLOS for Transit access influence area – Final Output – Comfort

8. **Comfort**: This refers to riding comfort and riding surface for cyclists at the intersection should be smooth to reduce inconvenience. The following are the sub indicators that contribute to this design principle.

a. **Turning Radius Comfort**: This refers to the assessment of loss of comfort due to tight turning radii on cycling path. The weightage assigned by the tool for turning radius is 8% for Highway, 5% for Collector/Distributor, 5% for Access and 15% for Standalone.
b. **Riding comfort quality**: This refers to the assessment of riding comfort with reference to surface type. The weightage assigned by the tool for riding comfort index is 35% for Highway, 35% for Collector/Distributor, 35% for Access and 35% for Standalone.
c. **Shaded Length**: This refers to the assessment of protection from weather in terms of shade/shelter over cycling path. The weightage assigned by the tool for the shaded length is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone.
d. **Cross slope index**: This refers to the assessment of water runoff capability and comfortable riding cross slope. The weightage assigned by the tool for the cross slope index is 7% for Highway, 5% for Collector/Distributor, 3% for Access and 3% for Standalone.
e. **Longitudinal slope index**: This refers to the assessment of comfortable riding longitudinal slope. The weightage assigned by the tool for longitudinal slope index is 20% for Highway, 25% for Collector/Distributor, 25% for Access and 15% for Standalone.
f. **Ramp Slope Index:** This refers to the assessment of comfort of ramps provide to access egress from cycle path. The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone.
g. **Parking Availability**: This refers to the assessment of cycling comfort in terms of availability of safe and secure cycle parking. The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone.

Overall Comfort Score : This refers to the overall score of the segment for its comfort based on the score of the above indicators.

Figure 106 shows the segment evaluation result for attractiveness. The indicators that contribute to it are explained below.

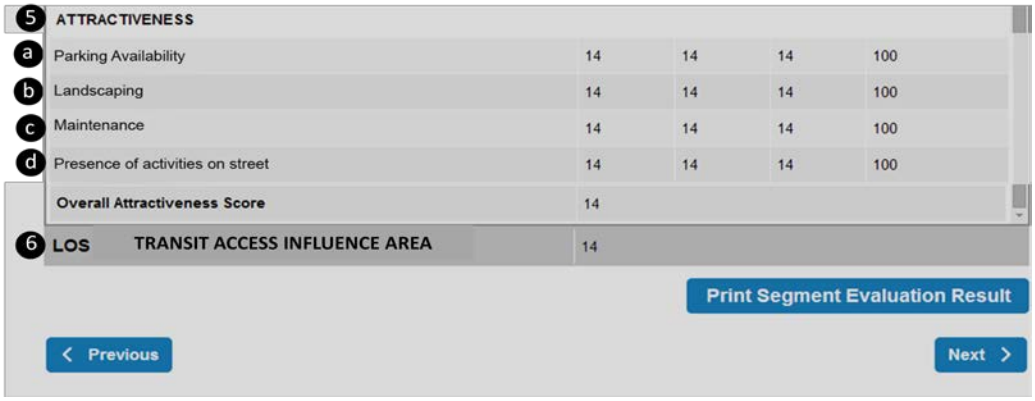


Figure 106: CyLOS for Transit access influence area – Final Output– Attractiveness

6. **Attractiveness**: This refers to well integrated green areas, resting spaces, etc. which are clean and well lit. The following are the sub indicators that contribute to this design principle.
    a. **Parking Availability**: This refers to the assessment of cycling comfort in terms of availability of safe and secure cycle parking. The weightage assigned by the tool for parking availability index is 25% for Highway, 20% for Collector/Distributor, 10% for Access and 5% for Standalone.
    b. **Landscaping**: This refers to attractiveness of cycling infrastructure in terms of along side landscaping/ plantation. The weightage assigned by the tool for landscaping is 15% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone.
    c. **Maintenance**: This refers to attractiveness of cycling infrastructure in terms of how well it is maintained. The weightage assigned by the tool for maintenance is 40% for Highway, 40% for Collector/Distributor, 40% for Access and 30% for Standalone.
    d. **Presence of activities on street**: This refers to attraction of cycling infrastructure in terms of life/ activity along cycling path. The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 40% for Standalone.

Overall Attractiveness Score: This refers to the overall score of the segment for its attractiveness based on the score of the above indicators.

7. **Transit access influence area LOS**: Based on the above scores, the user can see how the transit acrea scores inclusive of all design principles contributing together. This score is the overall cycling Level of Service.

3.2.6 Default Form

The default form of transit access influence area is divided in four categories which includes Standard, Scaling, Scoring and Weightage. The fields in these forms show the value of various parameters to be used in the tool for analysis. These values are based on standard accepted norms and some primary surveys. Changes to these values are not recommended, unless required for research and academic applications. The new values assigned by the user should be based on detail surveys. The values can also change for different context and users as per the location of the route, corridor or the city. It is strongly recommended that the user **"Restore Defaults"** before proceeding with a new analysis, as values edited in a previous session may have been retained by the tool.

3.2.6.1 Standard

The standard form is the first form of the default data input. Figure 107 shows the image of part 1 of the standard form. The inputs required in this are explained below:

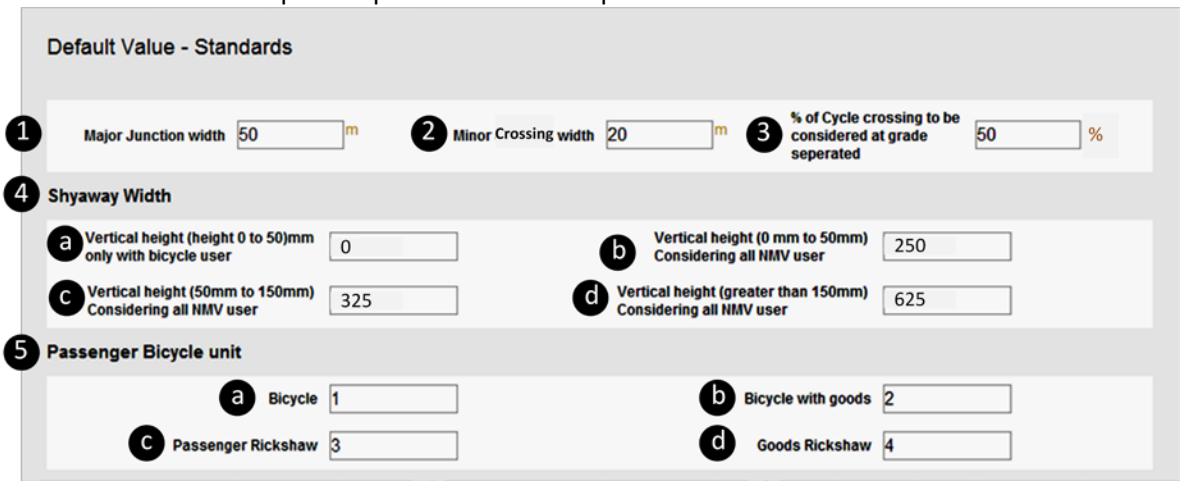


Figure 107: CYLOS for Transit access influence area - Default Form: Standard, Part 1

1. **Major Junction Width** – This defines the width of the major junction along the transit access influence area. The default value for Major junction width is considered as 50 m. The tool gives the flexibility to the user to alter the given default value anywhere between 20m to 120m.

2. **Minor Crossing Width**- This defines the width of minor crossing along the transit access influence area . The default value for Minor crossing width is considered as 20m. The tool gives the flexibility to the user to alter the given default value anywhere between 10m to 50m.

3. **% of Cycle crossing to be considered at grade separated** – This defines the percentage of grade separated crossings provided for the cyclist along the transit access influence area. The default value is assumed as 50%. However the tool provides the option to alter the default value anywhere between 0% and 100%.

4. **Shyaway Width –** This defines the margin between the vertical structure and cyclist on the cycle path. The default Shyaway width are assigned in the tool, based on the adjacent vertical height of the structure provided along the cycle infrastructure and the user type.
    a. If the user type is only bicycle and vertical structure height varies anywhere between greater than 0mm upto 50mm then 0mm.
    b. If the user type is comprised of cycle rickshaw as well as goods rickshaw along with bicycle user and vertical structure height varies anywhere between greater than 0mm upto 50mm then the default Shyaway width is 250mm.
    c. If vertical structure height varies anywhere between greater than 50mm upto 150mm then the default Shyaway width is 325mm.
    d. If vertical structure height exceeds over 150mm then the default Shyaway width is 625mm.
    The default values are being fixed according to the conditions mentioned and cannot be altered by the user.

5. **Passenger Bicycle unit** - Passenger bicycle unit or PBU is termed to be a unit equivalent of a single cycle in comparison to other cycling modes discussed in the form**.** Therefore default value considered in the tool for different cycling modes are:

a. Bicycle with passengers is 1
b. Bicycle with passengers goods is 2
c. Passengers rickshaws is 3 and
d. Goods rickshaws are 4.

The default values are being fixed according to the conditions mentioned and cannot be altered by the user.

Figure 108 shows the image of part 2 of the standard form. The inputs required in this are explained below:

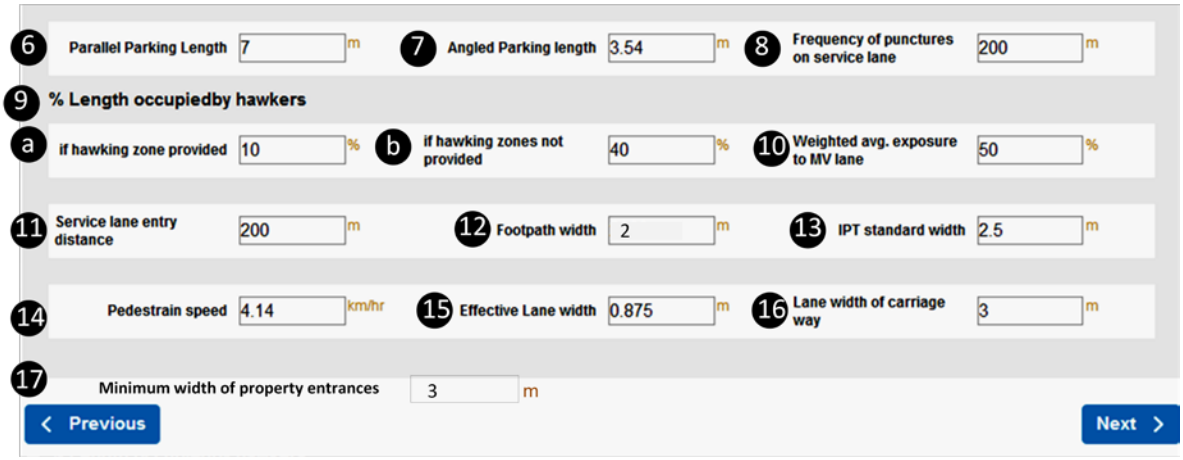


Figure 108: CYLOS for Transit access influence area - Default Form: Standard, Part 2

6. **Parallel Parking length –** This defines the length required for parallel parking along the transit access influence area. The default value is assumed as 7 m in case of parallel parking. However, the tool gives the flexibility to the user to alter the default value anywhere between 1m to 10m.

7. **Angled Parking length –** This defines the length required for angled parking along the transit access influence area. The default value is assumed as 4 m in case of angled parking. The tool gives the flexibility to the user to alter the default value anywhere between 1m to 10m.

8. **Frequency of punctures on service lane –** This defines the number of crossings or intersections along the cycling infrastructure. The default value is assumed as 200 m for frequency of puncture at service lane. The tool gives the flexibility to the user to alter the given default value anywhere between 0m to 500m**.**
9. **% Length occupied by hawkers –** This defines the number of hawkers present along the cycle infrastructure and the length occupied by them. The default values are provided under following categories:
    c. **If hawking zone provided** – If proper hawking zones are provided, then percentage length occupied by hawkers is assumed to be 10% as default value in the tool. However the tool gives the flexibility to alter the default value anywhere between (1to100) percent.
    d. **If hawking zones not provided** - If proper hawking zones are not provided, then the percentage length occupied by hawkers is assumed to be 40% as default value in the tool. However the tool gives the flexibility to alter the default value anywhere between (1 to100) percent.

10. **Weighted average exposure to MV-lane –** This defines the exposure of the cyclist to MV lanes while crossing along the transit access influence area. The default value assumed as

50% in the tool. However the tool provides the option to alter the default value anywhere between 0% and 100%.

11. **Service lane entry distance –** This define the distance between the entries into the service lane along the transit access influence area. The default value is assumed as 200 m in the tool. The tool gives the flexibility to the user to change the default value anywhere between 50m to 1000m.

12. **Footpath width –** This defines the width of the footpath along the cycle infrastructure. The default width of the footpath assumed as 2m in the tool. However the tool provides the option to alter the default value in the range of 1.2m to 3m.

13. **IPT Standard width –** This defines the width provided for Intermediate public transport (IPT) i.e. auto rickshaws or three wheeler scooters along the transit access influence area. The default value is assumed as 2.5 m. However, the tool gives the flexibility to the user to alter the given default value anywhere between 1m to 10m

14. **Pedestrian Speed –** This defines the speed of pedestrian along the transit access influence area. The default value is considered as 4.14 km / hr in the tool. However, the tool gives the flexibility to the user to change the default value anywhere between 1 km/hr to 10 km /hr.

15. **Effective lane width –** This defines the width required by one pedestrian along the transit access influence area. The default value is assumed as 0.875m in the tool. However, the tool gives the flexibility of altering the assigned default scores by the users anywhere between .6m to 1.5m.

16. **Lane Width of carriageway –** This defines the width of carriageway provided along the transit access influence area. The default value is assumed as 3m in the tool. However, the tool gives the flexibility to the user to alter the given default value anywhere between 0.5m to 100m.

17. **Minimum width of property entrances -** This defines the width of property entrances along the cycle infrastructure. The default value is assumed as 3m in the tool. However, the tool gives the flexibility to the user to alter the given default value anywhere between 3m to 15m.

Figure 110 shows the image of part 3 of the standard form. The inputs required in this are explained below:

Figure 109: CYLOS for Transit access influence area - Default Form: Standard, Part 3

18. **Accessibility influence zone radius:** This defines the radius of the influence area with the transit stop at its center. The default value is assumed as 2500m in the tool. This value has

been considered in reference to the Public Transport Accessibility Toolkit (2012), prepared by Ministry of Urban Development in 2012. It is recommended that the user should refer the updated version before changing this value.

19. **Maximum length of primary link:** This refers to the diameter of the transit access influence area. This is with reference to the accessibility radius mentioned above. However, incase the geometrical alignment of the primary link is not a straight line and is curvilinear, the tool has taken this value as 6250m i.e. 2.5 times of the radius.

3.2.6.2 Scaling

The scaling form is the second form of the default data input. Figure 110 shows the image of part 1 of the scaling form. The inputs required in this are explained below:

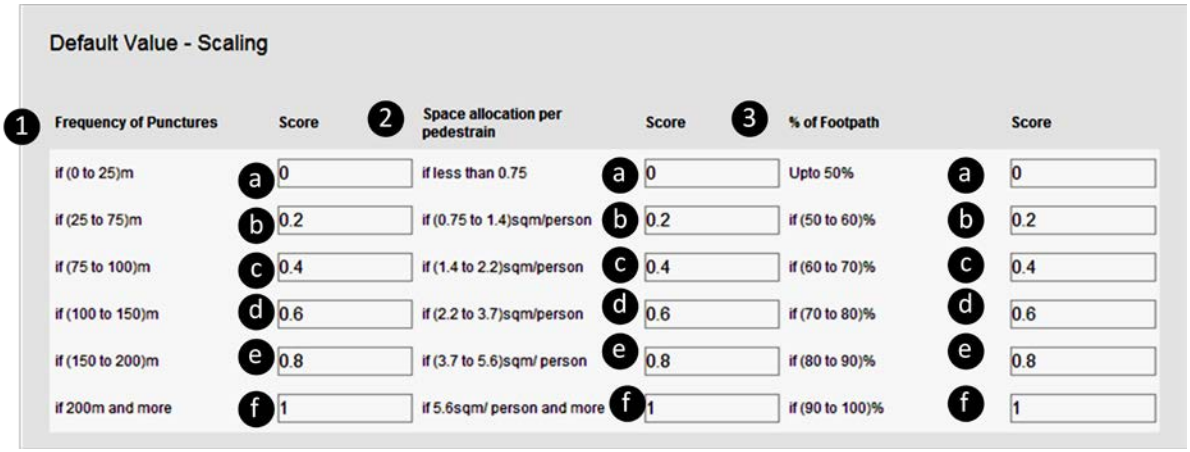


Figure 110: CYLOS for Transit access influence area - Default Form: Scaling, Part 1

1. **Frequency of punctures:** This defines the number of crossings or intersections along the cycling infrastructure. Average lower distance between the punctures creates higher negative impact on the cyclist. Therefore, if the distance between the punctures is less, the value will be lower. The default values assigned in the tool range from 0 to 1 based on the frequency of punctures such as:
    a. If a puncture exists in every (0 to 25) m then the value is 0. This value has to range between 0 to 1.
    b. If punctures exists anywhere from (25 to 75) m, then the value is 0.2. This value has to be equal to or greater than 1a.
    c. If punctures exists anywhere from (75 to 100), then the value is 0.4. This value has to be equal to or greater than 1b.
    d. If the punctures exists anywhere from (100 to 150) m, then the value is 0.6. This value has to be equal to or greater than 1c.
    e. If punctures exist anywhere from (150 to 200) m then the value is 0.8. This value has to be equal to or greater than 1d.
    f. If punctures exist at an interval of more than 200m length, then the value is 1. This value has to be equal to or greater than 1e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

2. **Space allocation per person:** This defines the space allocated per pedestrian (pedestrian density) along the cycling infrastructure. More the area provided per pedestrian, higher will be the value. The default values assigned in the tool ranges between 0 to 1 such as:

a. If pedestrian density is less than 0.75 sqm/person then value should be 0. This value has to range between 0 to 1.
b. If pedestrian density is between (0.75 to 1.4) sqm/person then the value should be 0.2. This value has to be equal to or greater than 2a.
c. If pedestrian density is between (1.4 to 2.2) sqm/person then the value should be 0.4. This value has to be equal to or greater than 2b.
d. If pedestrian density is between (2.2 to 3.7) sqm/person then the value should be 0.6. This value has to be equal to greater than 2c.
e. If pedestrian density is between (3.7 to 5.6) sqm/person then the value is 0.8. This value has to be equal to or greater than 2d.
f. If pedestrian density is more than 5.6 sqm/person then the value is 1. This value has to be equal to or greater than 2e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

3. **Percentage of footpath –** This defines the percentage of footpath available along the cycling infrastructure. If the percentage of footpath is more than then the value will be higher. The default values assigned in the tool ranges between 0 to 1 such as:
   a. **I**f percentage of footpath available is up to 50% then the value is 0. This value can range between 0 to 1.
   b. If percentage of footpath is between (50 % to 60%) then the value is 0.2. This value has to be equal to or greater than 3a.
   c. If percentage of footpath (A13) is between (60% to 70%) then the value is 0.4. This value has to be equal to or greater than 3b.
   d. If percentage of footpath is between (70% to 80%) then the value is 0.6. This value has to be equal to or greater than 3c.
   e. If percentage of footpath is between (80% to 90%) then the value is 0.8. This value has to be equal to or greater than 3d.
   f. If percentage of footpath is between (90% to 100%) then the value is 1. This value has to be equal to or greater than 3e.

   These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 111 shows the image of part 2 of the scaling form. The inputs required in this are explained below:

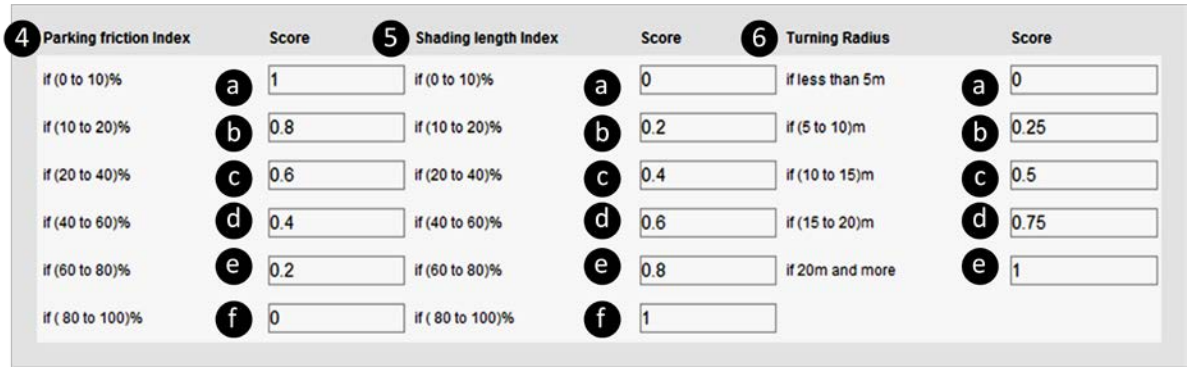


Figure 111: CYLOS for Transit access influence area - Default Form: Scaling, Part 2

4. **Parking friction Index –** This defines the friction generated to the cyclist due to parking along the cycling infrastructure. Average more parking along the cycling path, higher negative

impact will be created on the cyclist. Therefore, if the parking percentage along the cycling path is high, value will be lower. The default values assigned in the tool ranges between 0 to 1 such that:

a. If friction caused due to parking is between (0 to 10) % then the value is 1. This value can range between 0 to 1.
b. If the friction caused due to parking is between (10 to 20) % then value is 0.8. This value has to be equal to or less than 4a.
c. If the friction caused due to parking is between (20 to 40) % then value is 0.6. This value has to be equal to or less than 4b.
d. If the friction caused due to parking is between (40 to 60) % then value is 0.4. This value has to be equal to or less than 4c.
e. If the friction caused due to parking is between (60 to 80) % then value is 0.2. This value has to be equal to or less than 4d.
f. If the friction caused due to parking is between (80 to 100) % then value is 0. This value has to be equal to or less than 4e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

5. **Shading length Index –** This defines the percentage of shaded length available along the cycling infrastructure. If the percentage of shaded length available on the cycle path is more the value will be higher. The default values assigned in a tool ranges between 0 to 1 such as:
    a. If shaded length available is between (0 to 10) % then value is 0. This value can range between 0 to 1.
    b. If shaded length available is between (10 to 20) % then value is 0.2. This value has to be equal to or greater than 5a.
    c. If the shaded length available is between (20 to 40) % then value is 0.4. This value has to be equal to or greater than 5b.
    d. If the shaded length available is between (40 to 60) % then value is 0.6. This value has to be equal to or greater than 5c.
    e. If the shaded length available is between (60 to 80) % then value is 0.8. This value has to be equal to or greater than 5d.
    f. If the shaded length available is between (80 to 100) % then value is 1. This value has to be equal to or greater than 5e. The value cannot be greater than 1.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

6. **Turning Radius –** This defines the turning radius provided for the cyclist along the cycle infrastructure. Average less turning radius along the cycle lane creates higher negative impact on the cyclist. Therefore, if the turning radius is less, the value will be less. The default values assigned in a tool ranges between 0 to 1 such as:
    a. If the turning radius is less than 5m then value is 0. This value can range between 0 to 1.
    b. If the radius is between (5m-10m) then value is 0.25. This value has to equal to or greater than 6a.
    c. If the radius is between (10m-15m) then value is 0.5. This value has to be equal to or greater than 6b.
    d. If the radius is between (15m-20m) then value is 0.75. This value has to be equal to or greater than 6c.
    e. If the radius is greater than 20m then value is 1. This value has to be equal to or greater than 6d.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 112 shows the image of part 3 of the scaling form. The inputs required in this are explained below:

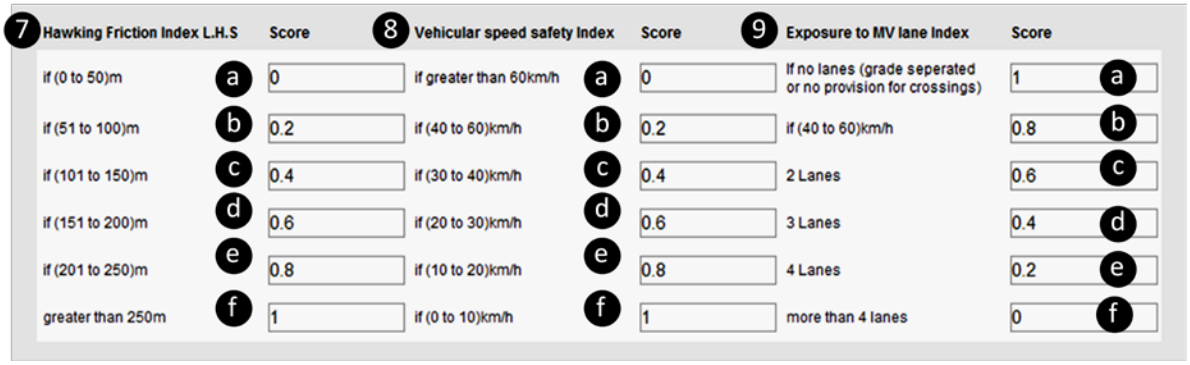


Figure 112: CYLOS for Transit access influence area - Default Form: Scaling, Part 3

7. **Hawking Friction Index –** This defines the friction caused due to the presence of hawkers along the cycle infrastructure. Average lower distance between the presences of hawkers, higher negative impact is created on the cyclist. Therefore, if the distance between the hawkers is less, the value will be lower. The default values assigned in the tool range from 0 to 1 based on the frequency of punctures such as:
    a. If the friction caused due to hawkers every (0m to 50m) then value assigned is 0. This value can range between 0 to 1.
    b. If the friction caused due to hawkers is between (51m to 100m) then assigned value is 0.2. This value has to be equal to or greater than 7a.
    c. If the friction caused due to hawkers is between (100m to 150m) then assigned value is 0.4. This value has to be equal to or greater than 7b.
    d. If the friction caused due to hawkers is between (150m to 200m) then assigned value is 0.6. This value has to be equal to or greater than 7c.
    e. If the friction caused due to hawkers is between (200m to 250m) then assigned value is 0.8. This value has to be equal to or greater than 7d.
    f. If the friction caused due to hawkers exceeds than 250m then assigned value is 1. This value has to be equal to greater than 7e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

8. **Vehicular Speed Safety Index –** This defines the level of safety of cyclist with respect to the motor vehicle speed. Average higher speed of the motar vehicle, higher negative impact is created on the cyclist. Therefore, if the speed of the motar vehicles is less, the value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If the speed exceeds than 60km/hr then assigned value is 0. This value can range between 0 to 1.
    b. If speed varies between (40 to 60) km/hr then assigned value is 0.2. This value has to be equal to or greater than 8a.
    c. If the speed varies between (30 to 40) km/hr then assigned value is 0.4. This value has to be equal to or greater than 8b.

d. If the speed varies between (20 to 30) km/hr then assigned value is 0.6. This value has to be equal to or greater than 8c.
e. If the speed varies between (10 to 20) km/hr then assigned value is 0.8. This value has to be equal to or greater than 8d.
f. If the speed varies between (0 to 10) km/hr then assigned value is 1. This value has to be equal to or greater than 8e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

9. **Exposure to MV lane Index:** This defines the exposure of the cyclist with respect to the motor vehicle lanes during crossing. Higher the number of lanes, more negative impact will be created on the cyclist. Therefore, if the number of lanes is more the value will be less. The default values assigned in the tool range from 0 to 1 such as:
   a. If there are no lanes provided (grade separated or no provision of crossing is provided) then value assigned is 1. This value can range between 0 to 1.
   b. If one lane provided then assigned value is 0.8. This value has to be equal to or less than 9a.
   c. If 2 lanes are provided then assigned value is 0.6. This value has to be equal to or less than 9b.
   d. If 3 lanes are provided then value is 0.4. This value has to be equal to or less than 9c.
   e. If 4 lanes are provided then assigned value is 0.2. This value has to be equal to or less than 9d.
   f. If more than 4 lanes are provided then assigned value is 0. This value has to be equal to or less than 9e.

   These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 113 shows the image of part 4 of the scaling form. The inputs required in this are explained below:

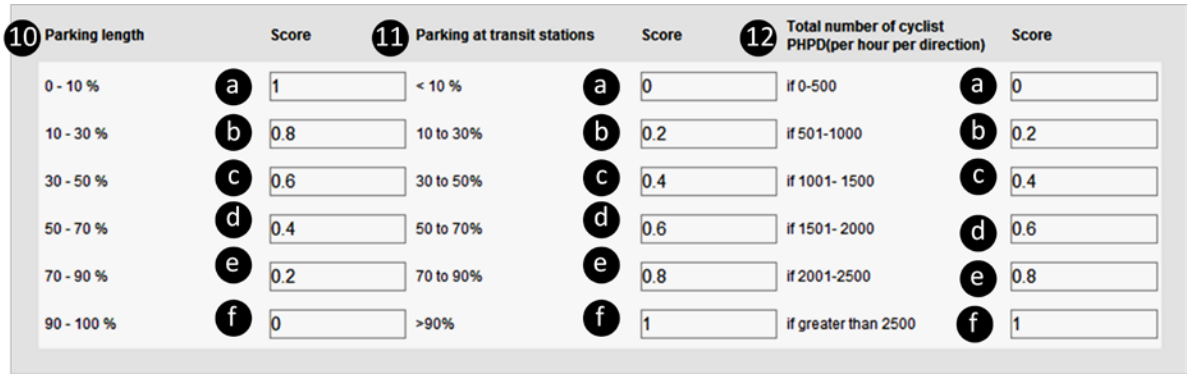


Figure 113: CYLOS for Transit access influence area - Default Form: Scaling, Part 4

10. **Parking Length** – This defines the percentage of the parking length available along the cycle infrastructure. Higher the percentage of parking length available, more negative impact will be created on the cyclist. Therefore, if the parking length percentage is more the value will be less. The default values assigned in the tool range from 0 to 1 such as:
    a. If parking length available is anywhere between (0 to 10) % then assigned value is 1. This value can range between 0 to 1.
    b. If parking length available is anywhere between (10 to 30) % then assigned value is 0.8. This value has to be equal to or less than 10a.

c. If parking length available is anywhere between (30 to 50) % then assigned value is 0.6. This value has to be equal to or less than 10b.
d. If parking length available is anywhere between (50 to 70) % then assigned value is 0.4. This value has to be equal to or less than 10c.
e. If parking length available is anywhere between (70 to 90) % then assigned value is 0.2. This value has to be equal to or less than 10d.
f. If parking length available is anywhere between (90 to 100) % then assigned value is 0. This value has to be equal to or less than10e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

11. **Parking at transit stations -** This defines the percentage of transit station parking available along the cycle infrastructure. Lower the percentage of transit station parking available, more negative impact will be created on the cyclist. Therefore, if the transit station parking percentage is more the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If parking available is less than 10 % then value is 0. This value can range between o to 1.
    b. If parking available is anywhere between (10 to 30) % then value is 0.2. This value has to be equal to or greater than 11a.
    c. If parking available is anywhere between (30 to 50) % then value is 0.4. This value has to be equal to or greater than 11b.
    d. If parking available is anywhere between (50 to 70) % then value is 0.6. This value has to be equal to or greater than 11c.
    e. If parking available is anywhere between (70 to 90) % then value is 0.8. This value has to be equal to or greater than 11d.
    f. If parking length available is more than 90 % then value is 1. This value has to be equal to or greater than 11e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

12. **Total number of cyclist PHPD (per hour per direction) -** This defines the number of cyclist per hour per direction along the cycle infrastructure. If the number of cyclist is more, the value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If number of cyclist varies between (0 to 500) then assigned value is 0. This value can range between 0 to 1.
    b. If number of cyclists varies between (500 to 1000) then assigned value is 0.2. This value has to be equal to or greater than 12a.
    c. If number of cyclist varies between (1000 to 1500) then assigned value is 0.4. This value has to be equal to or greater than 12b.
    d. If number of cyclist varies between (1500 to 2000) then assigned value is 0.6. This value has to be equal to or greater than 12c.
    e. If number of cyclist varies between (2000 to 2500) then assigned value is 0.8. This value has to be equal to or greater than 12d.
    f. If number of cyclist varies more than 2500 per direction per hour then assigned value is 1. This value has to be equal to or greater than 12e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 114 shows the image of part 5 of the scaling form. The inputs required in this are explained below:

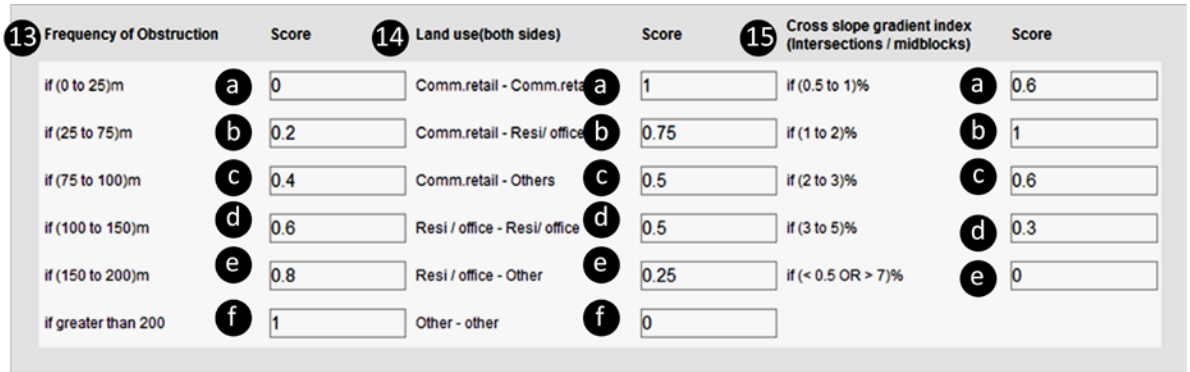


Figure 114: CYLOS for Transit access influence area - Default Form: Scaling, Part 5

13. **Frequency of Obstruction -** This defines the frequency of the obstructions along the cycle infrastructure. Lower the distance between the obstructions, more negative impact will be created on the cyclist. Therefore, if the distance between obstructions is less the value will be less. The default values assigned in the tool range from 0 to 1 such as:
    a. If the frequency of obstructions is between (0m to 25m) then value is 0. This value can range between 0 to 1.
    b. If the frequency of obstructions is between (25m to 75m) then value is 0.2. This value has to be equal to or greater than 13a.
    c. If the frequency of obstructions is between (75m to 100m) then value is 0.4. This value has to be equal to or greater than 13b.
    d. If the frequency of obstructions is between (100m to 150m) then value is 0.6. This value has to be equal to or greater than 13c.
    e. If the frequency of obstructions is between (150m to 200m) then value is 0.8. This value has to be equal to or greater than 13d.
    f. If the frequency of obstructions is more than 200m then value is 1. This value has to be equal to or greater than 13e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

14. **Land Use (both sides) -** This defines the existing land use both sides of the transit access influence area. If the land use is commercial on both sides, more positive impact is created on the cyclist. Therefore, if the land use is commercial on both sides value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If the land use is commercial retail on both the sides then assigned value is 1. This value can range between 0 to 1.
    b. If the land use is commercial retail on one side and residential/office on the other side then assigned value is 0.75. This value has to be equal to or less than 14a.
    c. If the land use function is commercial retail on one side and others (no function /recreational /industrial /institutional / green) on the other side then assigned value is 0.5. This value has to be equal to or less than 14b.
    d. If the land use function is residential / office on both the sides then assigned value is 0.5. This value has to be equal to or less than 14c.
    e. If the land use function is Residential /office on one side and Others (no function /recreational / industrial /institutional green) on the other side then assigned value is 0.25. This value has to be equal to or less than 14d.

f. If the land use function is others on both the sides then assigned value is 0. This value has to be equal to or less than 14e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

15. **Cross slope gradient index (Intersections/Midblock) –** This defines the percentage of slope available along the cycle infrastructure. The default values assigned in the tool range from 0 to 1 such as:
    a. If the slope varies in the range between (0.5 to 1) % then assigned value is 0.6. This value can range between 0 to 1.
    b. If the slope varies in the range between (1 to 2) % then assigned value is 1. This value has to be equal to or greater than 15a.
    c. If the slope varies in the range between (2 to 3) percent then assigned value is 0.6. This value has to be equal to or less than 15b.
    d. If the slope varies in the range between (3 to 5) percent then assigned value is 0.3. This value has to be equal to or less than 15c.
    e. If the slope is more than 7% and less 0.5% then assigned value is 0. This value has to be equal to or less than 15d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 115 shows the image of part 6 of the scaling form. The inputs required in this are explained below:

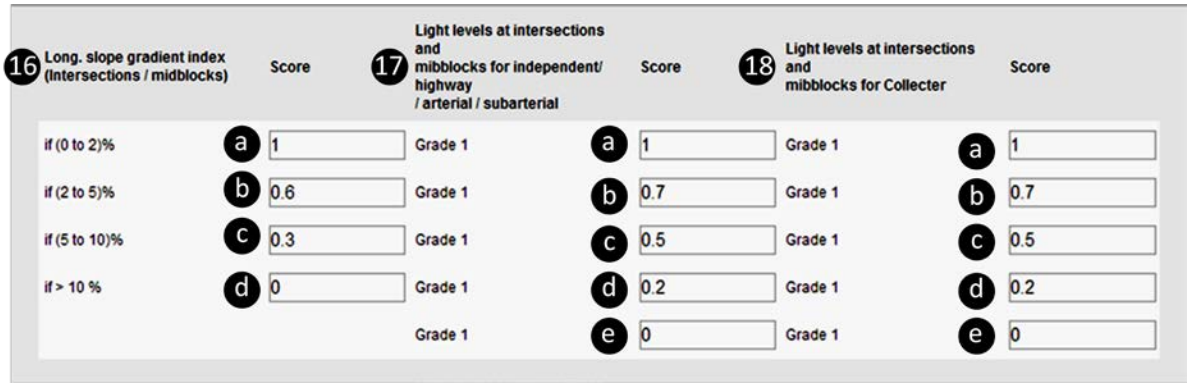


Figure 115: CYLOS for Transit access influence area - Default Form: Scaling, Part 6

16. **Long slope gradient Index (Intersections/Midblock) -** This defines the percentage of long slope gradient along the cycle infrastructure. Greater the slope, more negative impact will be created on the cyclist. Therefore, if the percentage of slope is more the value will be less. The default values assigned in the tool range from 0 to 1 such as:
    a. If the slope varies in the range between (0 to 2) % then value is 1. This value can range between 0 to 1.
    b. If the slope varies in the range between (2 to 5)% then value is 0.6. This value has to be equal to or less than 16a.
    c. If the slope varies in the range between (5 to 10)% then value is 0.3. This value has to be equal to or less than 16b.
    d. If the slope is greater than 10% then value is 0. This value has to be equal to or less than 16c.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

17. **Light levels at intersections and midblock for Independent/Highway/arterial/sub arterial -** This defines the lighting levels based on lux level at the midblock and intersections for Independent/ Highway/ Arterial and Sub Arterial. Greater the lux level along the cycle infrastructure, more positive impact will be created on the cyclist. Therefore, if the lux level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the lux level is greater than or equal to 15 lux then value is 1. This value can range between 0 to 1.
    b. If the lux level varies from (12 to 14.9) lux then value is 0.7. This value has to be equal to or less than 17a.
    c. If the lux level varies from (9 to 11.9) lux then value is 0.5. This value has to be equal to or less than 17b.
    d. If the lux level varies from (6 to 8.9) lux then value is 0.2. This value has to be equal to or less than 17c.
    e. If the lux level is smaller than 6 lux then value is 0. This value has to be equal to or less than 17d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

18. **Light levels at Intersections and Midblock for Collector -** This defines the lighting levels based on lux level at the midblock and intersections for Collector road. Greater the lux level along the cycle infrastructure, more positive impact will be created on the cyclist. Therefore, if the lux level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the lux level is greater than or equal to 8 lux then value is 1. This value can range between 0 to 1.
    b. If the lux level varies from (7 to 8) lux then value is 0.7. This value has to be equal to or less than 18a.
    c. If the lux level varies from (6 to 7) lux then value is 0.5. This value has to be equal to or less than 18b.
    d. If the lux level varies from (5 to 6) lux then value is 0.2. This value has to be equal to or less than 18c.
    e. If the lux level is smaller than 5 lux then value is 0. This value has to be equal to or less than 18d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 116 shows the image of part 7 of the scaling form. The inputs required in this are explained below:

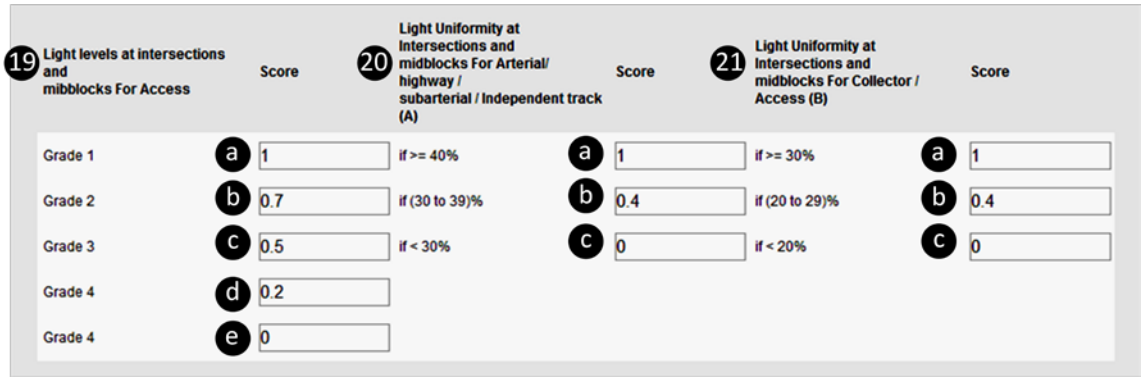


Figure 116 : CYLOS for Transit access influence area - Default Form: Scaling, Part 7

19. **Light levels at Intersections and Midblock for Access -** This defines the lighting levels based on lux level at the midblock and intersections for Access road. Greater the lux level along the cycle infrastructure, more positive impact will be created on the cyclist. Therefore, if the lux level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the lux level is greater than or equal to 4 lux then value is 1. This value can range between 0 to 1.
    b. If the lux level varies from (3.5 to 4) lux then value is 0.7. This value has to be equal to or less than 17a.
    c. If the lux level varies from (3 to 3.5) lux then value is 0.5. This value has to be equal to or less than 17b.
    d. If the lux level varies from (2.5 to 3) lux then value is 0.2. This value has to be equal to or less than 17c.
    e. If the lux level is smaller than 2.5 lux then value is 0. This value has to be equal to or less than 17d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

20. **Light Uniformity at Intersection and Midblock for Arterial/Highway/ Sub arterial/ Independent Track –** This defines the percentage of uniformity in lighting available on the arterial, sub arterial, highway and independent track. Greater the lighting uniformity percentage along the cycle infrastructure, more positive impact will be created on the cyclist. Therefore, if the percentage of uniformity level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the lighting uniformity is greater than or equal to 40 % then assigned value is 1. This value can range between 0 to 1.
    b. If the lighting uniformity varies in the between (30 to 40)% then assigned value is0.4. This value has to be equal to or less than 20a.
    c. If the lighting uniformity is less than 30% then assigned value is 0. This value has to be equal to or less than 20b.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

21. **Light Uniformity at Intersection and Midblock for Collector/Access-** This defines the percentage of uniformity in lighting available at the Intersection and midblock of Collector and Access road. Greater the lighting uniformity percentage along the cycle infrastructure,

more positive impact will be created on the cyclist. Therefore, if the percentage of uniformity level is high, value for will be high. The default values assigned in the tool range from 0 to 1 such as:

a. If the lighting uniformity is greater than or equal to 30 % then assigned value is 1. This value can range between 0 to 1.
b. If the lighting uniformity varies in the between (20 to 30)% then assigned value is 0.4. This value has to be equal to or less than 21a.
c. If the lighting uniformity is less than 20% then assigned value is 0. This value has to be equal to or less than 21b.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 117 shows the image of part 8 of the scaling form. The inputs required in this are explained below:

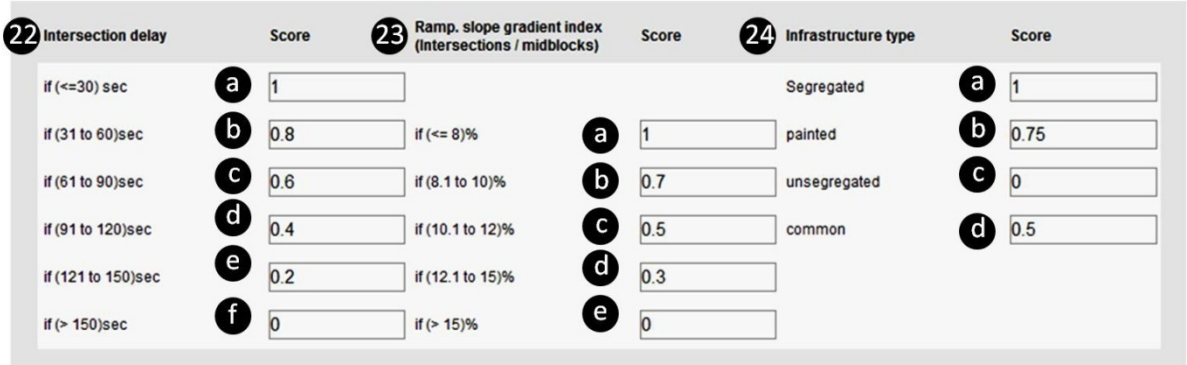


Figure 117: CYLOS for Transit access influence area - Default Form: Scaling, Part 8

22. **Intersection delay –** This defines the time delay of the cyclist at the intersections – This defines the tine delay of the cyclist at the intersections due to signal. Lesser the time delay for the cyclist, more positive impact will be created on the cyclist. Therefore, if the time delay is less, value will be higher. The default values assigned in the tool range from 0 to 1 such as:

    a. If delay is less than or equal to 30 sec then assigned value is 1. This value can range between 0 to 1.
    b. If delay varies between (30 to 60) sec then assigned value is 0.8. This value has to be equal to or less than 22a.
    c. If delay varies between (60 to 90) sec then assigned value is 0.6. This value has to be equal to or less than 22b.
    d. If delay varies between (90 to 120) sec then assigned value is 0.4. This value has to be equal to or less than 22c.
    e. If delay varies between (120 to 150) sec then assigned value is 0.2. This value has to be equal to or less than 22d.
    f. If delay is more than 150 sec then assigned value is 0. This value has to be equal to or less than 22e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

23. **Ramp slope gradient index (Intersections/midblock) –** This defines the slope of ramp on the cycle infrastructure. Lesser the ramp slope gradient, more positive impact will be created on the cyclist. Therefore, if the percentage of slope is less, value will be higher. The default values assigned in the tool range from 0 to 1 such as:

    a. If the slope is equal to or less than 8 % then assigned value is 1. This value can range between 0 to 1.
    b. If the slope varies in the range between (8 to 10)% then assigned value is 0.8. This value has to be equal to or less than 23a.
    c. If the slope varies in the range between (10 to 12)% then assigned value is 0.5. This value has to be equal to or less than 23b.
    d. If the slope varies in the range between (12 to 15)% then assigned value is 0.2. This value has to be equal to or less than 23c.
    e. If the slope is greater than or equal to 15 % then assigned value is 0. This value has to be equal to or less than 23d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

24. **Infrastructure type –** This defines the type of cycling infrastructure available along the transit access influence area. If the cycle infrastructure is separated from the carriageway , more positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If infrastructure is segregated then assigned value is 1. This value assigned is 1. This value can range between 0 to 1.
    b. If it is painted infrastructure then assigned value is 0.75. This value has to be equal to or less than 24a.
    c. If infrastructure is unsegregated then assigned value is 0. This value has to be equal to or less than 24b.
    d. If infrastructure is common then assigned value is 0.5. This value has to be equal to or greater than 24c.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 118 shows the image of part 9 of the scaling form. The inputs required in this are explained below:

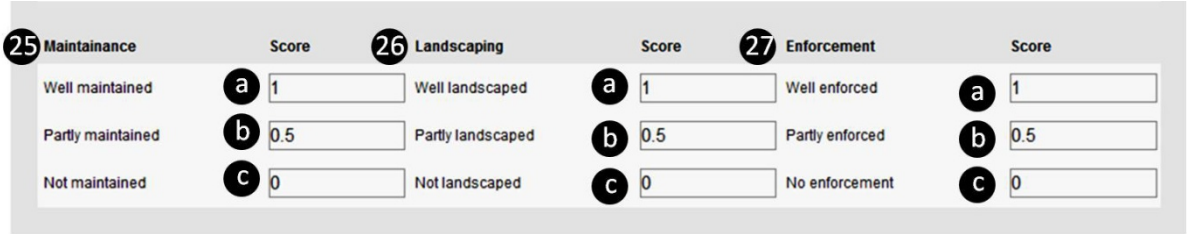


Figure 118: CYLOS for Transit access influence area - Default Form: Scaling, Part 9

25. **Maintenance –** This defines the maintenance level of the cycling infrastructure available along the transit access influence area. If the cycle path is maintained well, more positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the cycle infrastructure is well maintained then assigned value is 1. This value can range between 0 to 1.

b. If the cycle infrastructure is partly maintained then assigned value is 0.5. This value has to be equal to or less than 25a.
c. If cycle infrastructure is not maintained then assigned value is 0. This value has to be equal to or less than 25b.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

26. **Landscaping –** This defines the landscaping along the cycling infrastructure available on the transit access influence area. If the areas along the cycle path are landscaped well, more positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the cycle infrastructure is well landscaped then assigned value is 1. This value can range between 0 to 1.
    b. If the cycle infrastructure is partly landscaped then assigned value is 0.5. This value has to be equal to or less than 26a.
    c. If cycle infrastructure has no landscaping then assigned value is 0. This value has to be equal to or less than 26b.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

27. **Enforcement –** This defines the level of enforcement applied on a cycle infrastructure along the transit access influence area. If the areas along the cycle path are well enforced, more positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the cycle infrastructure is well enforced then assigned value is 1. This value can range between 0 to 1.
    b. If the cycle infrastructure is partly enforced then assigned value is 0.5. This value has to be equal to or less than 27a.
    c. If cycle infrastructure has no enforcement then assigned value is 0. This value has to be equal to or less than 27b.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 119 shows the image of part 10 of the scaling form. The inputs required in this are explained below:

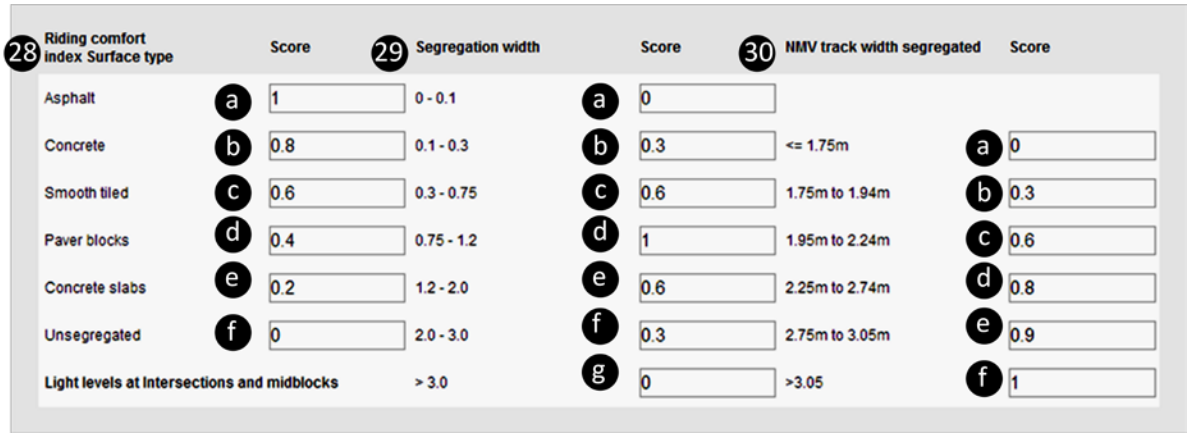


Figure 119: CYLOS for Transit access influence area - Default Form: Scaling, Part 10

28. **Riding comfort Index (Surface type) –** This defines the level of riding quality based on the surface material of the cycling infrastructure along the transit access influence area. If proper surface material is provided along the cycle path, more positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If asphalt is used as surface material then value is 1. This value can range between 0 to 1.
    b. If concrete is used as surface material then value is 0.8. This value has to be equal to or less than 28a.
    c. If surface material is smooth tiled then value is 0.6. This value has to be equal to or less than 28b.
    d. If surface material used is paver blocks then value is 0.4. This value has to be equal to or less than 28c.
    e. If surface material used is concrete slab then value is 0.2. This value has to be equal to or less than 28d.
    f. If unsegregated then value is 0. This value has to be equal to or less than 28e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

29. **Segregation width –** This defines the width between the carriageway and cycle track along the transit access influence area. If width provided is more, negative impact will be created on the cyclist and the value will be low. The default values assigned in the tool range from 0 to 1 such as:
    a. If the provided width of segregation is between (0 to 0.1) m then value is 0. This value can range between 0 to 1.
    b. If the provided width of segregation is between (0.1 to 0.3) m then value is 0.3. This value has to equal to or greater than 29a.
    c. If the provided width of segregation is between (0.3 to 0.75) m then value is 0.6. This value has to be equal to or greater than 29b.
    d. If the provided width of segregation is between (0.75 to 1.2) m then value is 1. This value has to be equal to or greater than 29c.
    e. If the provided width of segregation is between (1.2 to 2.0)m then value is 0.6. This value has to be equal to or less than 29d.
    f. If the provided segregation width is between (2.0 to 3.0)m then value is 0.3. This value has to be equal to or less than 29e.
    g. If the provided segregation width is greater than 3.0m then value is 0. This value has to be equal to or less than 29f.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

30. **NMV track width segregated –** This defines the width of the segregated cycle track along the transit access influence area. If the width of the segregated cycle track is more, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the provided width is less than or equal to 1.75m then assigned value is 0. This value can range between 0 to 1.
    b. If the width is between (1.75 to 1.94)m then value is 0.3. This value has to be equal to or greater than 30a.
    c. If the width is anywhere between (1.95 to 2.24)m then value is 0.6. This value has to be equal to or greater than 30b.

d. If the width is anywhere between (2.25 to 2.74)m then value is 0.8. This value has to be equal to or greater than 30c.
e. If the width is anywhere between (2.75 to 3.05)m then value is 0.9. This value has to be equal to or greater than 30d.
f. If the width is greater than 3.0m then value is 1. This value has to be equal to or greater than 30e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 120 shows the image of part 11 of the scaling form. The inputs required in this are explained below:

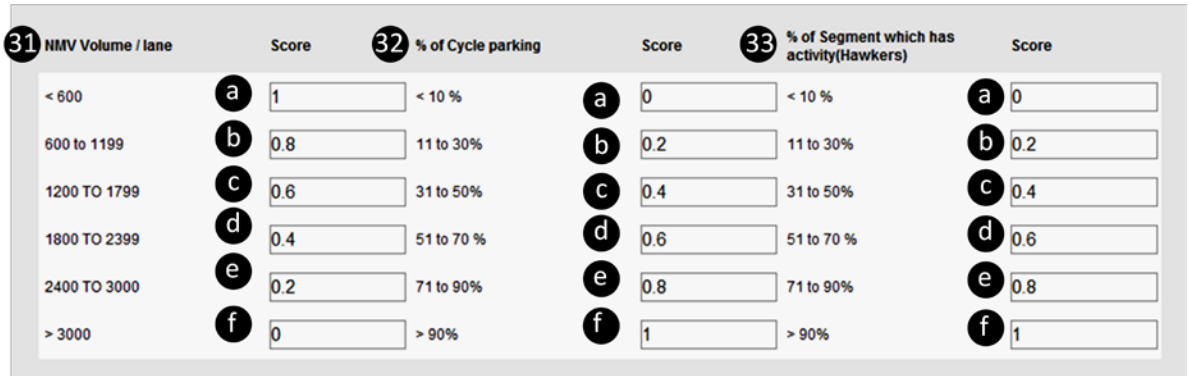


Figure 120: CYLOS for Transit access influence area - Default Form: Scaling, Part 11

31. **NMV Volume/Lane –** This defines the number of cyclist per lane along the transit access influence area. If the NMV volume is more, negative impact will be created on the cyclist and the value will be low. The default values assigned in the tool range from 0 to 1 such as:
    a. If the volume per lane is less than 600 cyclists then assigned value is 1. This value can range between 0 to 1.
    b. If the volume per lane is anywhere between (600 to 1199) cyclists then value is 0.8. This value has to equal to or less than 31a.
    c. If the volume per lane is anywhere between (1200 to 1799) cyclists then value is 0.6. This value has to be equal to or less than 31b.
    d. If the volume per lane is anywhere between (1800 to 2399) cyclists then value is 0.4. This value has to be equal to or less than 31c.
    e. If the volume per lane is anywhere between (2400 to 3000) cyclists then value is 0.2. This value has to be equal to or less than 31d.
    f. If the volume per lane is greater than 3000 cyclists then value is 0. This value has to be equal to or less than 31e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

32. **Percentage of Cycle Parking –** This defines the number of cycle parking along the cycle infrastructure on the transit access influence area. If the percentage of cycle parking is more, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the percentage of cycle parking is less than 10 % then value is 0. This value can range between 0 to 1.
    b. If the percentage is anywhere between (11 to 30)% then value is 0.2. This value has to be equal to or greater than 32a.

c. If the percentage of cycle parking is anywhere between (31 to 50)% then value is 0.4. This value has to be equal to or greater than 32b.
d. If the percentage is anywhere between (51 to 70)% then value is 0.6. This value ahs to be equal to or greater than 32c.
e. If the percentage is anywhere between (71 to 90)% then value is 0.8. This value has to be equal to or greater than 32d.
f. If the percentage is greater than 90% then value is 1. This value has to be equal to or greater than 32e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

33. **Percentage of Link which has activity (Hawkers) –** This defines the number of hawkers along the cycle infrastructure on the transit access influence area. If the percentage of hawkers is more, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the percentage is less than 10 % then assigned value is 0. This value can range between 0 to 1.
    b. If the percentage is anywhere between (11 to 30)% then value is 0.2. This value has to be equal to or greater than 33a.
    c. If the percentage of cycle parking is anywhere between (31 to 50)% then value is 0.4. This has to be equal to or greater than 33b.
    d. If the percentage is anywhere between (51 to 70)% then value is 0.6. This value has to be greater than 33c.
    e. If the percentage is anywhere between (71 to 90)% then value is 0.8. This value has to be equal to or greater than 33d.
    f. If the percentage is greater than 90% then value is 1. This value has to be equal to or greater than 33e.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 121 shows the image of part 12 of the scaling form. The inputs required in this are explained below:

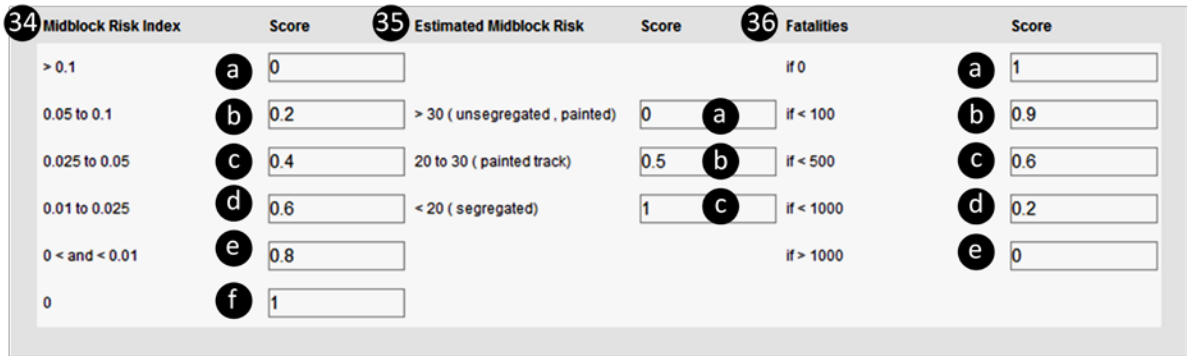


Figure 121: CYLOS for Transit access influence area - Default Form: Scaling, Part 12

34. **Midblock Risk Index –** This defines the number of fatalities at the midblock of the transit access influence area. If the number of fatalities is more, negative impact will be created on the cyclist and the value will be low. The default values assigned in the tool range from 0 to 1 such as:

a. If fatalities per link length is greater than 0.1 the value is 0. This value can range between 0 to 1.
b. If fatalities per link is anywhere between (0.05 to 0.1) then value is 0.2. This value has to be equal to or greater than 34a.
c. If fatalities per link is anywhere between (0.025 to 0.05) then value is 0.4. This value has to be equal to or greater than 34b.
d. If fatalities per link is anywhere between (0.01 to 0.025) then value is 0.6. This value has to be equal to or greater than 34c.
e. If fatalities per link is anywhere between (0 to 0.01) then value is 0.8. This value has to be equal to or greater than 34d.
f. If fatalities per link are 0 then value is 1. This value has to be equal to or greater than 34e.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

35. **Estimated Midblock Risk –** This defines the risk at the midblock based upon the speed and road typology on the transit access influence area. If the speed is less and segregated ycle track is provided, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If speed is greater than 30 km /hr with unsegregated and painted cycle track then value is 0. This value can range between 0 to 1.
    b. If the speed is (20 to 30) km /hr with painted cycle lane then value is 0.5. This value has to be equal to or greater than 35a.
    c. If speed is less than 20 km / hr and the cycle infrastructure is segregated than value is 1. This value has to be equal to or greater than 35b.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

36. **Fatalities –** This defines the number of fatalities per link length of the transit access influence area. If the number of fatalities is more, negative impact will be created on the cyclist and the value will be low. The default values assigned in the tool range from 0 to 1 such as:
    a. If the number of fatalities is 0 then assigned value is 1. This value can range between 0 to 1.
    b. If number of fatalities is less than 100 then assigned value is 0.2. This value has to be equal to or less than 36a.
    c. If number of fatalities is less than 500 then assigned value is 0.6. This value has to be equal to or less than 36b.
    d. If number of fatalities is less than 1000 then assigned value is 0.9. This value has to be equal to or less than 36c.
    e. If number of fatalities is greater than 1000 then assigned value is 0. This has to be equal to or less than 36d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 122 shows the image of part 13 of the scaling form. The inputs required in this are explained below:

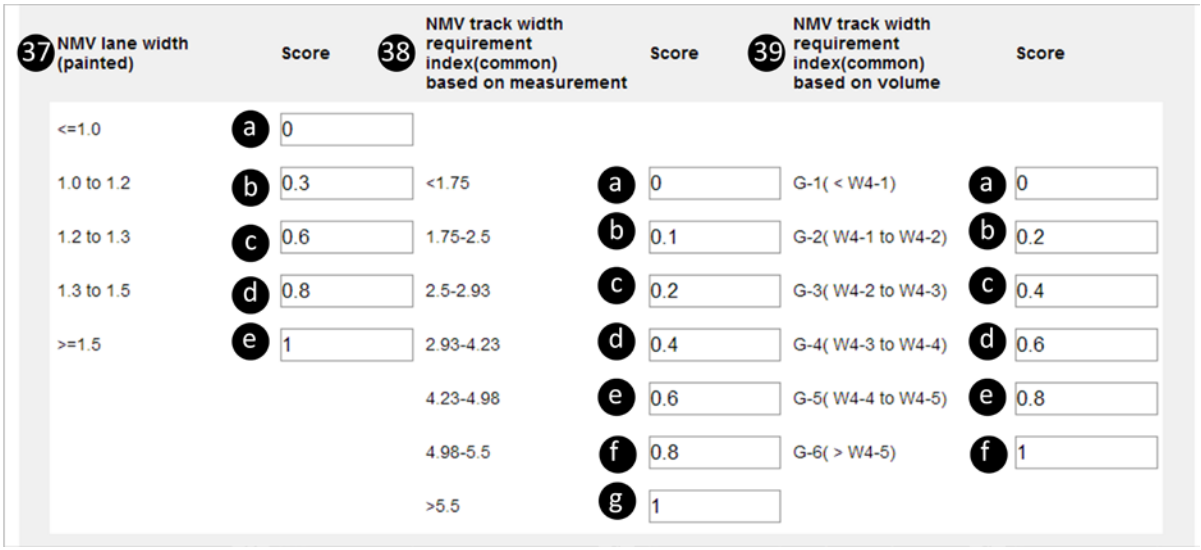


Figure 122: CYLOS for Transit access influence area - Default Form: Scaling, Part 13

37. **NMV Lane width (painted) –** This defines the painted NMV infrastructure width along the transit access influence area. If the width is more, positive impact will be created on the cyclist and the value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the provided width is less than or equal to 1m then assigned value is 0. This value can range between 0 to 1.
    b. If the width is between (1.0 to 1.19) m then assigned value is 0.3. This value has to be equal to or greater than 37a.
    c. If the width is anywhere between (1.2 to 1.3) m then assigned value is 0.6. This value has to be equal to or greater than 37b.
    d. If the width is anywhere between (1.3 to 1.49) m then assigned value is 0.8. This value has to be equal to or greater than 37c.
    e. If the width is greater than 1.5m then assigned value is 1. This value has to be equal to or greater than 37d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

38. **NMV track width requirement index (common) based on volume –** This defines the width of NMV track for common cycle infrastructure based on pedestrian density and cycle speed. If the width is more, the value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If the width input by the user is less than W4-1 then value is 0. This value can range between 0 to 1.
    b. If the width varies anywhere between (W4-1 to W4-2) then value is 0.2. This value has to be equal to or greater than 38a.
    c. If the width varies anywhere between (W4-2 to W4-3) then value is 0.4. This value has to be equal to or greater than 38b.
    d. If the width varies anywhere between (W4-3 to W4-4) then the value is 0.6. This value has to be equal to or greater than 38c.
    e. If the width varies anywhere between (W4-4 to W4-5) then value is 0.8. This value has to be equal to or greater than 38d.

f. If the width is greater than W4-5 value is 1. This value has to be equal to or greater than 38e.

Here (W4-1, W4-2, W4-3, W4-4 and W4-5) are the variable widths determined on the basis of the total volume (cyclist + pedestrian) obtained from the combination of pedestrian density and NMV volume per lane.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

39. **NMV track width requirement index (common) based on measurement-** This defines the width of NMV track for common cycle infrastructure based on measurement of the pedestrian and cyclist. If the width is more, the value will be higher. The default values assigned in the tool range from 0 to 1 such as:
    a. If the width is less than 1.75m then value is 0. This value can range between 0 to 1.
    b. If the width varies anywhere between (1.75 to 2.5)m then value is 0.1. This value has to be equal to or greater than 39a.
    c. If the width varies anywhere between (2.5 to 2.93) m then value is 0.2. This value has to be equal to or greater than 39b.
    d. If the width varies anywhere between (2.93 to 4.23) m then value is 0.4. This value has to be equal to or greater than 39c.
    e. If the width varies anywhere between (4.23 to 4.98) m then value is 0.6. This value has to be equal to or greater than 39d.
    f. If the width varies anywhere between (4.98 to 5.5) m then value is 0.8. This value has to be equal to or greater than 39e.
    g. If the width exceeds than 5.5m then value is 1. This value has to be equal to or greater than 39f.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 123 shows the image of part 14 of the scaling form. The inputs required in this are explained below:

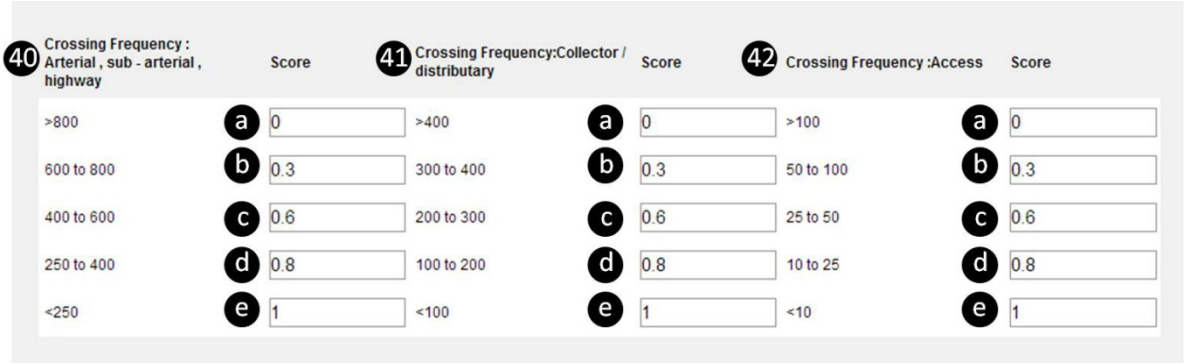


Figure 123: CYLOS for Transit access influence area - Default Form: Scaling, Part 14

40. **Crossing frequency for Arterial, Sub arterial, Highway –** This defines the frequency of crossings provided for the cyclist for Arterial, sub arterial and highway along the transit access influence area. If safe crossing is provided at regular and less distance, positive

impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:

a. If the frequency of crossing is greater than 800m then default value is. This value range between 0 to 1.
b. If frequency of crossing varies from (600 to 800)m then default value is 0.3. This value has to be equal to or greater than 40a.
c. If frequency of crossing varies from (400 to 600)m then default value is 0.6. This value has to be equal to or greater than 40b.
d. If frequency of crossing varies from (250 to 400)m then default value is 0.8. This value has to be equal to or greater than 40c.
e. If frequency of crossing is less than every 250m then default value is 1. This value has to be equal to or greater than 40d.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

41. **Crossing frequency for collector, Distributor –** This defines the frequency of crossings provided for the cyclist for Collector and distributor road along the transit access influence area. If safe crossing is provided at regular and less distance, positive impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the frequency of crossing is greater than 400m then default value is 0. This value can range between 0 to 1.
    b. If frequency of crossing varies from (300 to 400)m then default value is 0.3. This value has to be equal to or greater than 41a.
    c. If frequency of crossing varies from (200 to 300)m then the default value is 0.6. This value has to be equal to or greater than 41b.
    d. If frequency of crossing varies from (100 to 200)m then default value is 0.8. This value has to be equal to or greater than 41c.
    e. If frequency of crossing is less than every 100m then default value is 1. This value has to be equal to or greater than 41d.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

42. **Crossing frequency for Access –** This defines the frequency of crossings provided for the cyclist for access road along the transit access influence area. If safe crossing is provided at regular and less distance, positive impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If the frequency of crossing is greater than 100m then default value is 0. This value can range between 0 to 1.
    b. If frequency of crossing varies from (50 to 100)m then default value is 0.3. This value has to be equal to or greater than 42a.
    c. If frequency of crossing varies from (25 to 50)m then default value is 0.6. This value has to be equal to or greater than 42b.
    d. If frequency of crossing varies from (10 to 25)m then default value is 0.8. This value has to be equal to or greater than 42c.
    e. If frequency of crossing is less than every 10m then default value is 1. This value has to be equal to or greater than 42a.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 124 shows the image of part 15 of the scaling form. The inputs required in this are explained below:

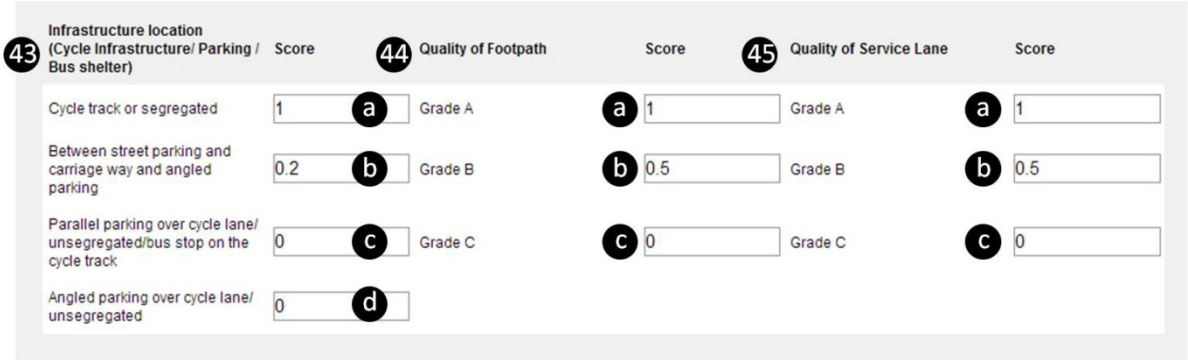


Figure 124: CYLOS for Transit access influence area- Default Form: Scaling, Part 15

43. **Infrastructure location (Cycle Infrastructure/ Parking/ Bus Shelter) –** This defines the frequency of crossings provided for the cyclist for access road along the transit access influence area. If safe crossing is provided at regular and less distance, positive impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If segregated cycle facility or cycle track is available then default value is 1. This id fixed value and cannot be altered by the user.
    b. If cycle track exists between street parking (angled) and carriage way then default value is 0.2. This value can range between 0 to 1.
    c. If provided infrastructure is cycle lane / unsegregated cycling facility with parallel parking or location of bus- stop on the cycle facility then default value is 0. This is fixed value and cannot be altered by the user.
    d. If angled parking exists over cycle lane/ unsegregated cycling facility then value is 0. This is fixed value and cannot be modified by the user.

44. **Quality of Footpath –** This defines the quality of footpath along the transit access influence area. The default values assigned in the tool range from 0 to 1 such as:
    a. If the quality of footpath provided is of grade A default value is 1. This value can range between 0 to 1.
    b. If quality of footpath provided is of grade B then default value is 0.5. This value can range between 0 to 1.
    c. If quality of footpath provided is of grade C then default value is 0. This value can range between 0 to 1.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

45. **Quality of Service Lane-** This defines the quality of service lane along the transit access influence area. The default values assigned in the tool range from 0 to 1 such as:
    a. If the quality of service lane provided is of grade A then default value is 1. This value can range between 0 to 1.
    b. If quality of service lane provided is of grade B then default value is 0.5. This value can range between 0 to 1.

c. If quality of service lane provided is of grade C then default value is 0. This value can range between 0 to 1.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 125 shows the image of part 16 of the scaling form. The inputs required in this are explained below:

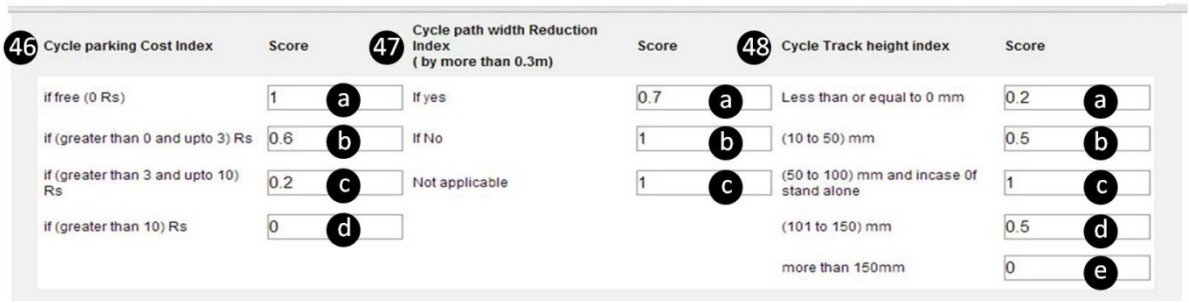


Figure 125: CYLOS for Transit access influence area - Default Form: Scaling, Part 16

46. **Cycle Parking Cost Index-** This defines the cost of cycle parking per day along the cycle infrastructure. If there is no cycle parking charges, positive impact will be created on the cyclist and value will be high. The default values assigned in the tool range from 0 to 1 such as:
    a. If there is no parking charge then default value is 1. This value can range between 0 to 1.
    b. If cycle parking charges is in the range of (0 > upto 3 Rs)per day then default value is 0.6. This value has to be equal to or less than 46a.
    c. If cycle parking charges is in the range of (3Rs > upto 10 Rs)perday then default value is 0.2. This value has to be equal to or less than 46b.
    d. If cycle parking charges is in the range of exceeds over 10 Rs per day then default value is 0. This value has to be equal to or less than 46c.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

47. **Cycle Path width Reduction Index-** This defines the reduction width of cycle path while approaching the junction. The default values range between 0 to 1 and are assigned in the tool on the basis of the width reductions such that:
    a. If the length is more than 0.3m then default value is 0.7. This value can range between 0 to 1.
    b. If it does not occur then default value is 1. This value can range between 0 to 1.
    c. If not applicable i.e. in case the length is less than 0.3m then default value is 1. This is fixed value and cannot be altered by the user.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

48. **Cycle track height Index-** This defines the height of cycle track with respect to the carriageway level along the transit access influence area. If the height difference is between 50 to 100 mm then positive impact is created on the cyclist and value will be higher. The default values assigned in the tool range from 0 to 1 such as:

a. If Height of cycle track is less than or equal to 0mm then default value is 0. This value can range between 0 to 1.
b. If height of the cycle track is anywhere between (0.1 to 50) mm then default value is 0.5. This value has to be equal to or greater than 48a.
c. If height of the cycle track is anywhere between (51 to 100) mm then default value is 1. This value has to be equal to or greater than 48b.
d. If height of the cycle track is anywhere between (101 to 150) mm then default value is 0.5. This vale has to be equal to or less than 48c.
e. If height of the cycle track exceeds over 150mm then default value is 0. This value has to be equal to or less than 48d.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 126 shows the image of part 17 of the scaling form. The inputs required in this are explained below:

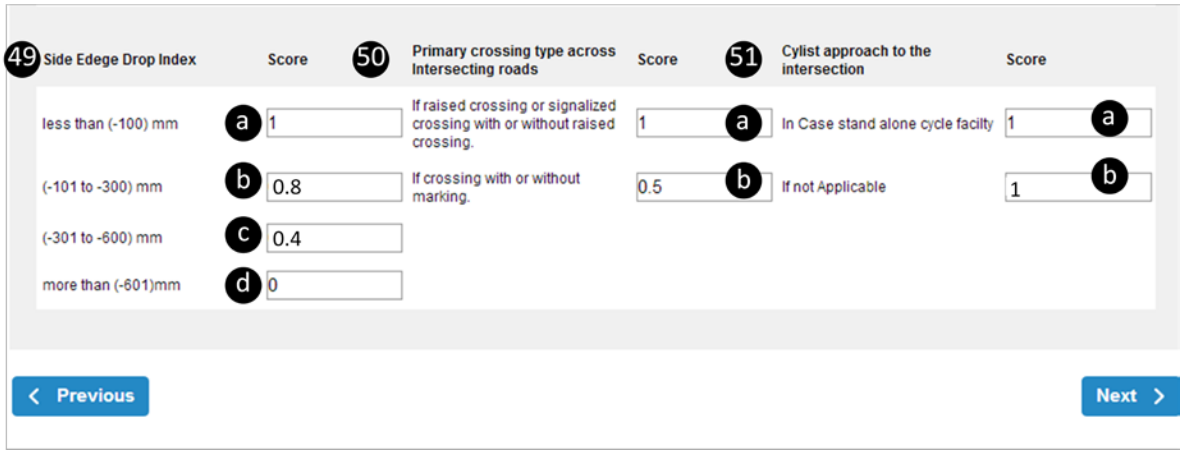


Figure 126: CYLOS for Transit access influence area - Default Form: Scaling, Part 17

49. **Side Edge Drop Index –** This defines the ground drop along the edge of the cycle infrastructure. If the side drop is less, positive impact will be created on the cyclist and value will be high. As the drop considered is below the ground level, the values are to be entered in negative by the user and accordingly the default values will range from 0 to 1 such as:
    a. If edge drop is less than or equal to (-100mm) then default value is 1. This value can range between 0 to 1.
    b. If the edge drop is anywhere between (-101 to -300) mm than default value is 0.8. This value has to be equal to or less than 49a.
    c. If the edge drop varies anywhere between (-301 to -600)mm then default value is 0.4. This value has to be equal to or less than 49b.
    d. If the edge drop exceeds over (-600mm) then default value is 0. This value has to be equal to or less than 49c.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

50. **Primary crossing type across intersecting roads-** This defines the type of crossing available for the cyclist at intersections along the cycle infrastructure. The default values assigned in the tool range from 0 to 1 such as:

a. If the primary crossing type is raised crossing or signalized crossing with or without raised crossing then default value is 1. This is fixed value and cannot be altered.
b. If primary crossing type across Intersecting road is crossing with or without marking then default value is 0.5. This is fixed value and cannot be altered.

These values are fixed values and cannot be modified by the user.

51. **Cyclist approach to the intersection –** This defines the approach of the cyclist toward the intersection. The default values assigned in the tool range from 0 to 1 such as:
    a. In case of standalone approach is the default value assumed is 1. This is fixed value and cannot be altered by the user.
    b. In case there is no change in the approach to the intersection i.e. if approach to intersection is not applicable then default value is assumed as 1. This is fixed value and cannot be altered by the user.

These values are fixed values and cannot be modified by the user.

Figure 128 shows the image of part 18 of the scaling form. The inputs required in this are explained below:

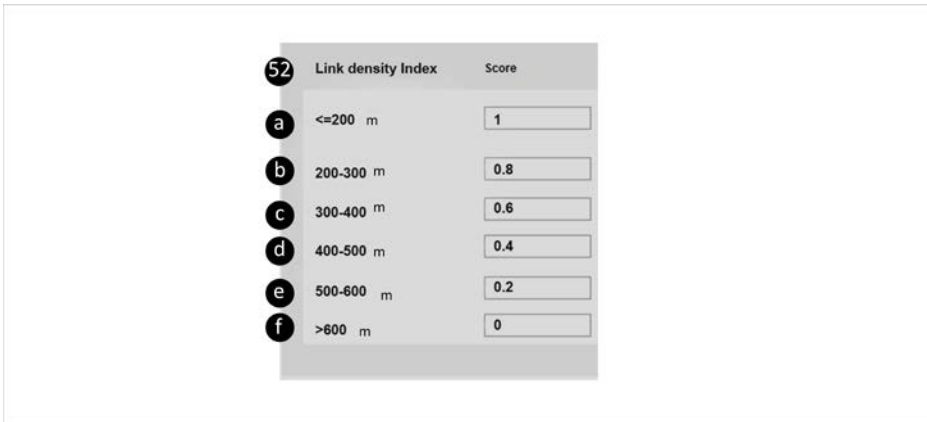


Figure 127: CYLOS for Transit access influence area - Default Form: Scaling, Part 18

52. **Link density Index –** This is the average distance between two secondary links in the transit access influence area. This distance is in m. The default values assigned in the tool range from 0 to 1 such as:
    a. <=200m: If the average distance between two links is less than of equal to 200m , then the score assigned is 1. This input value can be between 0 and 1.
    b. 200m – 300m: If the average distance between two links is between 200m and 300m, then the score assigned is 0.8. This input value can be between 0 and 1 and should be lower than the value in 52a.
    c. 300m – 400m: If the average distance between two links is between 300m and 400m, then the score assigned is 0.6. This input value can be between 0 and 1 and should be lower than the value in 52b.
    d. 400m – 500m: If the average distance between two links is between 400m and 500m, then the score assigned is 0.4. This input value can be between 0 and 1 and should be lower than the value in 52c.
    e. 500m – 600m: If the average distance between two links is between 500m and 600m, then the score assigned is 0.2. This input value can be between 0 and 1 and should be lower than the value in 52d.

f. >600m: If the average distance between two links is greater than 600m, then the score assigned is 0. This input value can be between 0 and 1.

These values are fixed values and cannot be modified by the user.

3.2.6.3 Scoring

The scoring form is the third form of the default data input. Figure 128 shows the image of part 1 of the scoring form. The inputs required in this are explained below:

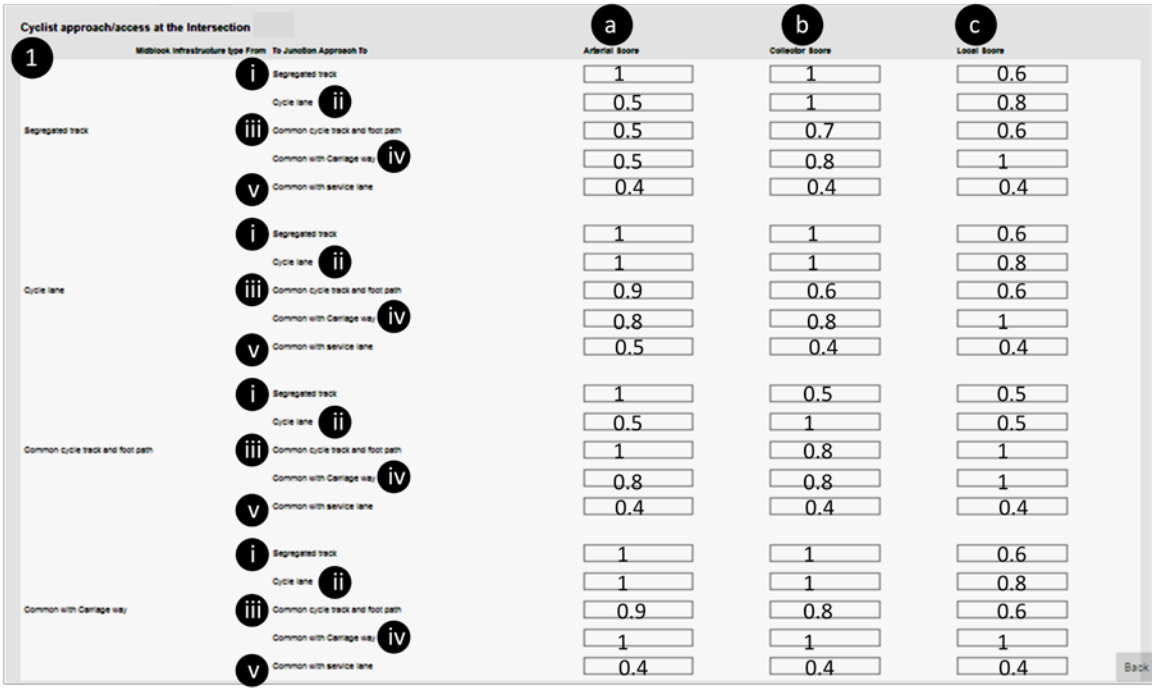


Figure 128: CYLOS for Transit access influence area - Default Form: Scoring, Part 1

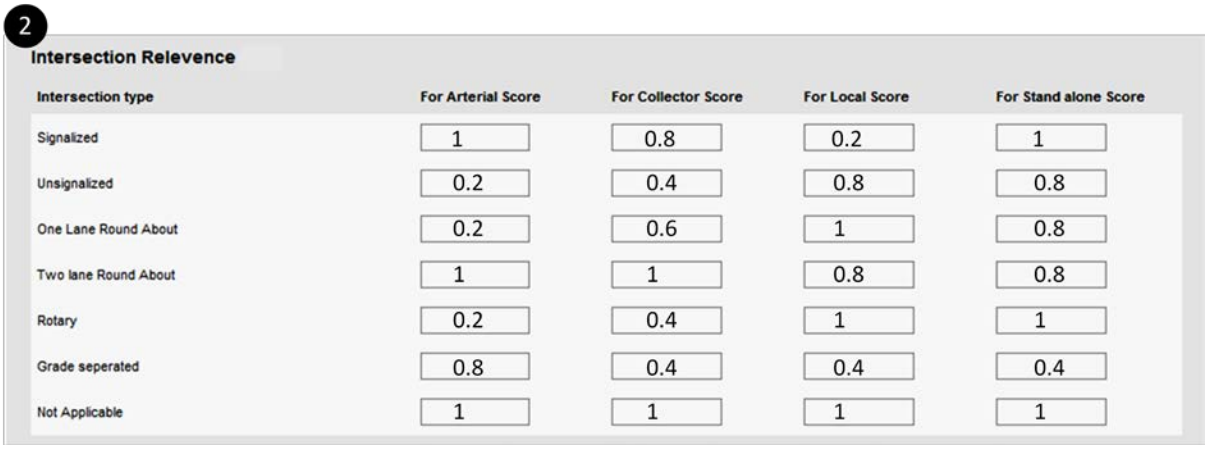
6. **Cyclist approach /access to the Intersections:** Based on the cyclist approach to the Intersection relations have been developed and categorized according to the road typology and the cycle infrastructure type. Ranking of cycle path relevance in a given context as per the guidelines provided in the Non Motorised Transport Design and Planning Guideline are as following:

   d. **For Arterial road**
      i. Junction approach as segregated track
      ii. Junction approach as cycle lane
      iii. Junction approach as common cycle track and footpath
      iv. Junction approach as common with Carriage way
      v. Junction approach as common with Service lane
   e. **For Collector road**
      i. Junction approach as Cycle lane
      ii. Junction approach as segregated track
      iii. Junction approach as common with Carriage way
      iv. Junction approach as common cycle track and footpath
      v. Junction approach as common with Service lane
   f. **For Local road**
      i. Junction approach as common with Carriage way

ii. Junction approach as Cycle lane
iii. Junction approach as common cycle track and footpath
iv. Junction approach as segregated track
v. Junction approach as common with Service lane

Scores are assigned for cycle infrastructure on approach to intersection as per relative position in the ranking order above. The score will also depend on the relative change of cycle infrastructure type from midblock to approach to junction. Maximum score can be 1 and minimum score can be 0.4. The default scores mentioned in Figure 128 can be altered by the user.

Figure 129 shows the image of part 2 of the scoring form. The inputs required in this are explained below:



2

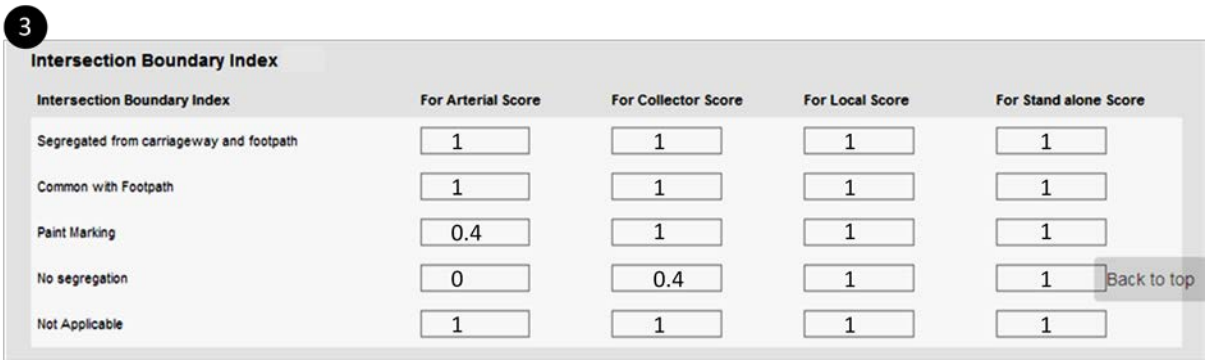
Intersection Relevence

Intersection type	For Arterial Score	For Collector Score	For Local Score	For Stand alone Score
Signalized	1	0.8	0.2	1
Unsignalized	0.2	0.4	0.8	0.8
One Lane Round About	0.2	0.6	1	0.8
Two lane Round About	1	1	0.8	0.8
Rotary	0.2	0.4	1	1
Grade seperated	0.8	0.4	0.4	0.4
Not Applicable	1	1	1	1

Figure 129: CYLOS for Transit access influence area - Default Form: Scoring, Part 2

7. **Intersection Relevance:** Based on the type of Intersection and road typology, default scores in a scale of 0 to 1 are assigned in the tool to determine the relevance of the intersection. A score matrix is developed based on these different relations. For example if there is a signalized intersection on a arterial road then value is 1 else if the intersection is two lane roundabout on a local road then value is 0.8 and likewise different other relations are being formed and assigned scores. All the relations are being presented in the default form with the respective scores assigned under different road categories. The default scores can be altered by user.

Figure 130 shows the image of part 3 of the scoring form. The inputs required in this are explained below:



3

Intersection Boundary Index

Intersection Boundary Index	For Arterial Score	For Collector Score	For Local Score	For Stand alone Score
Segregated from carriageway and footpath	1	1	1	1
Common with Footpath	1	1	1	1
Paint Marking	0.4	1	1	1
No segregation	0	0.4	1	1
Not Applicable	1	1	1	1

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Figure 130: CYLOS for Transit access influence area - Default Form: Scoring, Part 3

8. **Intersection Boundary Index:** Based on the infrastructure type available at the boundary of the intersections and different road typology, default scores in a scale of 0 to 1 are assigned in the tool to determine the relevance of the infrastructure boundary present at the intersection. A score matrix is developed based on different relations. For example if the intersection boundary is segregated from the carriageway on a arterial road then value is 1 whereas if intersection boundary type is paint marked on a arterial road then value is 0 and likewise different other relations are being formed and assigned scores. All the relations are being presented in the default form with the respective scores assigned under different road categories mentioned. The default scores can be altered by user.

Figure 131 shows the image of part 4 of the scoring form. The inputs required in this are explained below:

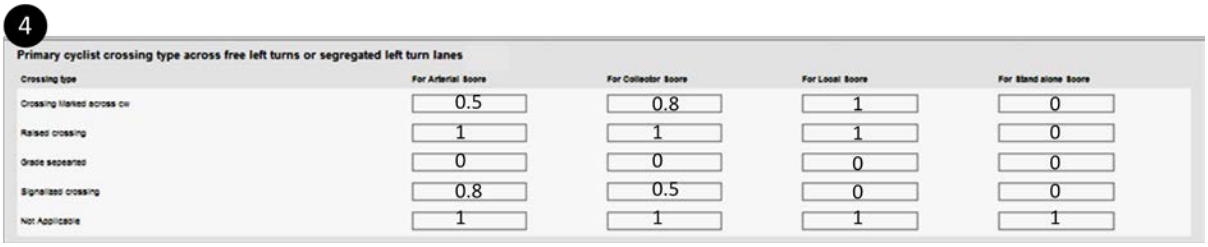


Figure 131: CYLOS for Transit access influence area - Default Form: Scoring, Part 4

9. **Primary cyclist crossing type across free left turns or segregated left turn lanes:** Based on the type of crossing available across the free left turns provided at the intersections and under different road typology ,default scores in a scale of 0 to 1 are assigned in the tool to determine the crossing relevence at the segregated left turns of a intersection. A score matrix is devaloped based on different relations. For example if there is a raised crossing type at the left turn on a arterial road then value is 1 whereas if crossing type is signalized on a local road then value is 0 and like wise different other relations are being formed and assigned scores. All the relations are being presented in the default form with the respective scores assigned under different road categories mentioned.The default scores can be altered by user.

Figure 132 shows the image of part 5 of the scoring form. The inputs required in this are explained below:

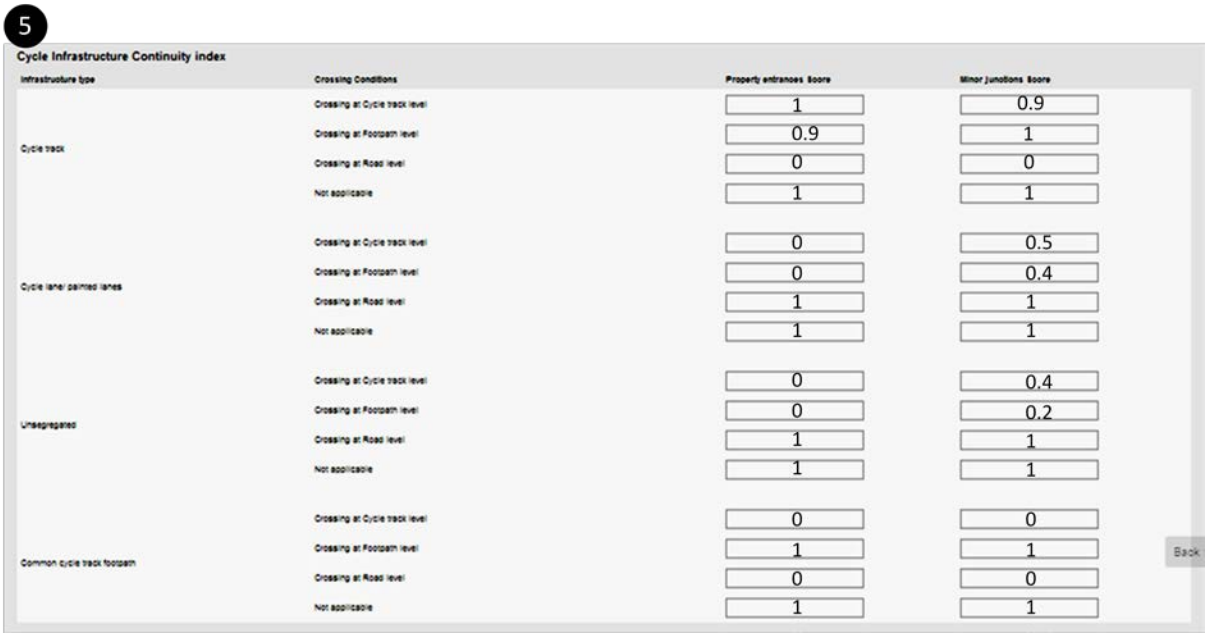


Figure 132: CYLOS for Transit access influence area - Default Form: Scoring, Part 5

10. **Cycle Infrastructure Continuity Index:** Based on the different crossing conditions available at property entrances with respect to the cycle infrastructure ,default scores in a scale of 0 to 1 are assigned in the tool to determine the continuity cycle infrastructure. A score matrix is developed based on different conditions at existing property entrances on the cycle infrastructure. For example if crossing is at cycle track level and the cycle infrastructure is segregated tracks then value is 1 else if crossing is at road level then value is 0 and likewise different other relations are being formed and assigned scores. All the relations are being presented in the default form with the respective scores assigned under different road categories mentioned. The default scores can be altered by user.

3.2.6.4 Weightage

The Weightage form is the fourth form of the default data input. Figure 133 shows the image of part 1 of the Weightage form. The inputs required in this are explained below:

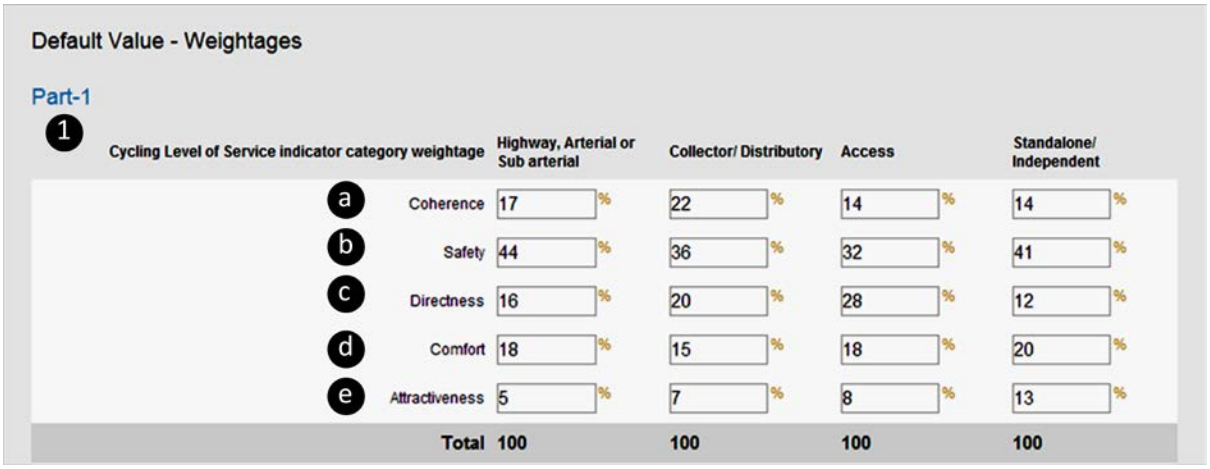


Figure 133: CYLOS for Transit access influence area - Default Form – Weightage: Part 1

Cycling level of service indicator category Weightage - Weightages indicate relative importance of indicators and indicator categories. They are used to consolidate scores under individual indicators into a single overall score for evaluation, comparision and decision making. Weightages are given and used as percentage values. All indicators within a category are given percentage weights of the sum total of which is 100 percent. Higher percentage is assigned to indicators with higher relative importance. In that sense percentage weights are representation of an indicators importance in each category.

Similarly percentage weight of each category is representation of the relative importance of that category in the overall cycling infrastructure assessment for that particular road type. Weightages have been assigned separately for indicators and indicator categories.

Indicator categories

Coherence – Coherence relates to the legibility and connectivity of the bicycle network. In design, this implies that the links in the network should look similar to improve the legibility and usability of the bicycle infrastructure and there is provision of good connectivity between all origins and destinations. Constant width ensured through design with adequate widening at turns and rendering the same texture for typical scenarios across the network shall help not only the cyclists to identify with it but also ensure motorists to be cautious at potential locations .Elimination of any missing links as well as standardization of intersections i.e. the shape, size and form of each category of junction solution should be similar to help the cyclist be aware of vehicular behavior in the traffic mix. Also, use of various measures like marking, signs and traffic calming measures across intersections improves coherence. Weightage value shall be between 0 to 100. Weightage specific to road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

Safety – Prevention of collisions and reducing the conflicts and their impact shall result in a safer travel. Provision of adequate and uniform lighting ensures enhanced usability as well as safer streets. Integration of spaces for hawkers and vendors, support facilities provides security and the necessary eyes on street. Design of minimal conflicts (and sub-conflicts), introducing traffic calming and resolving complexity by eliminating segregated left turning lanes, etc., makes safer intersection. Weightage value shall be between 0 to 100. Weightage specific to road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

Directness – Directness of bicycle infrastructure has to do with the amount of time and effort required by a cyclist to undertake a journey. Therefore, major detours from their natural path should be avoided. As mentioned in 'Design manual for bicycle traffic' (CROW, June 2007), directness has two components: in terms of distance and time. At intersections, directness in time may be achieved by eliminating stopping/waiting for cyclists by introducing bicycle specific grade separated infrastructure, defining the cyclists right of way and signals which eliminate or reduce staged crossing and delays. Directness in distance for NMV users can be achieved by eliminating any detours or long bends for cyclists at intersections, and by reducing or eliminating stages in a crossing. Weightage value shall be between 0 to 100. Weightage specific to road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

Comfort – Riding comfort is essential to bicycle infrastructure therefore the surface should be even and free of cracks and potholes. Riding surface for cyclists at the intersection should be smooth to reduce inconvenience. Water logging in the path of cyclist areas is uncomfortable and therefore it is important that proper drainage should be provided with regular maintenance. Also at intersections, traffic nuisances should be minimum. Segregation terminating up to the stop line at high speed roads or high volume distributor and access roads will ensure cyclists their Right Of Way (ROW) not obstructed by vehicular traffic. Weightage value shall be between 0 to 100. Weightage specific to road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

Attractiveness – To ensure attractiveness, it should be taken care that the path of the cyclist should be clean and devoid of any material dumped that blocks movement. Else, it shall prevent the cyclist from using the cycle infrastructure from the initial point and use the carriageway in unsafe conditions. Location of spaces for hawkers and vendors, well integrated bus shelters, green areas, resting spaces, etc. and shaded NMT infrastructure is definitely attractive. Weightage value shall be between 0 to 100. Weightage specific to road category may be provided such that weightage of all the categories for each road type (Highway, Arterial, Collector, Access, Standalone) totals to 100 percent.

Figure 134 shows the image of part 2 of the Weightage form. The inputs required in this are explained below:

Part-2

Coherence

	2a Indicated weightage within each category	Highway, Arterial or Sub arterial	Collector/ Distributory	Access	Standalone/ Independent
i	Infrastructure Relevance: How relevant is planned/constructed infrastructure to its context	35 %	45 %	65 %	50 %
ii	Accessibility Index: How frquent are available opportunities for cyclists to cross the road	35 %	25 %	5 %	5 %
iii	Cycle Specific Marking: Availability of adequate pavement marking to guide, warn and regulate cyclists	10 %	10 %	10 %	20 %
iv	Cycle Specific signage: Availability of adequate sign boards to guide, warn and regulate cyclists	10 %	10 %	10 %	20 %
v	Cycle Box at Intersection: Availability of cycle box marking at intersection to hold crossing cyclists	10 %	10 %	10 %	5 %
	Total	100	100	100	100

Figure 134: CYLOS for Transit access influence area - Default Form: Weightage, Part 2

Coherence (2a) - Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of Weightage of all indicators should be 100.

i. **Infrastructure Relevance:** The weightage assigned by the tool for the infrastructure relevance is 35% for Highway, 45% for Collector/Distributor, 65% for Access and 50% for Standalone. The user can modify this. Weightage should be assigned as per the planned or exiting infrastructure along the cycle path, in the overall evaluation.

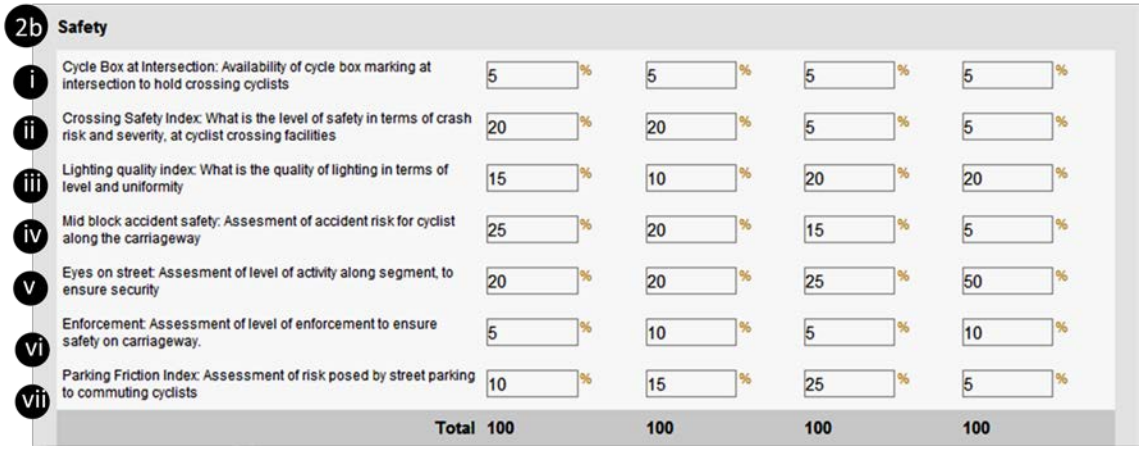
ii. **Accessibility Index:** The weightage assigned by the tool for the accessibility index is 35% for Highway, 25% for Collector/Distributor, 5% for access and 5% for Standalone. The user can modify this. Weightage should be assigned as per the context and available access opportunity for cyclist, in the overall evaluation.

iii. **Cycle specific marking:** The weightage assigned by the tool for the cycle specific marking is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone. The user can modify this. Weightage should be assigned as per the availability of the adequate pavement marking to guide, warn and regulate cyclists, in the overall evaluation.

iv. **Cycle Specific signage:** The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 20% for Standalone. The user can modify this. Weightage should be assigned as per the availability of the adequate sign boards to guide, warn and regulate cyclists, in the overall evaluation.

v. **Cycle Box at intersection:** The weightage assigned by the tool for the frequency of cycle crossings is 10% for Highway, 10% for Collector/Distributor, 10% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned as per the relative importance of the availability of cycle box marking at the intersections to hold the cyclists crossing the road, in the overall evaluation.

Figure 135 shows the image of part 3 of the Weightage form. The inputs required in this are explained below:



2b	Safety				
i	Cycle Box at Intersection: Availability of cycle box marking at intersection to hold crossing cyclists	5 %	5 %	5 %	5 %
ii	Crossing Safety Index: What is the level of safety in terms of crash risk and severity, at cyclist crossing facilities	20 %	20 %	5 %	5 %
iii	Lighting quality index: What is the quality of lighting in terms of level and uniformity	15 %	10 %	20 %	20 %
iv	Mid block accident safety: Assesment of accident risk for cyclist along the carriageway	25 %	20 %	15 %	5 %
v	Eyes on street: Assesment of level of activity along segment, to ensure security	20 %	20 %	25 %	50 %
vi	Enforcement: Assessment of level of enforcement to ensure safety on carriageway.	5 %	10 %	5 %	10 %
vii	Parking Friction Index: Assessment of risk posed by street parking to commuting cyclists	10 %	15 %	25 %	5 %
	Total	100	100	100	100

Figure 135: CYLOS for Transit access influence area- Default Form: Weightage, Part 3

Safety (2b) - Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of weightage of all indicators should be 100.

i. **Crossing Safety Index:** The weightage assigned by the tool for crossing safety index is 20% for Highway, 20% for Collector/Distributor, 5% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned as per the level of safety in terms of crash risk and severity at cyclists crossing facilities, in the overall evaluation.

ii. **Lighting Quality Index:** The weightage assigned by the tool for the lighting quality index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 20% for Standalone. The user can modify this. Weightage should be assigned as per the level of lighting quality in terms of lux level and uniformity, in the overall evaluation.

iii. **Mid block accident safety:** The weightage assigned by the tool for the mid block accident safety is 25% for Highway, 20% for Collector/Distributor, 15% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of accident risk for cyclist along the carriageway, in the overall evaluation.

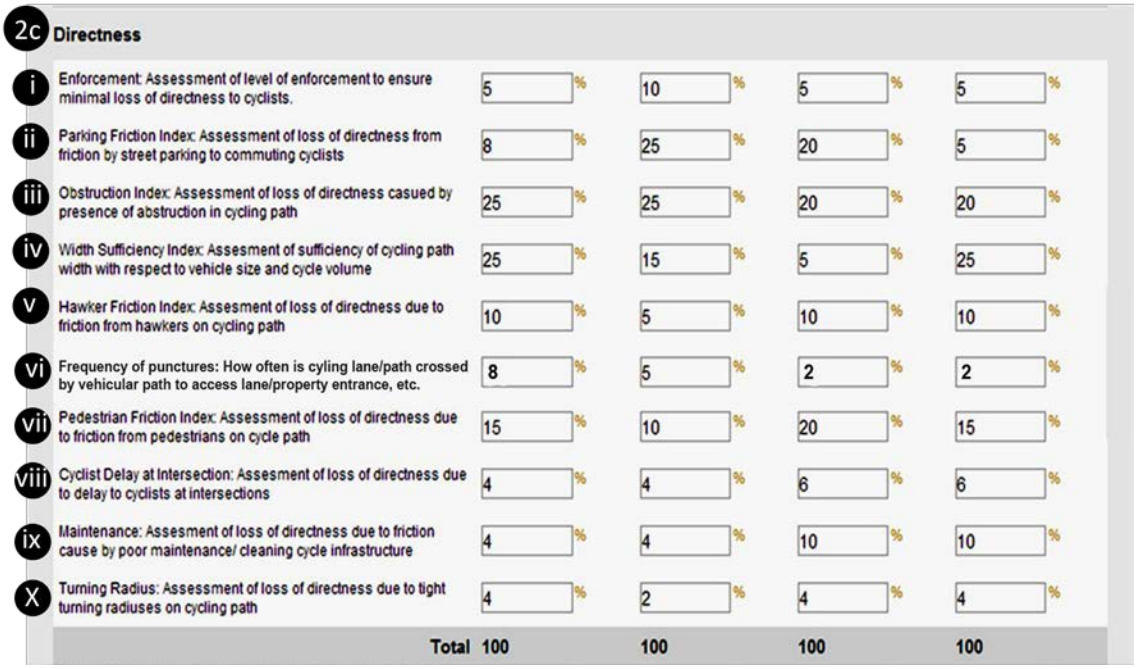
iv. **Eyes on street:** The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 50% for Standalone. The user can modify this. Weightage should be assigned by assessment of level of activity along the link to ensure safety, in the overall evaluation.

v. **Enforcement:** The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 10% for Standalone. The user can modify this. Weightage should be assigned by assessment of level of enforcement to ensure safety on carriageway, in the overall evaluation.

vi. **Cycle Box at Intersection:** The weightage assigned by the tool for the cycle box at intersection is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned as per the availability of cycle box marking at the intersection to hold crossing cyclist, in the overall evaluation.

vii. **Parking friction Index:** The weightage assigned by the tool for the parking friction index is 10% for Highway, 15% for Collector/Distributor, 25% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of risk posed by street parking for commuting cyclist, in the overall evaluation.

Figure 136 shows the image of part 4 of the Weightage form. The inputs required in this are explained below:



2c	Directness				
i	Enforcement: Assessment of level of enforcement to ensure minimal loss of directness to cyclists.	5 %	10 %	5 %	5 %
ii	Parking Friction Index: Assessment of loss of directness from friction by street parking to commuting cyclists	8 %	25 %	20 %	5 %
iii	Obstruction Index: Assessment of loss of directness casued by presence of abstruction in cycling path	25 %	25 %	20 %	20 %
iv	Width Sufficiency Index: Assesment of sufficiency of cycling path width with respect to vehicle size and cycle volume	25 %	15 %	5 %	25 %
v	Hawker Friction Index: Assesment of loss of directness due to friction from hawkers on cycling path	10 %	5 %	10 %	10 %
vi	Frequency of punctures: How often is cyling lane/path crossed by vehicular path to access lane/property entrance, etc.	8 %	5 %	2 %	2 %
vii	Pedestrian Friction Index: Assessment of loss of directness due to friction from pedestrians on cycle path	15 %	10 %	20 %	15 %
viii	Cyclist Delay at Intersection: Assesment of loss of directness due to delay to cyclists at intersections	4 %	4 %	6 %	6 %
ix	Maintenance: Assesment of loss of directness due to friction cause by poor maintenance/ cleaning cycle infrastructure	4 %	4 %	10 %	10 %
X	Turning Radius: Assessment of loss of directness due to tight turning radiuses on cycling path	4 %	2 %	4 %	4 %
	Total	100	100	100	100

Figure 136: CYLOS for Transit access influence area - Default Form: Weightage, Part 4

Directness (2c) - Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of weightage of all indicators should be 100.

i. **Enforcement:** The weightage assigned by the tool for enforcement is 5% for Highway, 10% for Collector/Distributor, 5% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of level of enforcement to ensure minimal loss of directness to cyclists, in the overall evaluation.

ii. **Parking Friction Index:** The weightage assigned by the tool for the parking friction index is 8% for Highway, 25% for Collector/Distributor, 20% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness from friction by street parking to commuting cyclists, in the overall evaluation.

iii. **Obstruction Index:** The weightage assigned by the tool for the obstruction index is 21% for Highway, 20% for Collector/Distributor, 20% for Access and 20% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness caused by presence of obstructions in the cycling path, in the overall evaluation.

iv. **Width Sufficient Index:** The weightage assigned by the tool for width sufficient index is 21% for Highway, 15% for Collector/Distributor, 5% for Access and 25% for Standalone. The user can modify this. Weightage should be assigned by assessment of sufficiency of cycling path width with respect to vehicle size and cycle volume, in the overall evaluation.

v. **Hawker Sufficient Index:** The weightage assigned by the tool for hawker sufficient index is 10% for Highway, 5% for Collector/Distributor, 8% for Access and 8% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to friction from hawkers on cycling path, in the overall evaluation.

vi. **Frequency of Punctures:** The weightage assigned by the tool for frequency of punctures is 8% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone. The user can modify this. Weightage should be assigned by assessment of cycling path/ lane crossed by vehicle path to access service lane/ property entrance, in the overall evaluation.

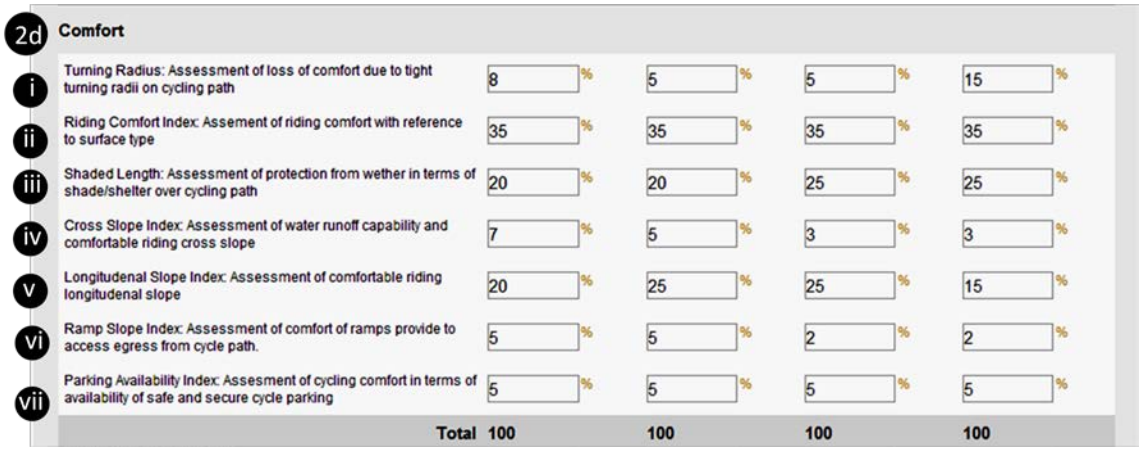
vii. **Pedestrian Friction Index:** The weightage assigned by the tool for pedestrian friction index is 15% for Highway, 10% for Collector/Distributor, 20% for Access and 15% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to friction from pedestrians on cycling path, in the overall evaluation.

viii. **Cyclist delay at Intersection:** The weightage assigned by the tool for cyclist delay at intersection is 4% for Highway, 4% for Collector/Distributor, 6% for Access and 6% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to delay to cyclists at intersections, in the overall evaluation.

ix. **Maintenance:** The weightage assigned by the tool for maintenance is 4% for Highway, 4% for Collector/Distributor, 10% for Access and 10% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to friction caused by poor maintenance and cleaning of the cycle infrastructure, in the overall evaluation.

x. **Turning radius:** The weightage assigned by the tool for turning radius is 4% for Highway, 2% for Collector/Distributor, 4% for Access and 4% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to tight turning radius on the cycling path/ lane, in the overall evaluation.

Figure 137 shows the image of part 5 of the Weightage form. The inputs required in this are explained below:



	Comfort				
i	Turning Radius: Assessment of loss of comfort due to tight turning radii on cycling path	8 %	5 %	5 %	15 %
ii	Riding Comfort Index: Assement of riding comfort with reference to surface type	35 %	35 %	35 %	35 %
iii	Shaded Length: Assessment of protection from wether in terms of shade/shelter over cycling path	20 %	20 %	25 %	25 %
iv	Cross Slope Index: Assessment of water runoff capability and comfortable riding cross slope	7 %	5 %	3 %	3 %
v	Longitudenal Slope Index: Assessment of comfortable riding longitudenal slope	20 %	25 %	25 %	15 %
vi	Ramp Slope Index: Assessment of comfort of ramps provide to access egress from cycle path.	5 %	5 %	2 %	2 %
vii	Parking Availability Index: Assesment of cycling comfort in terms of availability of safe and secure cycle parking	5 %	5 %	5 %	5 %
	Total	100	100	100	100

Figure 137: CYLOS for Transit access influence area - Default Form: Weightage, Part 5

Comfort (2d)- Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of weightage of all indicators should be 100.

i. **Turning radius:** The weightage assigned by the tool turning radius is 8% for Highway, 5% for Collector/Distributor, 5% for Access and 15% for Standalone. The user can modify this. Weightage should be assigned by assessment of loss of directness due to tight turning radius on the cycling path/ lane, in the overall evaluation.

ii. **Riding Comfort Index:** The weightage assigned by the tool for riding comfort index is 35% for Highway, 35% for Collector/Distributor, 35% for Access and 35% for Standalone. The user can modify this. Weightage should be assigned by assessment of riding comfort with reference to surface type, in the overall evaluation.

iii. **Shaded Length:** The weightage assigned by the tool for the shaded length is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone. The user can modify this. Weightage should be assigned by assessment of protection from weather in terms of shade over cycling path, in the overall evaluation.

iv. **Cross Slope Index:** The weightage assigned by the tool for the cross slope index is 7% for Highway, 5% for Collector/Distributor, 3% for Access and 3% for Standalone. The user can modify this. Weightage should be assigned by assessment of water runoff capability and comfortable riding cross slope, in the overall evaluation.

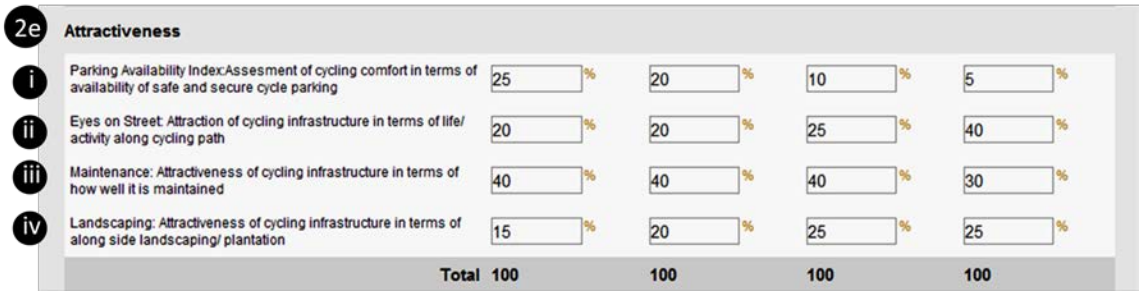
v. **Longitudinal Slope Index:** The weightage assigned by the tool for longitudinal slope index is 20% for Highway, 25% for Collector/Distributor, 25% for Access and 15% for Standalone. The user can modify this. Weightage should be assigned by assessment of comfortable riding along the longitudinal slope, in the overall evaluation.

vi. **Ramp Slope Index:** The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 2% for Access and 2% for Standalone. The user can modify this. Weightage should be assigned by assessment of comfort of ramp provided to access the egress from the cycle path, in the overall evaluation.

vii. **Parking Availability Index:** The weightage assigned by the tool for ramp slope index is 5% for Highway, 5% for Collector/Distributor, 5% for Access and 5% for Standalone. The user can

modify this. Weightage should be assigned by assessment of cycling comfort in terms of availability of safe and secure cycle parking, in the overall evaluation.

Figure 138 shows the image of part 6 of the Weightage form. The inputs required in this are explained below:



2e	Attractiveness				
i	Parking Availability Index:Assesment of cycling comfort in terms of availability of safe and secure cycle parking	25 %	20 %	10 %	5 %
ii	Eyes on Street: Attraction of cycling infrastructure in terms of life/ activity along cycling path	20 %	20 %	25 %	40 %
iii	Maintenance: Attractiveness of cycling infrastructure in terms of how well it is maintained	40 %	40 %	40 %	30 %
iv	Landscaping: Attractiveness of cycling infrastructure in terms of along side landscaping/ plantation	15 %	20 %	25 %	25 %
	Total	100	100	100	100

Figure 138: CYLOS for Transit access influence area - Default Form: Weightage, Part 6

Attractiveness (2e) - Weightage value for all the fields shall be between 0 to 100. Weightage specific to road category may be provided such that for each road type (Highway, Arterial, Collector, Access, Standalone). The total sum of weightage of all indicators should be 100.

i. **Parking Availability Index:** The weightage assigned by the tool for parking availability index is 25% for Highway, 20% for Collector/Distributor, 10% for Access and 5% for Standalone. The user can modify this. Weightage should be assigned by assessment of cycling comfort in terms of availability of safe and secure cycle parking, in the overall evaluation.
ii. **Eyes on street:** The weightage assigned by the tool for eyes on street is 20% for Highway, 20% for Collector/Distributor, 25% for Access and 40% for Standalone. The user can modify this. Weightage should be assigned by assessment of attraction of cycling infrastructure in terms of level of activity along the cycle path, in the overall evaluation.
iii. **Maintenance:** The weightage assigned by the tool for maintenance is 40% for Highway, 40% for Collector/Distributor, 40% for Access and 30% for Standalone. The user can modify this. Weightage should be assigned by assessment of attractiveness of cycling infrastructure in terms of its maintenance and cleanliness, in the overall evaluation.
iv. **Landscaping:** The weightage assigned by the tool for landscaping is 15% for Highway, 20% for Collector/Distributor, 25% for Access and 25% for Standalone. The user can modify this. Weightage should be assigned by assessment of attractiveness of cycling infrastructure in terms of landscaping and plantation along the cycle path, in the overall evaluation.

Figure 139 shows the image of part 7 of the Weightage form. The inputs required in this are explained below:

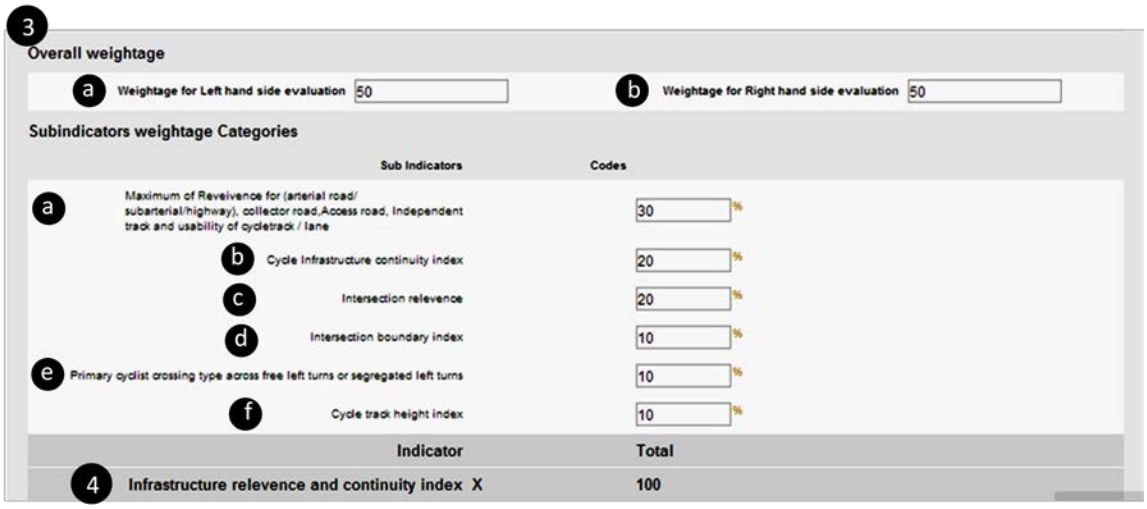


Figure 139: CYLOS for Transit access influence area - Default Form: Weightage, Part 7

3. Overall Weightage – This is used in estimating the individual indicator values. The default weightage for left hand and right hand evaluation is provided and the total should sum upto 100. The weigtage can range anywhere between 0 to 100. The user can alter the weightage.

a. Weightage of Left hand side evaluation: The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

b. Weightage of Right hand evaluation: The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

4. Infrastructure relevance and continuity Index – The values responding to this indicator contributes to the Coherence cycling principal. This indicator has six sub indicators and individual Weightage for each is provided as shown in Figure 139. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage as per the context and relevant sub indicator. Weightage value for all the fields should be between 0 to 100.

a. Maximum of Relevance for (arterial road/ sub arterial/highway), collector road, Access road, Independent track and usability of cycle track / lane – The default Weightage provided in the tool is 30%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Cycle Infrastructure continuity index - The default Weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
c. Intersection relevance - The default Weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
d. Intersection boundary Index - The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

e. Primary cyclist crossing type across free left turns or segregated left turns - The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
f. Cycle track height index - The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Figure 140 shows the image of part 8 of the Weightage form. The inputs required in this are explained below:

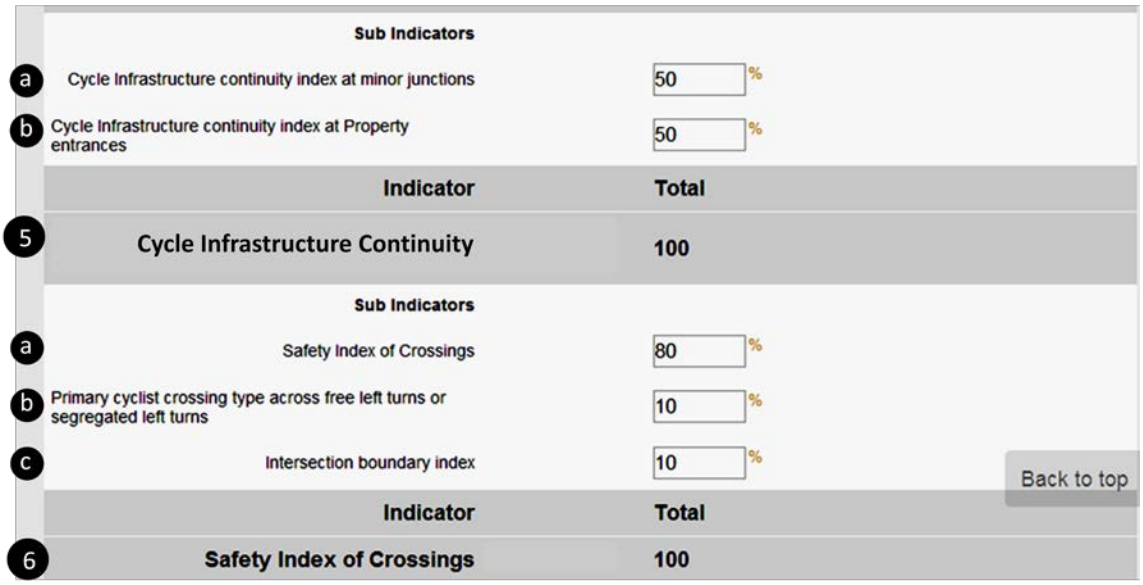


Figure 140: CYLOS for Transit access influence area - Default Form: Weightage, Part 8

5. Cycle Infrastructure Continuity – This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 140. The total of the two sub indicator weightages should add upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Cycle Infrastructure continuity index at minor junctions – The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Cycle Infrastructure continuity index at Property entrances – The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

6. Safety Index of Crossings - The values responding to this indicator contributes to the safety cycling principal. This indicator has three sub indicators and individual Weightage for each is provided as shown in Figure 140. The total of all sub indicator Weightages should add upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Safety Index of Crossings – The default Weightage provided in the tool is 80%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

b. Primary cyclist crossing type across free left turns or segregated left turns – The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
c. Intersection boundary index – The default Weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Figure 141 shows the image of part 9 of the Weightage form. The inputs required in this are explained below:

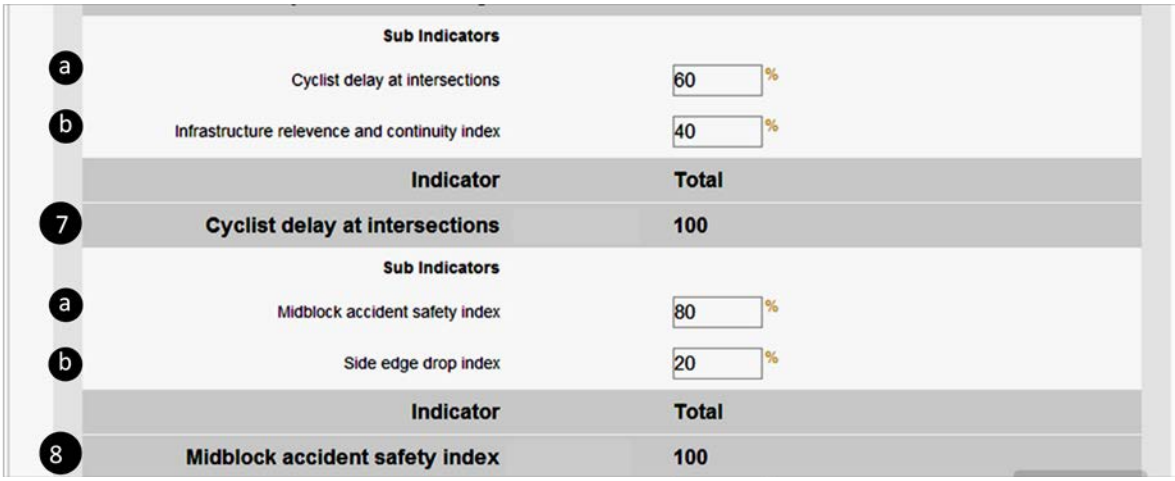


Figure 141: CYLOS for Transit access influence area - Default Form: Weightage, Part 9

7. Cyclist delay at intersections – The values responding to this indicator contributes to the directness cycling principal. This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 141. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Cyclist delay at intersections – The default Weightage provided in the tool is 60%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Infrastructure relevance and continuity index- The default Weightage provided in the tool is 40%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

8. Midblock accident safety index – The values responding to this indicator contributes to the safety cycling principal. This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 141. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Midblock accident safety index – The default Weightage provided in the tool is 80%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

b. Side edge drop index – The default Weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Figure 142 shows the image of part 10 of the Weightage form. The inputs required in this are explained below:

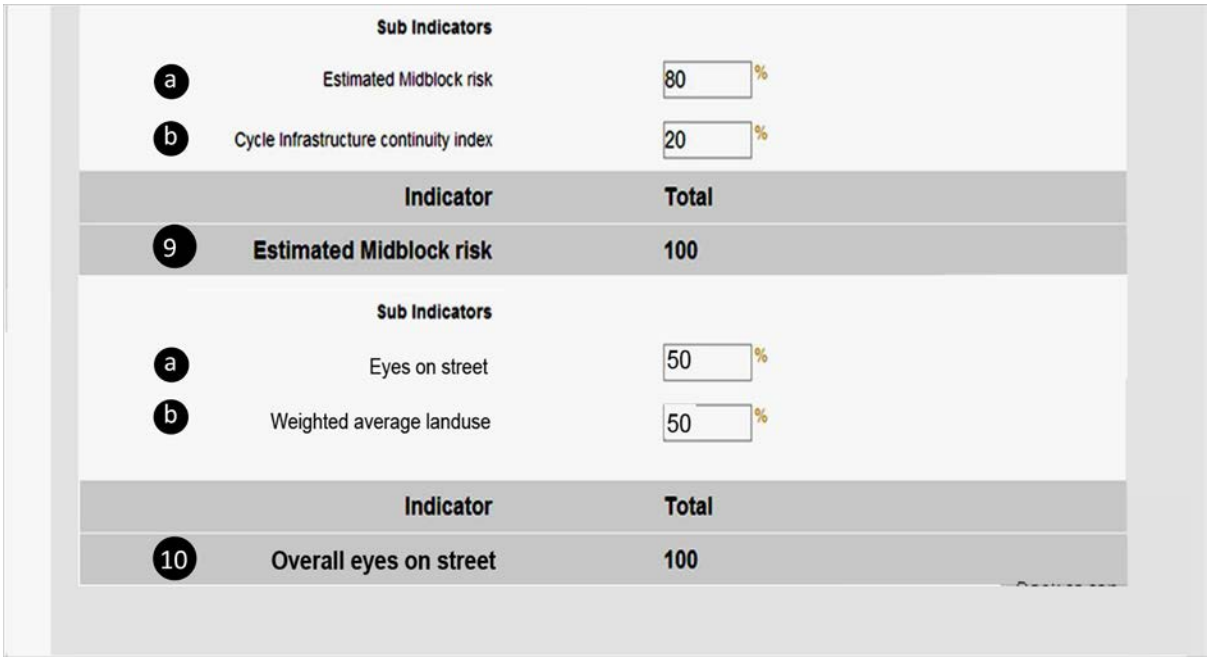


Figure 142: CYLOS for Transit access influence area - Default Form: Weightage, Part 10

9. Estimated Midblock risk – This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 142. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Estimated Midblock risk- The default Weightage provided in the tool is 80%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Cycle Infrastructure continuity index - The default Weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

10. Overall eyes on street - This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 142. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Eyes on street- The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
b. Weighted average landuse- The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Figure 143 shows the image of part 1 of the Weightage form. The inputs required in this are explained below:

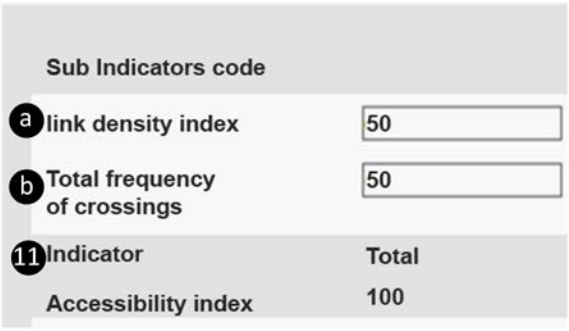


Figure 143: CYLOS for Transit access influence area - Default Form – Weightage: Part 11

11. **Accessibility Index** : This indicator has two sub indicators and individual Weightage for each is provided as shown in Figure 143. The total of all sub indicator Weightages should sum upto 100. The user can alter the Weightage value as per the relevance of the sub indicators. Weightage value for all the fields should be between 0 to 100.

a. Link Density index - The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

b. Total frequency of crossings- The default Weightage provided in the tool is 50%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

3.3 Evaluation of a City

Prior to explaining input forms in this evaluation category, Figure 144 indicates its features.

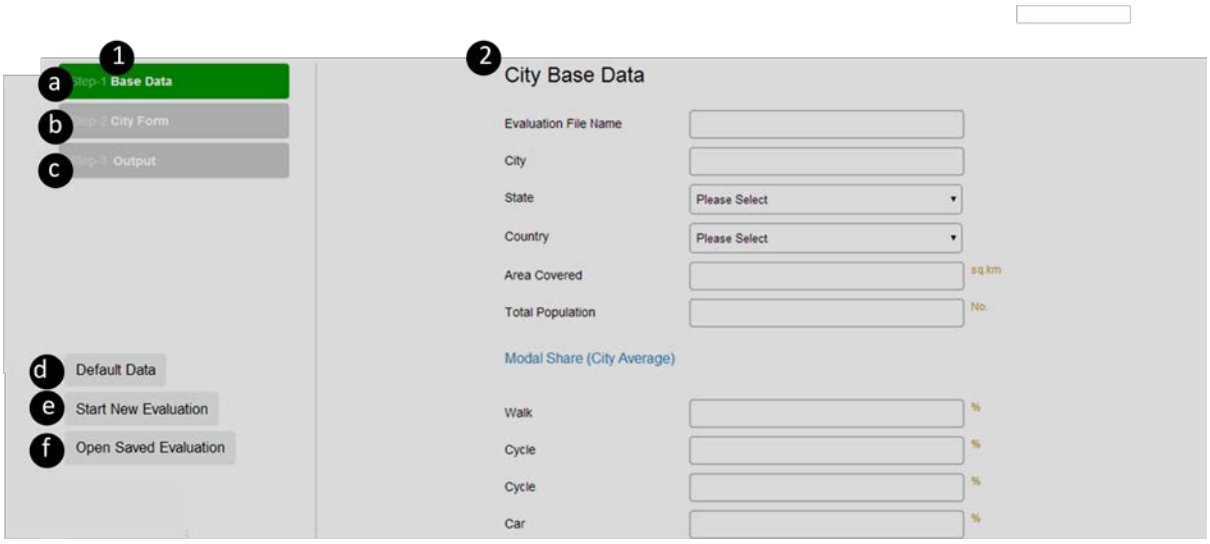


Figure 144: CYLOS City : Page Layout

1. **Navigation Panel**: The left side of the page is the navigation panel for this evaluation category. The active tab on which the user is working is highlighted in green color. It includes the following tabs:
    a. **Base Data**: This refers to the basic information to be entered by the user.
    b. **City Data Input**: This refers to the input values that refer to the city data
    c. **Output**: This refers to the result of the city in terms of its current bicycle friendliness and the its potential to be bicycle friendly.
    d. **Default Data**: This refers to where default values have been entered.
    e. **Start New Evaluation**: Once can start a new evaluation.
    f. **Open and Saved Evaluation**: The user can open a saved evaluation sheet to edit/review details.
2. **Name of the form** – The right hand side of the page starts with the name of each form the user is currently working on. This active form is highlighted in green colour.

3.3.1 City Base Data

This form has a total of 8 inputs which are being shown and explained in 3 parts in the below sections. Each of the inputs is being assigned with numbers and is elaborated number wise in the respective section for each part.

Figure 145 shows the image of part 1 of the base information form. The inputs required in this form have been explained below.

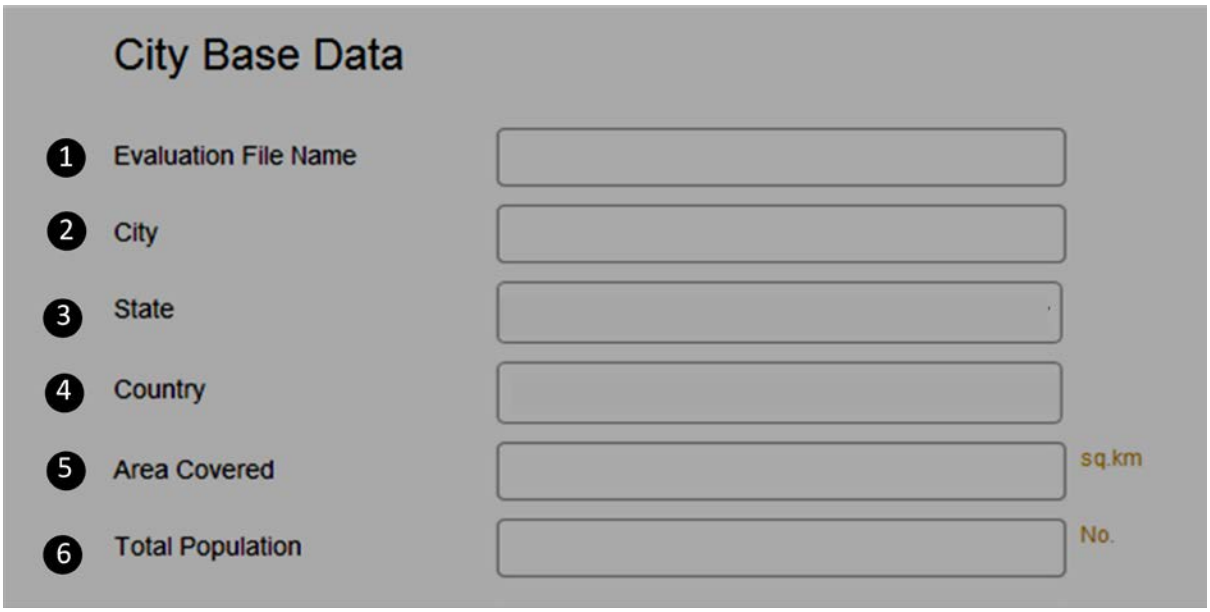


Figure 145: CyLOS City: Base Data – part 1

1. **Evaluation file name**: Enter the name of the Evaluation File. The name should be maximum 12 characters. No alphanumeric characters should be used.

    Example: 'Eval123'

2. **City**: Enter the name of the city for whose evaluation is being done.

Example: ‘New Delhi’

3. **State**: Enter the state in which the city is located.

   Example: ‘Delhi

4. **Country:** Enter the name of the country in which the city is located.

   Example: ’India’

5. **Area Covered:** Enter the total area covered by the city? The answer needs to be entered in sq.km only.

   Example: ‘245’

6. **Total Population:** Enter the total area covered by the city? The input value should be numeric.

   Example: ’18000000’

Figure 146 shows the image of part 2 of the base information form. The inputs required in this form have been explained below.

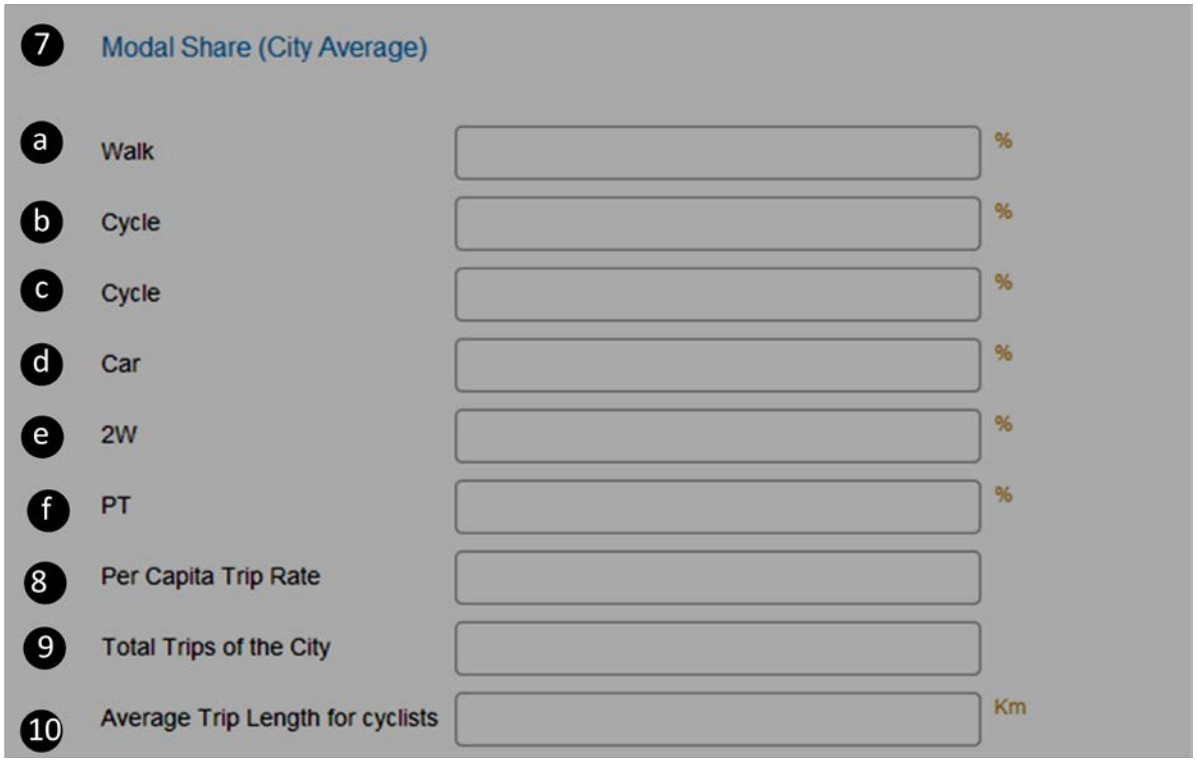


Figure 146: CyLOS City: Base Data – part 2

7. **Modal Share:** This refers to the modal share data of the city. This data can be found in the Comprehensive Mobility Plan (CMP / CTTS) of the city. The value ranges between 0 and 100 and has to be entered for the following modes in percentage.
    i. **Walk:** The user needs to input the modal share of people walking in the city.
    ii. **Cycle:** The user needs to input the modal share of people cycling in the city. The modal share by cycle rickshaw should be entered added to the cyclist.
    iii. **IPT:** The user needs to input the modal share of people using para transit / feeder / taxi, etc in the city.
    iv. **Car:** The user needs to input the modal share of people using private car the city.
    v. **Two Wheeler:** The user needs to input the modal share of people using private two wheeler in the city.
    vi. **Public Transport:** The user needs to input the modal share of people using public transport in the city.
    vii. **Total:** The sum of all above entries should be 100. The tool will generate an error if the sum of all the above indicated modal share does not sum to 100.

8. **Per Capita Trip Rate:** This refers to the per capita trip rate of the city. The user should enter the value ranging between 0 and 100. Data Source: CMP/CTTS.

9. **Total Trips of the City**: The user needs to input the total number of trips in the city. Data Source: CMP/CTTS

10. **Average Trip Length of the city**: The user needs to input the average trip length of the city. The input value ranges between 0 and 20 and the unit is 'km'. Data Source: CMP/CTTS

Figure 147 shows the image of part 3 of the base information form. The inputs required in this form have been explained below.

Figure 147 : CYLOS City - Base Data: Part 3

11. **Image** : Upload the image of the corridor/route highlights all identified segments in another colour. The image should be in jpeg format and less than 1MB in size. Click on 'Choose File' tab and upload file from your system.

3.3.2 City Data Input

This is the second and main form of the evaluation set, where the user has to enter city related data coming from many data sources like household surveys, stated preference surveys, census, CMP/CTTS , etc. The form is divided into six parts with a total of 23 inputs required.

Figure 147 shows the image of part 1 of the city evaluation form. The inputs required in this form have been explained below.

Figure 148: CyLOS City: City Evaluation – part 1

1. **Modal Split of Household income group less than equal to 15000 per month:** This refers to the modal share data for income group less than equal to 15000 rupees per month. The input value varies between 0 and 100 and is in percentage. Data Source: Household Survey
    a. **Pedestrian**: The user has to enter the modal share as percentage in the above income slab walking in the city.
    b. **Cycle**: The user has to enter the modal share as percentage in the above income slab cycle in the city. The data pertaining to cycle rickshaw should be added to this segment
    c. **Two Wheeler (2W):** The user has to enter the modal share as percentage for people who use a two wheeler in the above income slab cycle in the city.
    d. **Car** : The user has to enter the modal share as percentage for people who use a car in the above income slab cycle in the city.
    e. **IPT** : The user has to enter the modal share as percentage for people who use feeder transport/IPT in the above income slab cycle in the city.
    f. **PT** : The user has to enter the modal share as percentage for people who use public transport in the above income slab cycle in the city.
    g. **Total** : The above data entered should sum up to a total of 100%

2. **Modal Split of Household income group greater than 15000 per month and less than equal to 35000 per month:** This refers to the modal share data for income group greater than

15000 rupees per month but less than equal to 35000 rupees per month. The input value varies between 0 and 100 and is in percentage. Data Source: Household Survey

a. **Pedestrian**: The user has to enter the modal share as percentage in the above income slab walking in the city.
b. **Cycle**: The user has to enter the modal share as percentage in the above income slab cycle in the city. The data pertaining to cycle rickshaw should be added to this segment
c. **Two Wheeler (2W):** The user has to enter the modal share as percentage for people who use a two wheeler in the above income slab cycle in the city.
d. **Car** : The user has to enter the modal share as percentage for people who use a car in the above income slab cycle in the city.
e. **IPT** : The user has to enter the modal share as percentage for people who use feeder transport/IPT in the above income slab cycle in the city.
f. **PT** : The user has to enter the modal share as percentage for people who use public transport in the above income slab cycle in the city.
g. **Total** : The above data entered should sum up to a total of 100%

Figure 149 shows the image of part 2 of the city evaluation form. The inputs required in this form have been explained below

Figure 149: CyLOS City: City Evaluation – part 2

3. **Modal Split of Household income group greater 35000 per month:** This refers to the modal share data for income group greater than 35000 rupees per month. The input value varies between 0 and 100 and is in percentage. Data Source: Household Survey
    a. **Pedestrian**: The user has to enter the modal share as percentage in the above income slab walking in the city.

b. **Cycle**: The user has to enter the modal share as percentage in the above income slab cycle in the city. The data pertaining to cycle rickshaw should be added to this segment
c. **Two Wheeler (2W):** The user has to enter the modal share as percentage for people who use a two wheeler in the above income slab cycle in the city.
d. **Car** : The user has to enter the modal share as percentage for people who use a car in the above income slab cycle in the city.
e. **IPT** : The user has to enter the modal share as percentage for people who use feeder transport/IPT in the above income slab cycle in the city.
f. **PT** : The user has to enter the modal share as percentage for people who use public transport in the above income slab cycle in the city.
g. **Total** : The above data entered should sum up to a total of 100%

4. **Total Bicyclist Fatalities**: This refers to the total number of cyclists fatalities which took place in a year in the city. The user can input a value between 0 and 10000. Data Source: Police FIR

5. **Trip Length Distribution (all trips including walk**): This refers to the total trip length distribution in the city. The user has to enter the value in percentage and varies between 0 and 100.
    a. **Less than equal to 1 km (<=1km)**: The user has to input percentage of all trips which are for less than and equal to 1km
    b. **Greater than 1km and less than equal to 5km (>1km & <=5km)**: The user has to input percentage of all trips which are greater than 1 km and less than and equal to 5km
    c. **Greater than 5km and less than equal to 10km (>5km & <=10km):** The user has to input percentage of all trips which are greater than 5 km and less than and equal to 10km
    d. **Greater than 10km:** The user has to input percentage of all trips which are greater than 10 km.
    e. **Total:** The sum of all the above input values should be 100.

6. **Trip Length Distribution for Cyclists**: This refers to the total trip length distribution for cyclists in the city. The user has to enter the value in percentage and varies between 0 and 100.
    a. **Less than equal to 1 km (<=1km)**: The user has to input percentage of all cycling trips which are for less than and equal to 1km
    b. **Greater than 1km and less than equal to 5km (>1km & <=5km)**: The user has to input percentage of all cycling trips which are greater than 1 km and less than and equal to 5km
    c. **Greater than 5km and less than equal to 10km (>5km & <=10km):** The user has to input percentage of all cycling trips which are greater than 5 km and less than and equal to 10km
    d. **Greater than 10km:** The user has to input percentage of all cycling trips which are greater than 10 km.
    e. **Total:** The sum of all the above input values should be 100.

7. **% of total road network in the city**: User has to input the total % of various road categories in the city. The input value ranges from 0 to 100 and is in percentage. The sum of the values entered in the four options should be 100.
    a. **Arterial/Sub Arterial Roads** : The user needs to input the total network of arterial and sub-arterial streets as a percentage of the total road network.
    b. **Collector Roads**: The user needs to input the total kms of collector streets as a percentage of the total road network.
    c. **Local Roads**: The user has to input the total kms of local roads as a percentage of the total road network.
    d. **Standalone/Independent Roads**: The user has to input the total kms of local roads as a percentage of the total road network.

Figure 150 shows the image of part 3 of the city evaluation form. The inputs required in this form have been explained below

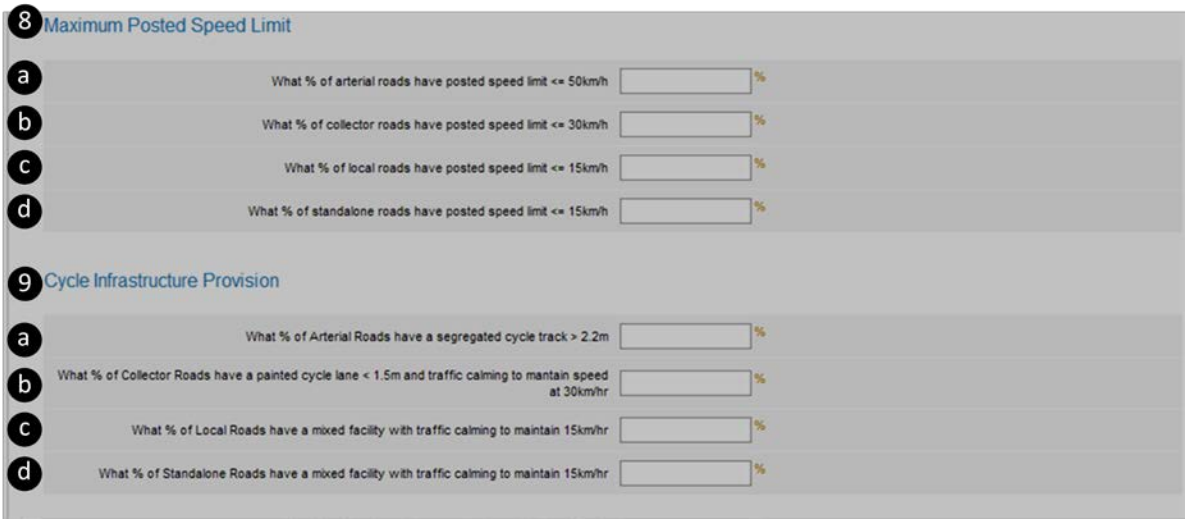


Figure 150: CyLOS City: City Evaluation – Part 3

8. **Maximum Posted Limit**: The user has to enter data as percentage to quantify various posted speed limit on different road categories. The input value varies between 0 and 100 and should be in entered in percentage.
    a. **What % of arterial roads have posted speed limit <=50km/h?** : The user should enter the percentage of arterial roads which have posted speed limit less than or equal to 50km/h.
    b. **What % of collector roads have posted speed limit <=30km/h?** : The user should enter the percentage of collector roads which have posted speed limit less than or equal to 30km/h.
    c. **What % of local roads have posted speed limit <=15km/h?** : The user should enter the percentage of local roads which have posted speed limit less than or equal to 15 km/h.
    d. **What % of standalone roads have posted speed limit <=15km/h?** : The user should enter the percentage of standalone roads which have posted speed limit less than or equal to 50km/h.

9. **Cycle Infrastructure Provision**: The user has to enter data as percentage to to assess the cycle infrastructure provided across the city. The input value varies between 0 and 100 and should be in entered in percentage.
    a. **What % of arterial roads have a segregated cycle track >2.2m**? The user has to input percentage of arterial roads that have the width of segregated cycle track greater than 2.2m
    b. **What % of collector roads have a painted cycle lane <1.5m and traffic calming to maintain speed at 30km/h?** The user has to input percentage of collector roads that have a painted cycle lane >1.5m alongwith traffic calming measures to mantain the speed at 30km/hr
    c. **What % of local roads have a mixed facility with traffic calming to maintain speed at 15km/h**? The user has to input percentage of local roads that have a shared space for cyclists and traffic calming measures to maintain design speed at 15km/h
    d. **What % of standalone roads have a mixed facility wih traffic calming to maintain speed of 15km/h**: The user has to input percentage of standalone roads that have an independent cycle facility with traffic calming to mantain 15km/h.

Figure 151 shows the image of part 4 of the city evaluation form. The inputs required in this form have been explained below.

Figure 151: CyLOS City : City Evaluation – Part 4

10. **% of lighting in arterial roads**: This refers to the percentage of lighting on arterial roads. The user has to input value for three categories that give brackets of lighting lux value observed in the arterial roads. The input value is in percentage and varies between 0 and 100. Data Source : Road Inventory Survey
    a. **Greater than or equal to 40 lux avg**: The user has to input the percentage of arterial roads that have an average lighting level of >=40lux.
    b. **Less than 40 lux avg and greater than equal to 22 lux avg**: The user has to input the percentage of arterial roads that have an average lighting level less than 40lux and greater than or equal to 22 lux

c. **Less than 22 lux average:** The user has to input the percentage of arterial roads that have an average lighting level of <22lux.
d. **Total:** The above percentages entered should sum up to a total of 100.

11. **% of lighting in collector roads:** This refers to the percentage of lighting on collector roads. The user has to input value for three categories that give brackets of lighting lux value observed in the collector roads. The input value is in percentage and varies between 0 and 100. Data Source : Road Inventory Survey
    a. **Greater than or equal to 40 lux avg**: The user has to input the percentage of collector roads that have an average lighting level of >=40lux.
    b. **Less than 40 lux avg and greater than equal to 22 lux avg**: The user has to input the percentage of collector roads that have an average lighting level less than 40lux and greater than or equal to 22 lux
    c. **Less than 22 lux average**: The user has to input the percentage of collector roads that have an average lighting level of <22lux.
    d. **Total**: The above percentages entered should sum up to a total of 100.

12. **% of lighting in local roads:** This refers to the percentage of lighting on local roads. The user has to input value for three categories that give brackets of lighting lux value observed in the local roads. The input value is in percentage and varies between 0 and 100. Data Source : Road Inventory Survey
    a. **Greater than or equal to 20 lux avg:** The user has to input the percentage of local roads that have an average lighting level of >=20lux.
    b. **Less than 20 lux avg and greater than equal to 8 lux avg**: The user has to input the percentage of local roads that have an average lighting level less than 20lux and greater than or equal to 8 lux
    c. **Less than 8 lux average:** The user has to input the percentage of local roads that have an average lighting level of <8lux.
    d. **Total:** The above percentages entered should sum up to a total of 100.

13. **% of lighting in standalone roads:** This refers to the percentage of lighting on standalone roads. The user has to input value for three categories that give brackets of lighting lux value observed in standalone roads. The input value is in percentage and varies between 0 and 100. Data Source : Road Inventory Survey
    a. **Greater than or equal to 20 lux avg:** The user has to input the percentage of standalone roads that have an average lighting level of >=20lux.
    b. **Less than 20 lux avg and greater than equal to 8 lux avg**: The user has to input the percentage of standalone roads that have an average lighting level less than 20lux and greater than or equal to 8 lux
    c. **Less than 8 lux average:** The user has to input the percentage of standalone roads that have an average lighting level of <8lux.
    d. **Total:** The above percentages entered should sum up to a total of 100.

Figure 152 shows the image of part 5 of the city evaluation form. The inputs required in this form have been explained below.

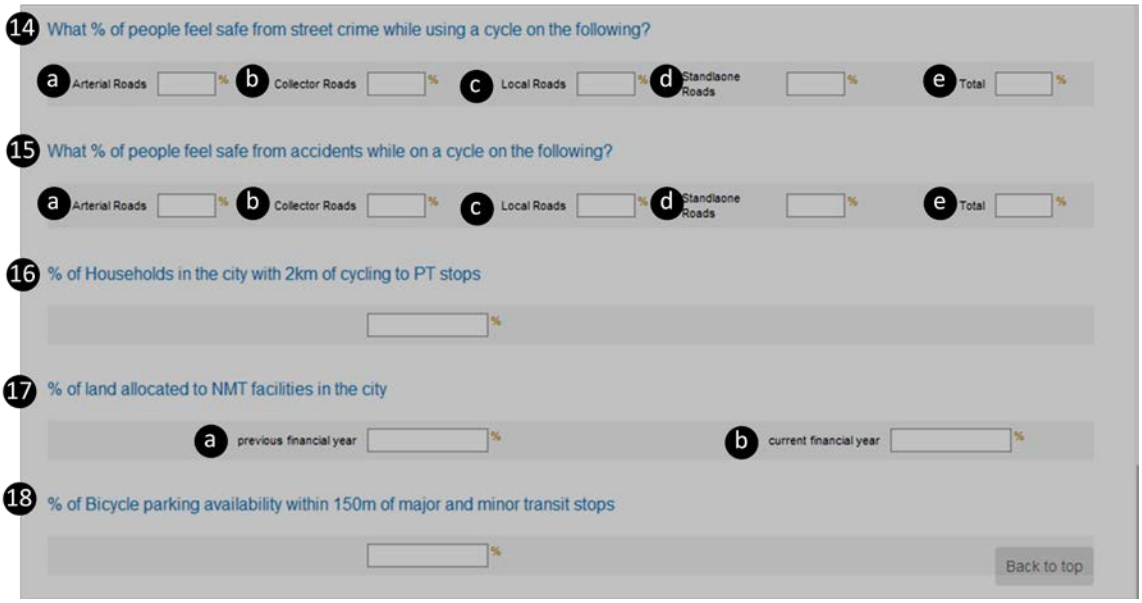


Figure 152: CyLOS City: City Evaluation – Part 5

14. **What % of people feel safe from street crime using a cycle on the following**- The user has to input to the percentage of people that feel safe from street crime on various road type. The user has to enter the value in percentage and the input varies between 0 and 100.
    a. **Arterial Roads** - The user has to input percentage of people that feel safe from street crime in arterial roads. Data Source : Stated Preference Survey
    b. **Collector Roads** - The user has to input percentage of people that feel safe from street crime in collector roads. Data Source : Stated Preference Survey
    c. **Local Roads** - The user has to input percentage of people that feel safe from street crime in local roads. Data Source : Stated Preference Survey
    d. **Standalone Roads** - The user has to input percentage of people that feel safe from street crime in standalone/independent roads. Data Source : Stated Preference Survey
    e. **Total** - The above input values should sum up to 100.

15. **What % of people feel safe from accidents using a cycle on the following**: The user has to input to the percentage of people that feel safe from accidents on various road types. The user has to enter the value in percentage and the input varies between 0 and 100.
    a. **Arterial Roads** - The user has to input percentage of people that feel safe from accidents in arterial roads. Data Source : Stated Preference Survey
    b. **Collector Roads** - The user has to input percentage of people that feel safe from accidents in collector roads. Data Source : Stated Preference Survey
    c. **Local Roads** - The user has to input percentage of people that feel safe from accidents in local roads. Data Source : Stated Preference Survey
    d. **Standalone Roads** - The user has to input percentage of people that feel safe from accidents in standalone/independent roads. Data Source : Stated Preference Survey
    e. **Total** - The above input values should sum up to 100.

16. **% of households in the city within 2km to the PT stops**? This refers to the percentage of household which lie within a 2km radius to public transportation stops in the city. The input value ranges between 0 and 100. Data Source : Household Survey

17. **% of land allocated for NMT Facilities in the city**? This refers to the percentage of land allocated for NMT facilities in the city. The input value is categorised in two options, where the value is in percentage and varies between 0 and 100. Data Source : Household Survey
    a. **Previous financial year**: The user should enter the percentage allocated in the previous financial year.
    b. **Current Financial year**: The user should enter the percentage allocated in the previous financial year.

18. **% of bicycle parking availability within 150m of major and minor transit stops?** : This refers to the total parking availability for cyclist located within 150m of any major and minor stop. The input value should be in percentage and can vary between 0 and 100. Data Source : Road Inventory Survey

Figure 153 shows the image of part 6 of the city evaluation form. The inputs required in this form have been explained below.

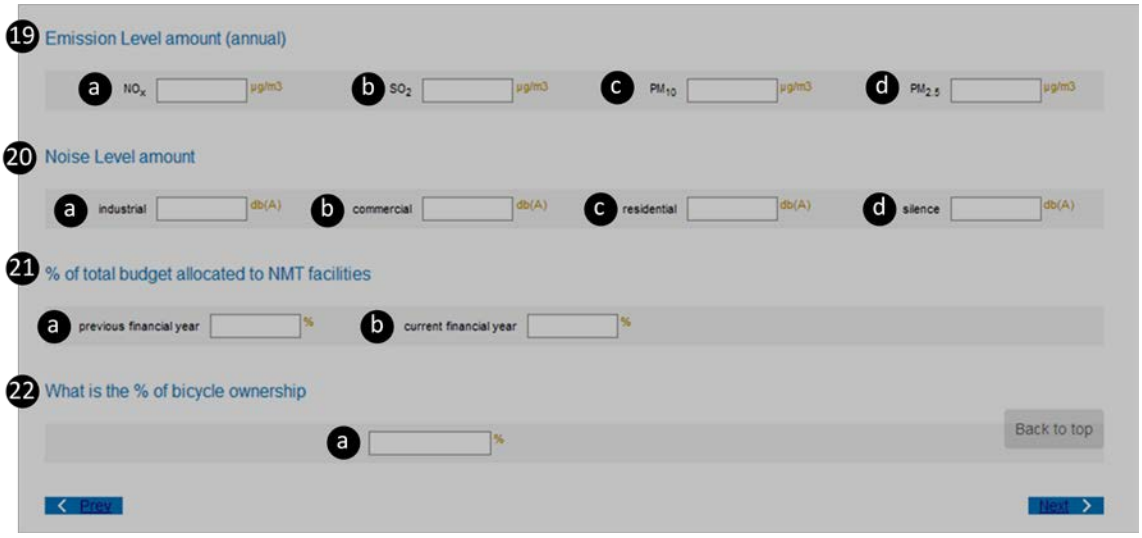


Figure 153: CyLOS City : City Evaluation – Part 6

19. **Emission Level**: This refers to the air pollution in the city. The data to be entered is the local air pollution data. The unit is µg/m3.
    a. **NO_2**: This refers to the amount of Nitrogen di Oxide (NO_2) pollutants in the air. The user can input a value between 0 and 400. Data Source : Local air pollution data / CPCB
    b. **SO_2** : This refers to the amount of Sulphur di Oxide (SO_2) pollutants in the air. The user can input a value between 0 and 500. Data Source : Local air pollution data / CPCB
    c. **PM_{10}**: This refers to the amount of Particulate Matter of size less than 10 µg (PM_{10}) ambient in the air. The user can input a value between 0 and 600. Data Source : Local air pollution data / CPCB

d. **$PM_{2.5}$**: This refers to the amount of Particulate Matter of size less than 2.5 µg ($PM_{2.5}$) in the ambient air. The user can input a value between 0 and 400. Data Source : Local air pollution data / CPCB

20. **Noise Level amounts**: The user needs to input the annual noise quality data calibrated by mapping exceedance of noise levels in city. The values to be entered are for the category industrial, rural, residential and silence areas as prescribed for day time which is 6:00 am to 10:00pm. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority. The unit is db(A). This is to be entered in four categories:
    a. **Industrial**: This refers to the noise quality in industrial areas. The user can input a value between 0 and 750. Data Source : Noise quality data / CPCB
    b. **Commercial**: This refers to the noise quality in commercial areas. The user can input a value between 0 and 650. Data Source : Noise quality data / CPCB
    c. **Residential**: This refers to the noise quality in residential areas. The user can input a value between 0 and 550. Data Source : Noise quality data / CPCB
    d. **Silence**: This refers to the noise quality in areas designated as 'silence'. The user can input a value between 0 and 500. Data Source : Noise quality data / CPCB

The unit is dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

- A "decibel" is a unit in which noise is measured.
- "A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
- Leq: It is an energy mean of the noise level over a specified period

21. **% of total budget allocated to NMT Facilities**: This refers to the budget allocation for NMT facilities in the city. The user has to enter the percentage allocated for NMT facilities of all its budget. This value can vary between 0 and 100. Data Source: City Budgets.
    a. **Previous financial year**: The user should enter the percentage allocated in the previous financial year.
    b. **Current Financial year**: The user should enter the percentage allocated in the current financial year.
22. **What is the % of bicycle ownership**? This refers to the total ownership of cycle in the city. The input value should be in percentage and can vary between 0 and 100.

3.3.3 City Evaluation Output

The output is categorized into two categories (right hand side of the layout page, as shown in Figure 154):

A. **Cycling Friendly City – Current Status:** The first output gives the overall LOS (Level of Service) score for the current status of how cycling friendly the city is. The indicators that contribute to this score have been discussed in the following sections.
B. **Cycling friendly city – Potential Status**: The second output gives the overall LOS (Level of Service) score for the potential status of the city i.e. how much scope more is there for it to become cycle friendly. The indicators that contribute to this score have been discussed in the following sections.

Each of the two categories have to columns of score against their indicator which indicate the following:

i. Overall – average score of the city
ii. Maximum Score – For all indicators the maximum score is 100.

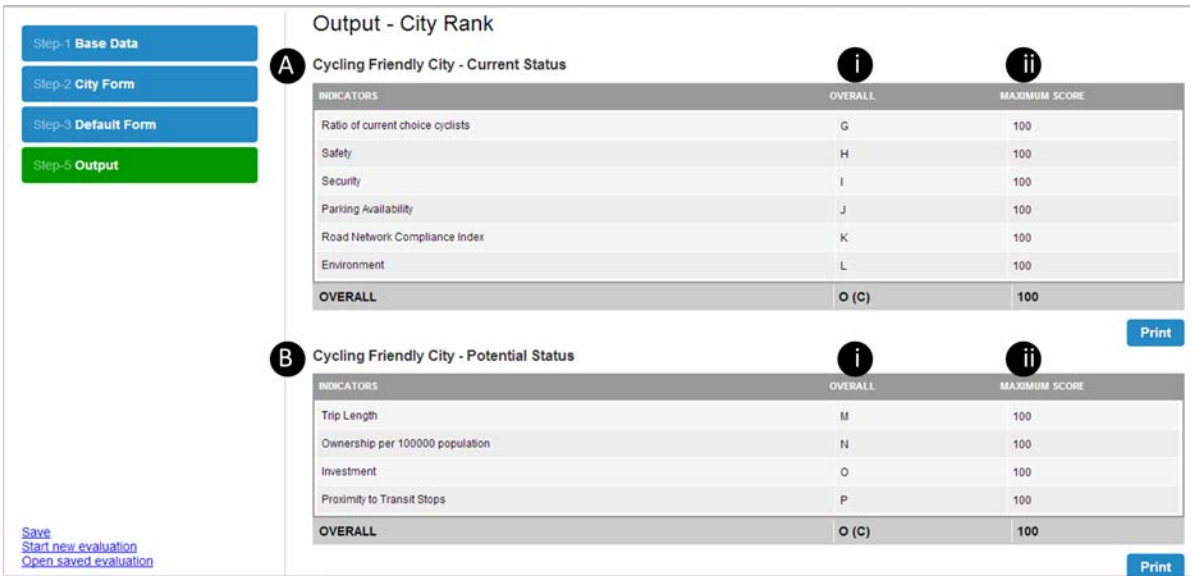


Figure 154: CyLOS City: Output Sheet Layout

Figure 155 shows the image of output result for the city in its current status for being cycling friendly. The inputs required in this form have been explained below.

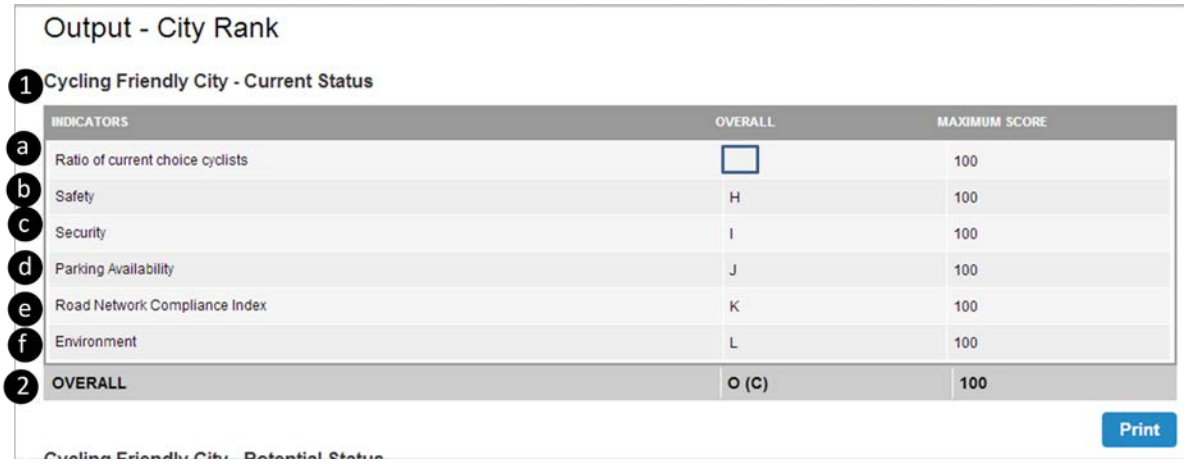
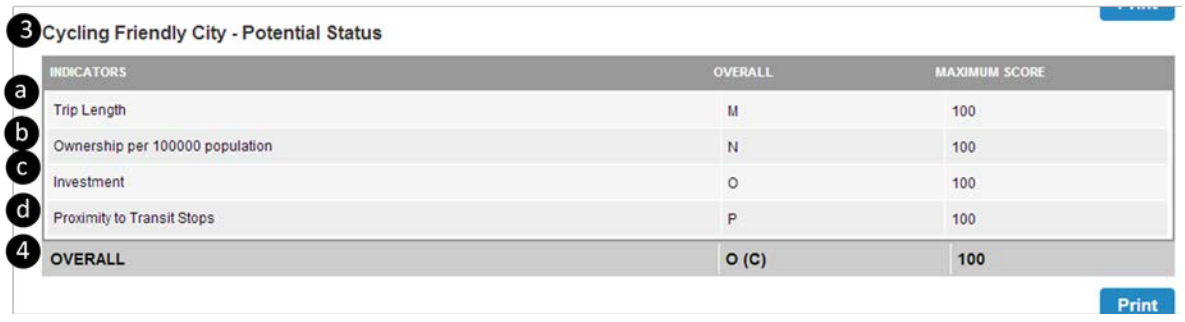


Figure 155: CyLOS City: Output – Current Status

1. **Cycling Friendly City – Current Status**: This refers to the present state of the city in terms of its structure and compatibility of its cycling infrastructure. The following are the sub indicators that contribute to the score of this category:
   a. **Ratio of current choice cyclists**: This indicator addresses which income group is cycling (whether choice commuters are cycling) and how much is the average distance they are travelling by cycle . The weightage assigned by the tool for ratio of current choice cyclists for the evaluation of cycling friendly city – current status is 15%
   b. **Safety**: This indicator addresses how safe the city is in terms of accidents and provision of lighting. The weightage assigned by the tool for safety for the evaluation of cycling friendly city – current status is 25%
   c. **Security**: This indicator addresses how secure the city from street crime. The weightage assigned by the tool for security for the evaluation of cycling friendly city – current status is 15%
   d. **Parking Availability**: This indicator addresses the availability of parking across the city. The weightage assigned by the tool for parking availability for the evaluation of cycling friendly city – current status is 10%
   e. **Road Network Compliance Index**: This indicator addresses if the current road network across all road types is cycling compatible. The weightage assigned by the tool for road network compliance for the evaluation of cycling friendly city – current status is 25%
   f. **Environment**: This indicates how the current environment i.e. ambient air quality and noise pollution of the city affect the cycling environment. The weightage assigned by the tool for environment for the evaluation of cycling friendly city – current status is 25%

2. **Overall Score**: This gives us the overall score of the current status of the city for its cyclability.

Figure 156 shows the image of output result for the city. The inputs required in this form have been explained below.



INDICATORS	OVERALL	MAXIMUM SCORE
Trip Length	M	100
Ownership per 100000 population	N	100
Investment	O	100
Proximity to Transit Stops	P	100
OVERALL	O (C)	100

Figure 156: CyLOS City: Output – Potential Status

3. **Cycling Friendly City – Potential Status**: This refers to the potential state of the city for it to achieve a higher cycling friendly status. The following are the sub indicators that that contribute to the score of this category.
   a. **Trip Length**: This indicator addresses the average distance a cyclist travels across the city. The weightage assigned by the tool for trip length to evaluate the cycling friendly city – potential status is 50%

a. **Ownership per 100000 population**: This indicator addresses the bicycle ownership in the city per 100000 population. The weightage assigned by the tool for ownership per 100000 population to evaluate the cycling friendly city – potential status is 20%
b. **Investment**: This indicator addresses the investment undertaken in the city for the NMT facilities. The weightage assigned by the tool for investment to evaluate the cycling friendly city – potential status is 20%
c. **Proximity to Transit Stops**: This indicator addresses the number of households which lie within proximity of transit stops. The weightage assigned by the tool for proximity of transit stops to evaluate the cycling friendly city – potential status is 10%

4. **Overall Score**: This gives us the overall score of the potential status of the city for its cyclability.

3.3.4 Default Form

The default form of Cylos is divided in three categories which includes Standard, Scaling, and Weightages. The fields in these forms show the value of various parameters to be used in the tool for analysis. These values are based on standard accepted norms and some primary surveys. Changes to these values are not recommended, unless required for research and academic applications. The new values assigned by the user should be based on detail surveys. The values can also change for different context and users as per the location of the route, corridor or the city. It is strongly recommended that the user **"Restore Defaults"** before proceeding with a new analysis, as values edited in a previous session may have been retained by the tool.

3.3.4.1 Standard

The standard form is the first form of the default data input. Figure 157 shows the image of part 1 of the standard form. The inputs required in this are explained below:

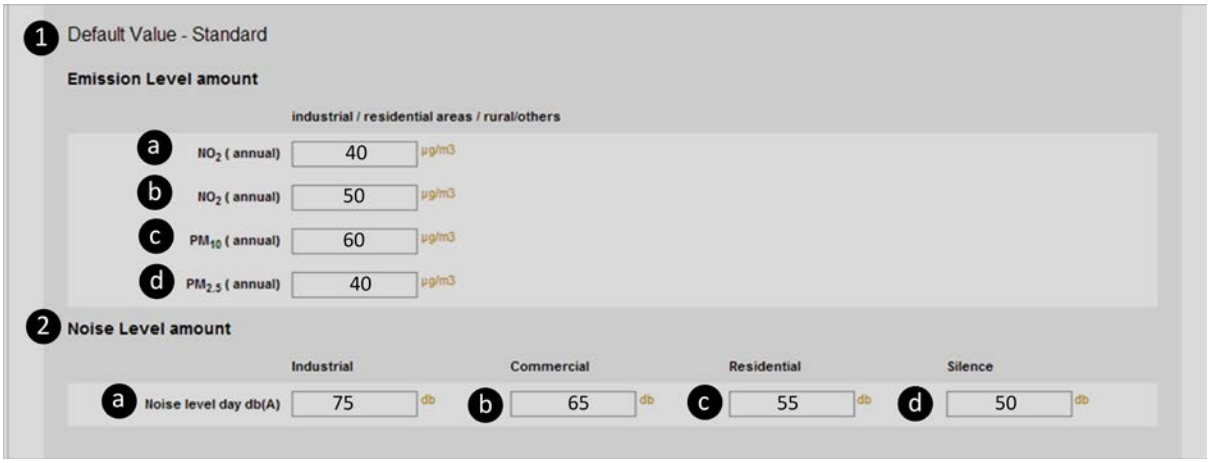


Figure 157: CYLOS for City - Default Form: Standard

1. **Emission Level Amount** – This defines the annual emission of local pollutants in the city. The values have been taken from the national ambient air quality standards by the Central Pollution Control Board. The values entered are for the category industrial, rural, residential and other areas as prescribed by CPCB. Incase, the city has been notified as an ecological sensitive area by the Government of India, the values can be altered as given by CPCB. The maximum emission for various local pollutants is as follows:
    a. **NO_2** – The maximum concentration acceptable in ambient air for Nitrogen di Oxide is 40.

b. **SO_2 -** The maximum concentration acceptable in ambient air for Sulphur di Oxide is 50.
c. **PM_{10} -** The maximum concentration acceptable in ambient air for Particulate Matter of size less than 2.5 µg ($PM_{2.5}$) is 60.
d. **PM2.5-** The maximum concentration acceptable in ambient air for Particulate Matter of size less than 2.5 µg ($PM_{2.5}$) is 40.

The user should note that since these values are from national standards, it is strongly suggested not to alter this value.

2. **Noise Level Amount** - This defines the ambient air quality standards in terms of noise in the city. The values have been taken from the Noise Pollution (Regulation and Control) Rules, 2000 published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 22.11.2000, S.O. 1088(E), dated 11.10.2002, S.O. 1569 (E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act, 1986. The values entered are for the category industrial, rural, residential and silence areas as prescribed for day time which is 6:00 am to 10:00pm. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority. The values for the above are as follows:
    a. Industrial: The maximum concentration acceptable in ambient air for noise in this category is 75 dB(A).
    b. Commercial: The maximum concentration acceptable in ambient air for noise in this category is 65 dB(A).
    c. Residential: The maximum concentration acceptable in ambient air for noise in this category is 55 dB(A).
    d. Silence: The maximum concentration acceptable in ambient air for noise in this category is 50 dB(A).

The unit is dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

- A “decibel” is a unit in which noise is measured.
- “A”, in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
- Leq: It is an energy mean of the noise level over a specified period.

The user should note that since these values are from national standards, it is strongly suggested not to alter this value.

3.3.4.2 Scaling

The scaling form is the second form of the default data input. Figure 158 shows the image of part 1 of the scaling form. The inputs required in this are explained below:

Figure 158: CYLOS for City - Default Form: Scaling – part 1

1. **Lighting level – arterial road:** This defines the average lighting level in the arterial roads of the city. Lower Lux levels lead to less visibility on major roads and therefore can become unsafe. Therefore, the higher the percentage of roads with low lighting, the value will be lower. The default values assigned in the tool range from 0 to 1 based on the lighting level in arterial roads are:
    a. If the arterial roads have average lighting level greater than or equal to 40 lux, then the value is 0. This value has to range between 0 to 1.
    b. If the arterial roads have average lighting level is less than 40 lux and greater than and equal to 22 lux, then the value is 0.5 and has to be lower than 1(a)
    c. If the arterial roads have average lighting level is less than 22 lux, then the value is 0 and has to be lower than 1(b)

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

2. **Lighting level – collector road:** This defines the average lighting level in the collector roads of the city. Lower Lux levels lead to less visibility on roads and therefore can become unsafe. Therefore, the higher the percentage of roads with low lighting, the value will be lower. The default values assigned in the tool range from 0 to 1 based on the lighting level in collector roads are:
    a. If the collector roads have average lighting level greater than or equal to 40 lux, then the value is 0. This value has to range between 0 to 1.
    b. If the collector roads have average lighting level is less than 40 lux and greater than and equal to 22 lux, then the value is 0.5 and has to be lower than 2(a)
    c. If the collector roads have average lighting level is less than 22 lux, then the value is 0 and has to be lower than 2(b)

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

3. **Lighting level – Local road**: This defines the average lighting level in the local roads of the city. Lower Lux levels lead to less visibility on roads and therefore can become unsafe. Therefore, the higher the percentage of roads with low lighting, the value will be lower. The default values assigned in the tool range from 0 to 1 based on the lighting level in local roads are:
    a. If the local roads have average lighting level greater than or equal to 20 lux, then the value is 0. This value has to range between 0 to 1.

b. If the local roads have average lighting level is less than 20 lux and greater than and equal to 8 lux, then the value is 0.5 and has to be lower than 3(a)
c. If the local roads have average lighting level is less than 22 lux, then the value is 0 and has to be lower than 3(b)

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

4. **Lighting level – Standalone road**: This defines the average lighting level in the standalone roads of the city. Lower Lux levels lead to less visibility on roads and therefore can become unsafe. Therefore, the higher the percentage of roads with low lighting, the value will be lower. The default values assigned in the tool range from 0 to 1 based on the lighting level in standalone roads are:
    a. If the standalone roads have average lighting level greater than or equal to 20 lux, then the value is 0. This value has to range between 0 to 1.
    b. If the standalone roads have average lighting level is less than 20 lux and greater than and equal to 8 lux, then the value is 0.5 and has to be lower than 4(a)
    c. If the standalone roads have average lighting level is less than 22 lux, then the value is 0 and has to be lower than 4(b)

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

5. **Ratio of Current choice cyclists with income level more than 15000 rupees but less than or equal to 15000 per month**: This defines the ratio of commuting choice cyclists with income slab less than or equal to 15000 rupees per month. Higher ratio of percentage of cyclists in comparison with the private vehicles, the value will be higher. The default values assigned in the tool range from 0 to 1 based on the ratio of commuting choice cyclists with income level less than 15000 rupees per month are :
    a. If the ratio of percentage of cyclists with the combined percentage of 2W and car, in this income slab, is less than 0.1, then the value is 0.2 and has to be lower than the value in 5(b).
    b. If the ratio of percentage of cyclists with the combined percentage of 2W and car, in this income slab, is greater than 0.1 but less than 1, then the value is 0.5 and has to be lower than 5(c)
    c. If the ratio of percentage of cyclists with the combined percentage of 2W and car, in this income slab, is more than 1, then the value is 1. This is the highest scale and this value has to range between 0 to 1.

    These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

6. **Ratio of Current choice cyclists with income level more than 15000 but less than and equal to 35000 rupees per month**: This defines the ratio of commuting choice cyclists with income level more than 15000 but less than and equal to 35000 rupees per month. Higher ratio of percentage of cyclists in comparison with the private vehicles, the value will be higher. The default values assigned in the tool range from 0 to 1 based on the ratio of commuting choice cyclists with income level more than 15000 rupees and less than or equal to 35000 rupees per month are :
    a. If the ratio of percentage of cyclists with the combined percentage of 2W and car, in this income slab, is less than 0.1, then the value is 0.2 and has to be lower than the value in 6(b).

b. If the ratio of percentage of cyclists with the combined percentage of 2W and car, in this income slab, is greater than 0.1 but less than 1, then the value is 0.5 and has to be lower than 6(c)
c. If the ratio of percentage of cyclists with the combined percentage of 2W and car, in this income slab, is more than 1, then the value is 1. This is the highest scale and this value has to range between 0 to 1.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

7. **Ratio of Current choice cyclists with income level more than 35000 rupees per month**: This defines the ratio of commuting choice cyclists with income level more than 35000 rupees per month. Higher ratio of percentage of cyclists in comparison with the private vehicles, the value will be higher. The default values assigned in the tool range from 0 to 1 based on the ratio of commuting choice cyclists with income level more than 35000 rupees per month are :
    a. If the ratio of percentage of cyclists with the combined percentage of 2W and car, in this income slab, is less than 0.1, then the value is 0.2 and has to be lower than the value in 7(b).
    b. If the ratio of percentage of cyclists with the combined percentage of 2W and car, in this income slab, is greater than 0.1 but less than 1, then the value is 0.5 and has to be lower than 7(c)
    c. If the ratio of percentage of cyclists with the combined percentage of 2W and car, in this income slab, is more than 1, then the value is 1. This is the highest scale and this value has to range between 0 to 1.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 159 shows the image of part 2 of the scaling form. The inputs required in this are explained below:

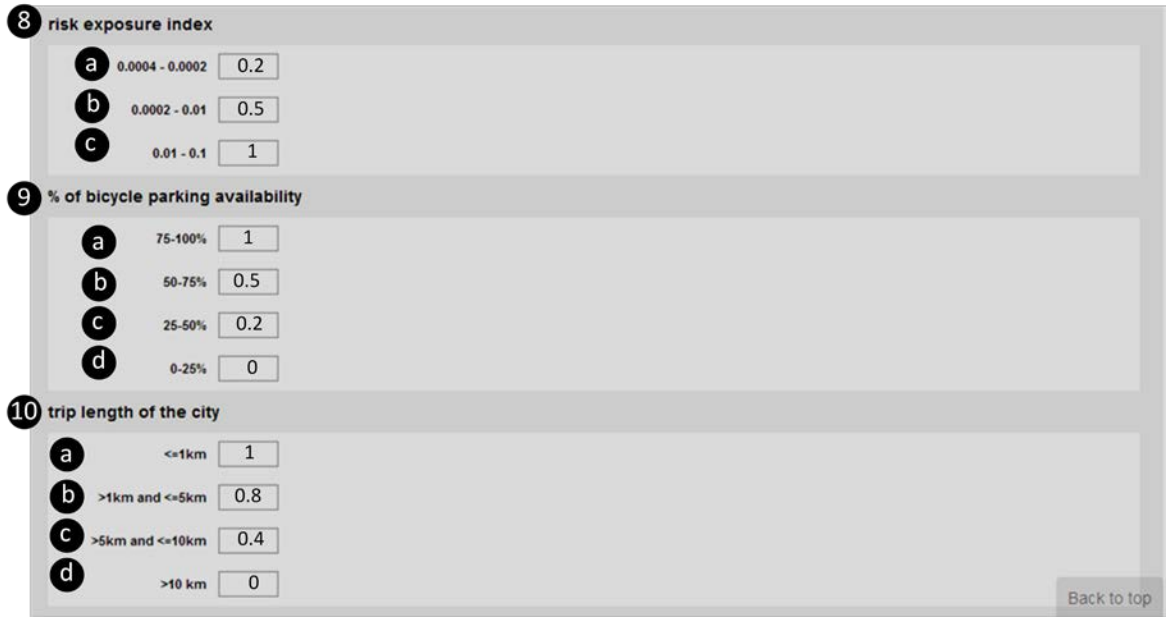


Figure 159: CYLOS for City - Default Form: Scaling – part 2

8. **Risk Exposure Index**: This defines the risk exposure to the cyclists in the city. The higher the risk exposure, the lower the value; which implies more number of cyclist fatalities and unsafe conditions in the city. The default values assigned in the tool range from 0 to 1 based on the risk exposure. They are as follows:
    a. If the risk exposure is between 0.0004 and 0.0002, then the value is 0.2. This value has to be lower than 8(b)
    b. If the risk exposure is between 0.0002 and 0.01, then the value is 0.5. This value has to be lower than 8(c)
    c. If the risk exposure is between 0.01 and 0.1, then the value is 1. This value has to range between 0 to 1.

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

9. **% of bicycle parking availability**: This refers to the bicycle parking availability near transit stops. The higher the number of parking spaces, the higher the value. The default values assigned in the tool range from 0 to 1 based on the risk exposure. They are as follows:
    a. If the bicycle parking availability is between 75% and 100%, then the value is 1. This value has to range between 0 to 1.
    b. If the bicycle parking availability is between 50% and 75%, then the value is 0.5. This value has to range between 0 to 1 and shall be lower than 9(a)
    c. If the bicycle parking availability is between 25% and 50%, then the value is 0.2. This value has to range between 0 to 1 and shall be lower than 9(b)
    d. If the bicycle parking availability is between 0% and 25%, then the value is 0. This value has to range between 0 to 1 and shall be lower than 9(c)

10. **Trip length of the city**: This defines the average distance covered by all modes across the city. The higher the distance, the lower the value. The default values assigned in the tool range from 0 to 1 based on the trip length of the city. They are as follows:
    a. If the trip length of the city is less than or equal to 1km, then the value is 1. This value has to range between 0 to 1.
    b. If the trip length of the city is more than 1 km but less than 5 km, then the value is 0.8. This value has to range between 0 to 1 and shall be lower than 10(a)
    c. If the trip length of the city is more than 5 km but less than 10 km, then the value is 0.4. This value has to range between 0 to 1 and shall be lower than 10(b)
    d. If the trip length of the city is more than 10 km, then the value is 0. This value has to range between 0 to 1 and shall be lower than 10(c)

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

Figure 160 shows the image of part 3 of the scaling form. The inputs required in this are explained below:

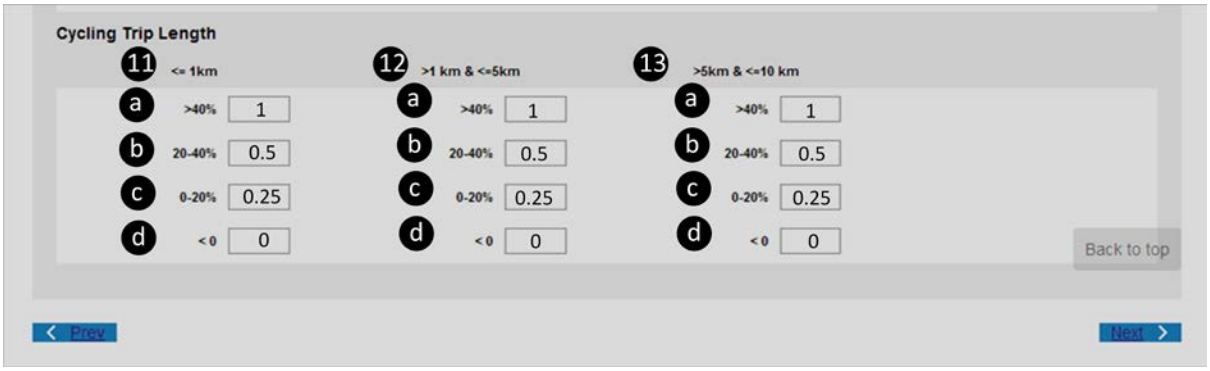


Figure 160: CYLOS for City - Default Form: Scaling – part 3

11. **Cycling Trip Length for average distance less than equal to 1 km**: This refers to the average distance covered by a cyclist which is within 1km. The higher the percentage of cyclists, the higher the value. The default values assigned in the tool range from 0 to 1 based on the cycling trip length less than or equal to 1km. They are as follows:
    a. If the percentage of cyclists cycling less than or equal to 1km is more than 40% , then the value is 1. This value has to range between 0 to 1.
    b. If the percentage of cyclists cycling less than or equal to 1km is between 20% and 40%, then the value is 0.5. This value has to range between 0 to 1 and shall be lower than 11(a)
    c. If the percentage of cyclists cycling less than or equal to 1km is between 0% and 20% and higher than 0%, then the value is 0.2. This value has to range between 0 to 1 and shall be lower than 11(b)
    d. If the percentage of cyclists cycling less than or equal to 1km is 0%, then the value is 0. This value has to range between 0 to 1 and shall be lower than 11(c).

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

12. **Cycling Trip Length for average distance more than 1 km but less than equal to 5 km**: This refers to the average distance covered by a cyclist more than 1km but less than or equal to 5km. The higher the percentage of cyclists, the higher the value. The default values assigned in the tool range from 0 to 1 based on the cycling trip length more than 1km but less than or equal to 5km. They are as follows:
    a. If the percentage of cyclists cycling more than 1km but less than or equal to 5km is more than 40% , then the value is 1. This value has to range between 0 to 1.
    b. If the percentage of cyclists cycling more than 1km but less than or equal to 5km is between 20% and 40%, then the value is 0.5. This value has to range between 0 to 1 and shall be lower than 12(a)
    c. If the percentage of cyclists cycling more than 1km but less than or equal to 5km is between 0% and 20% and higher than 0%, then the value is 0.2. This value has to range between 0 to 1 and shall be lower than 12(b)
    d. If the percentage of cyclists cycling more than 1km but less than or equal to 5km is 0%, then the value is 0. This value has to range between 0 to 1 and shall be lower than 12(c).

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

13. **Cycling Trip Length for average distance more than 5 km but less than equal to 10km**: This refers to the average distance covered by a cyclist more than 5km but less than or equal to 10km. The higher the percentage of cyclists, the higher the value. The default values assigned in the tool range from 0 to 1 based on the cycling trip length more than 5km but less than or equal to 10km. They are as follows:
    a. If the percentage of cyclists cycling more than 5km but less than or equal to 10km is more than 40% , then the value is 1. This value has to range between 0 to 1.
    b. If the percentage of cyclists cycling more than 5km but less than or equal to 10km is between 20% and 40%, then the value is 0.5. This value has to range between 0 to 1 and shall be lower than 12(a)
    c. If the percentage of cyclists cycling more than 5km but less than or equal to 10km is between 0% and 20% and higher than 0%, then the value is 0.2. This value has to range between 0 to 1 and shall be lower than 12(b)
    d. If the percentage of cyclists cycling more than 5km but less than or equal to 10km is 0%, then the value is 0. This value has to range between 0 to 1 and shall be lower than 12(c)

These values can be altered according to flexibility of the user, keeping in mind the conditions mentioned above.

3.3.4.3 Weightages

The Weightage form is the third form of the default data input.

Weightages indicate relative importance of indicators and indicator categories. They are used to consolidate scores under individual indicators into a single overall score for evaluation, comparison and decision making. Weightages are given and used as percentage values. All indicators within a category are given percentage weights of the sum total of which is 100 percent. Higher percentage is assigned to indicators with higher relative importance. In that sense percentage weights are representation of an indicators importance in each category.

Similarly percentage weight of each category is representation of the relative importance of that category in the overall cycling infrastructure assessment for that particular road type. Weightages have been assigned separately for indicators and indicator categories.

Indicator Categories:

Cycling Friendly City – Current Status: definition what all it includes

This indicator refers to the present state of the city in terms of how friendly the city and its environment is for cyclists. It has six subindicators that contribute to this category. They are : ratio of commuting choice cyclists, safety, security, parking availability, road network compliance index and environment . The weightages assigned to the main category and the sub indicators have been explained further.

Cycling Friendly City – Potential Status

This indicator refers to the potential state of the city in terms of how friendly the city and its environment is for cyclists. It has four sub indicators that contribute to this category. They are trip

length, ownership, investment and proximity to transit stop . The weightages assigned to the main category and the sub indicators have been explained further.

Figure 161 shows the image of part 1 of the weightages form. The inputs required in this are explained below:

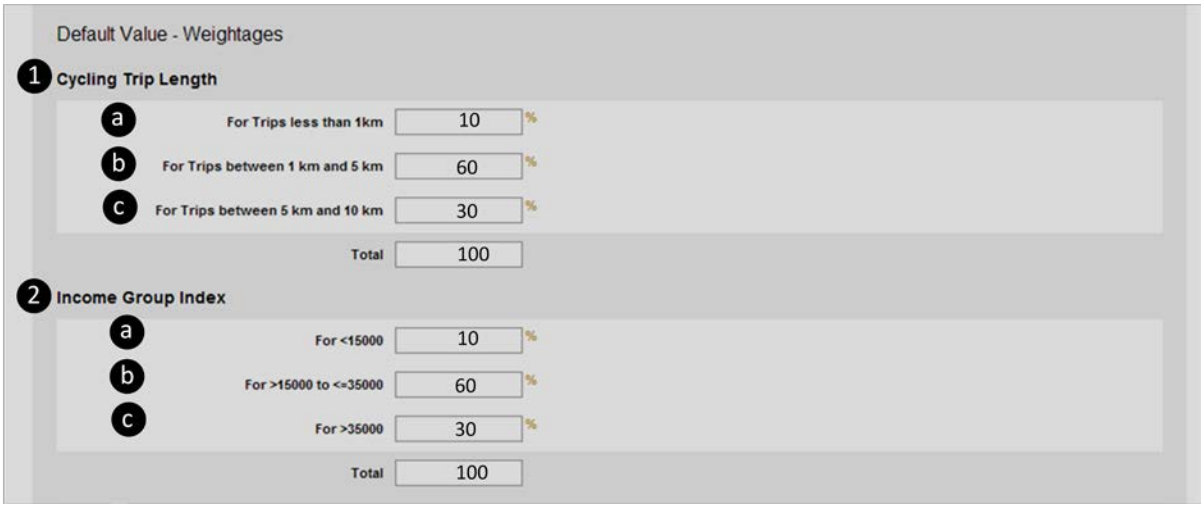


Figure 161: CYLOS for City - Default Form: Weightages– part 1

1. **Cycling Trip length**: This indicator refers to the cycling trip length. This indicator has three input values and individual weightage for each is provided as shown in Figure 161. The total of all sub indicator weightages should sum upto 100. The user can alter the weightage value as per the relevance of the sub indicators. weightage value for all the fields should be between 0 to 100.
   a. **For Trips less than 1 km**: The default weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
   b. **For trips between 1 and 5 km**: The default weightage provided in the tool is 60%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
   c. **For trips between 5km and 10 km**: The default weightage provided in the tool is 30%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

2. **Income Group Index**: This indicator refers to the income group index. This indicator has three input values and individual weightage for each is provided as shown in Figure 161. The total of all sub indicators weightages should sum upto 100. The user can alter the weightage value as per the relevance of the sub indicators. weightage value for all the fields should be between 0 to 100.
   a. **For <15000 per month**: The default weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

b. **More than 15000 per month and less than equal to 35000 per month**: The default weightage provided in the tool is 60%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
c. **More than 35000 per month**: The default weightage provided in the tool is 30%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Figure 162 shows the image of part 2 of the weightages form. The inputs required in this are explained below:

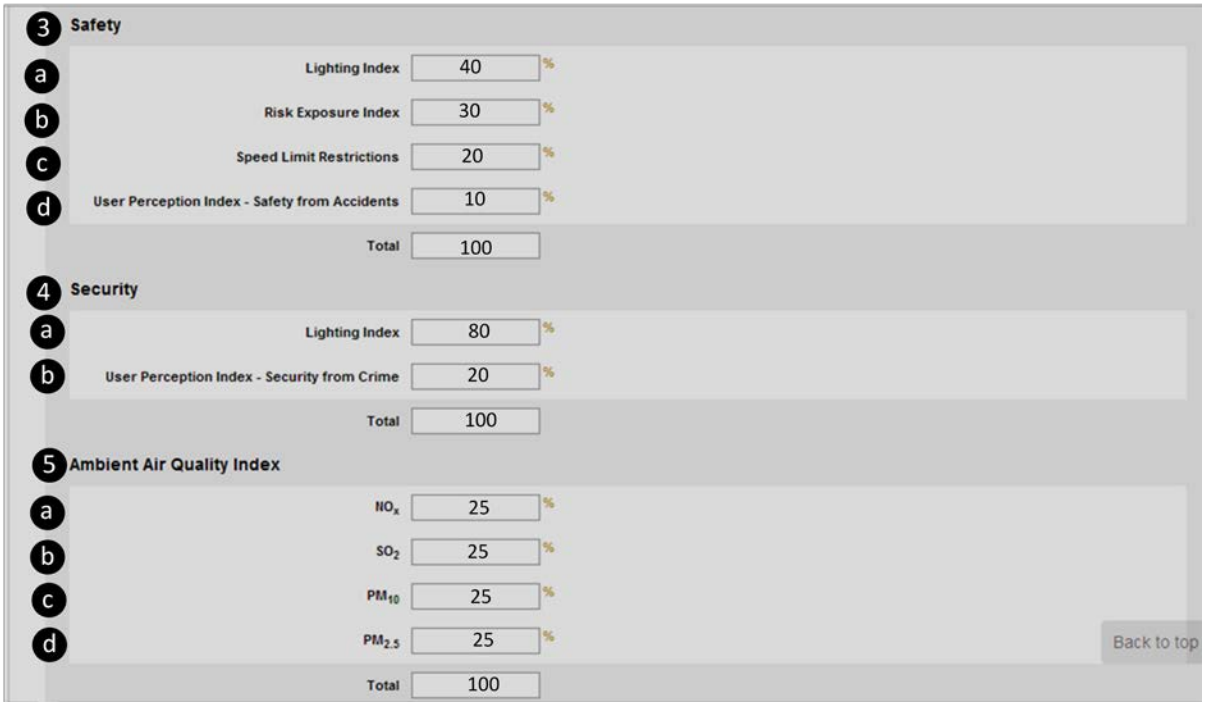


Figure 162: CYLOS for City - Default Form: Weightages– part 2

3. **Safety**: This indicator refers to the safety for cyclists in the city. This indicator has four sub indicators and individual weightage for each is provided as shown in Figure 162. The total of all sub indicators weightages should sum upto 100. The user can alter the weightage value as per the relevance of the sub indicators. The weightage value for all the fields should be between 0 to 100.
    a. **Lighting Index**: The default weightage provided in the tool is 40%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
    b. **Risk Exposure Index**: The default weightage provided in the tool is 30%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
    c. **Speed Limit Restrictions**: The default weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

d. **User Perception Index** – Safety from accidents: The default weightage provided in the tool is 10%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

4. **Security**: This indicator refers to the security for cyclists in the city. This indicator has two sub indicators and individual weightage for each is provided as shown in Figure 162. The total of all sub indicators weightages should sum upto 100. The user can alter the weightage value as per the relevance of the sub indicators. The weightage value for all the fields should be between 0 to 100.
    a. **Lighting Index**: The default weightage provided in the tool is 80%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
    b. **User Perception Index – Security from Crime**: The default weightage provided in the tool is 20%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

5. Ambient Air Quality Index: This indicator refers to the ambient air quality index in the city. This indicator four sub indicators and individual weightage for each is provided as shown in Figure 162. The total of all sub indicators weightages should sum upto 100. The user can alter the weightage value as per the relevance of the sub indicators. The weightage value for all the fields should be between 0 to 100.
    a. **NOx**: The default weightage provided in the tool is 25%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
    b. **SO2**: The default weightage provided in the tool is 25%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
    c. **PM_{10}**: The default weightage provided in the tool is 25%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
    d. **$PM_{2.5}$**: The default weightage provided in the tool is 25%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

Figure 163 shows the image of part 3 of the weightages form. The inputs required in this are explained below:

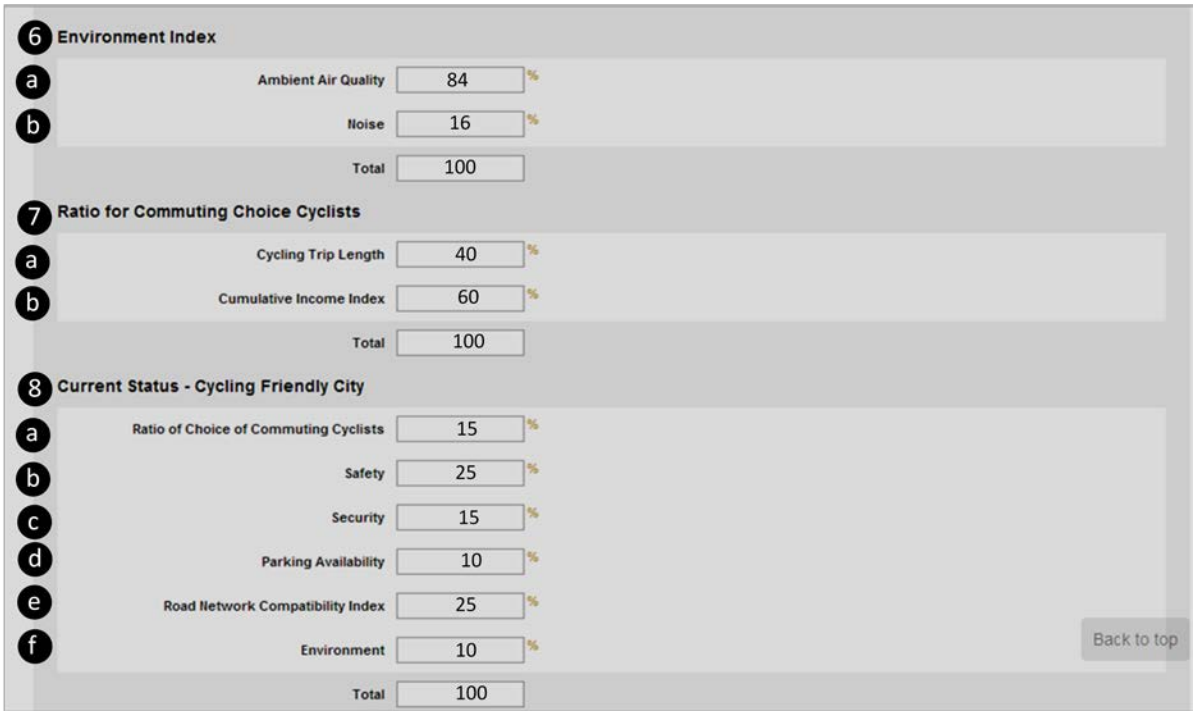


Figure 163: CYLOS for City - Default Form: Weightages– part 3

6. **Environment Index**: This indicator refers to environment in the city. This indicator has two sub indicators and individual weightage for each is provided as shown in Figure 163. The total of all sub indicators weightages should sum upto 100. The user can alter the weightage value as per the relevance of the sub indicators. The weightage value for all the fields should be between 0 to 100.
    a. **Ambient Air Quality** : The default weightage provided in the tool is 84%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100
    b. **Noise**: The default weightage provided in the tool is 16%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100

7. **Ratio of Commuting Choice Cyclists**: This indicator refers to commuting choice cyclists in the city. This indicator has two sub indicators and individual weightage for each is provided as shown in Figure 163. The total of all sub indicators weightages should sum upto 100. The user can alter the weightage value as per the relevance of the sub indicators. The weightage value for all the fields should be between 0 to 100.
    a. **Cycling Trip Length**: The default weightage provided in the tool is 40%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
    b. **Cumulative Income Index**: The default weightage provided in the tool is 60%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

8. **Current Status – Cycling friendly city**: This refers to the main category that gives the overall indication of the cycle friendly city in its current status and the weightage value

for all the fields shall be between 0 to 100. All the above mentioned weightages directly or indirectly contribute to its score in overall evaluation.The weightage specific to each sub indicator has been shown in Figure 163 and explained below. The total sum of weightage of all indicators should be 100.

a. **Ratio of commuting choice cyclists**: The weightage assigned by the tool is 15%. The user can modify this.
b. **Safety**: The weightage assigned by the tool is 15%. The user can modify this.
c. **Security**: The weightage assigned by the tool is 15%. The user can modify this.
d. **Parking availability**: The weightage assigned by the tool is 15%. The user can modify this.
e. **Road network compatibility index**: The weightage assigned by the tool is 15%. The user can modify this.
f. **Environment**: The weightage assigned by the tool is 15%. The user can modify this.

Figure 164 shows the image of part 3 of the weightages form. The inputs required in this are explained below:

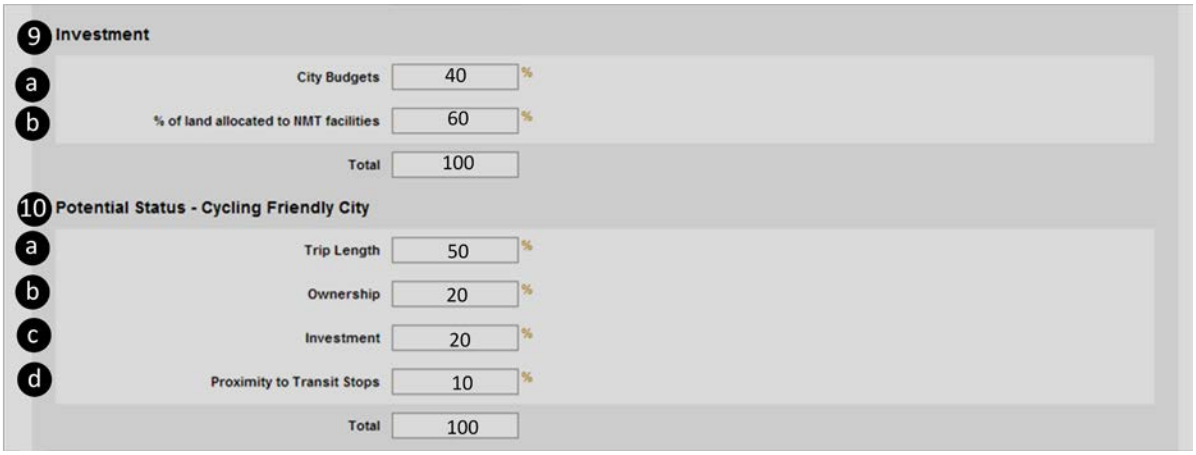


Figure 164: CYLOS for City - Default Form: Weightages– part 4

9. **Investment**: This indicator refers to investment made for NMT in the city. This indicator has two sub indicators and individual weightage for each is provided as shown in Figure 164. The total of all sub indicators weightages should sum upto 100. The user can alter the weightage value as per the relevance of the sub indicators. The weightage value for all the fields should be between 0 to 100.
    a. **City Budgets**: The default weightage provided in the tool is 40%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.
    b. **% of land allocated to NMT Facilities**: The default weightage provided in the tool is 60%. The user can alter this as per the context and most relevant sub indicator. The weightage value can range between 0 to 100.

10. **Potential status – cycling friendly city**: This refers to the main category that gives the overall indication of the potentiality of city to be cycle friendly and the weightage value for all the fields shall be between 0 to 100. All the above mentioned weightages directly

or indirectly contribute to its score in overall evaluation. The weightage specific to each sub indicator has been shown in Figure 163 and explained below. The total sum of weightage of all indicators should be 100.

a. **Trip Length**: The weightage assigned by the tool is 50%. The user can modify this.
b. **Ownership**: The weightage assigned by the tool is 20%. The user can modify this.
c. **Investment**: The weightage assigned by the tool is 20%. The user can modify this.
d. **Proximity to Transit stops**: The weightage assigned by the tool is 10%. The user can modify this.

3.4 Annexure

3.4.1 Corridor Route/Link – Data Collection Form

The form below should be used by the surveyor to collect data from site and fill the forms. The data collection form for Corridor/Route and Transit access influence area is same.

DATA COLLECTION FORM

Name of road: _____ Date: _____

Name of surveyor: _____ Time: _____

Total number of segments: _____

Segment Number: _____

Instructions to fill the forms:

1. There are six sections in the entire form which includes:
   a) Common form for the entire segment
   b) Observation sheet (Day time) – LHS
   c) Observation sheet (Day time) – RHS
   d) Observation sheet (Night time) – LHS & RHS
   e) Description sheet (Day and Night time)

2. * - This symbol indicates to refer description sheet. The category to be filled is explained in the description sheet for the respective item.
3. For proper information data should be collected in peak hour time. Also complete form should be filled in one time slot.
4. Each segment should be divided in a range of 200 m up to 800 m. If the segment is more than 800m long a separate form can be used.

a. Common Survey for Entire Segment

S.No.		
1	**Type of Road (Tick any one)**	
	Highway	
	Arterial/ Sub Arterial (30 - 80 m)	
	Collector/Distributor (12-30 m)	
	Local - (6 -15 m)	
	Independent track/facility -(upto 6m)	
2	**Carriageway traffic along segment (Tick any one)**	
	LHS & RHS (2 way)	
	One Way (LHS)	
	One Way (RHS)	
	Independent path	
3	**Right of way (ROW)**	
4	**No. of lane**	
5	**Segment Length (km)**	
6	**Posted speed limit**	
7	**Peak hour Traffic data**	
	No. of motor vehicles (PCU)	
	No. of Bicycle	
	No. of auto rickshaw	
	No. of goods rickshaw	
	No. of Pedestrians	
8	**Bicycle user share**	
	Passenger only (no.)	
	Passenger with goods (no.)	
9	**Type of Cycle track/lane (Tick any one)**	
	Segregated track	
	Painted track	
	Unsegregated (common with carriageway)	
	Common with footpath	
10	**Location of cycle track/lane (Tick any one)**	
	Along carriage way	
	Along footpath	
	Along property edge	
	On the median	
	Between on street parking & carriageway	
	Between service lane & property edge	
	Independent Standalone	
11	**Surface Type (Tick any one)**	
	Asphalt	
	Concrete	
	Smooth tiled	
	Paver blocks	
	Concrete slabs	
	Others	
12	**Cycle parking cost (rupees per day)**	

13	**Primary Intersection type (Tick any one)**	
	Signalized junction	
	Unsignalized junction	
	One lane roundabout	
	Two lane roundabout	
	Rotary	
	Grade separated	
	Not applicable	
	If Intersection type is not applicable then 11 - 23 are not to be filled.	
14	No. of major junctions	
15	Observed wait time at the junction	
16	Traffic calming at intersections (Yes/No)	
17	Demarcated cycle stacking spaces at intersection (Yes/No)	
18	**Primary cyclist crossing type across intersecting roads (Tick any one)**	
	Crossing with or without marking	
	Raised crossing	
	Grade separated (underpass or overpass)	
	Signalized with or without raised crossing	
	No provision for crossing/ physically prevented from crossing	
19	**Primary cyclist crossing type across free left turns or segregated left turn lanes (Tick any one)**	
	Crossing marked across carriageway	
	Raised crossing	
	Grade separated (underpass or overpass)	
	Segregated left turning lanes exists	
20	**Primary cycle infrastructure along intersection boundary (Tick any one)**	
	Segregated from carriageway and footpath	
	Common with footpath but segregated from carriage way	
	Painted marking on the periphery along circular roadway	
	No Segregation/demarcation - common with carriage way	
21	**Width of cycle track/lane at the junction (m)**	
22	**Cyclist approach to the Intersection (Tick any one)**	
	Segregated track	
	Cycle lane (painted)	
	Unsegregated	
	Common cycle track and footpath	
	As part of or along service lane	
	Stand alone	
23	**Additional grade separated cycle crossings in the segment**	
	Foot over bridges (no.)	
	Subways (no.)	
24	**Primary speed/conflict control measure used at mid block cyclist or pedestrian crossing (Tick one)**	
	Traffic calmed	
	Pedestrian signal with or without traffic signal	

b. Observation Sheet (Day) - LHS

S.No.	Chainage		0-200 m	201-400 m	401-600 m	601-800 m	Average/Min.
1	Shaded length % on Cycle track/lane						Average
2	% length of divided carriageway in the segment						Average
3	Observed peak speed						Average
4	Land use*						Average
5	Length with service lane						Total
6	Quality of service lane(Good, Bad, poor)*						Average
7	Length of Footpath						Total
8	Quality of footpath (Good, Bad, Poor)*						Average
9	No. of hawkers present						Total
10	No. of parked IPT						Total
11	No. of parked private vehicles on carriageway						Total
12	Height of cycle track/lane w.r.t. to carriageway						Average
13	Minimum width of cycle track/lane						Min.
14	Segregation width between cycle track/lane/path & carriageway						Average
15	Edge height	Left Side					Average
		Right Side					Average
16	Minimum Turning Radius						Min.
17	No. of obstructions						Total
18	Slope of Ramp*						Average
19	Presence of cycle specific signage & marking						Total
20	Location of bus stop*						
21	No. of property entrances						Total
22	No. of secondary lane entrances / minor junctions						Total
23	No. of signalised or traffic calm pedestrian/cycling crossings at carriageway						Total
24	Level of cycle track/lane crossing at minor junction/collector road entrance*						Average
25	Level of cycle track/lane crossing at property entrance*						Average
26	No. of cycle/NMV parking						Total
27	Quality & maintenance of Cycle track/ lane						Average
28	Quality of landscaping & environment						Average
29	Encroachment on cycle track/lane by private vehicles*(refer description sheet)						Average
30	Approx. % of total cyclist using bicycle infrastructure						Average
31	Approx. % of total NMV parking using						Average

	designated parking NMV bays					

c. Observation Sheet (Day) - RHS

S.No.	Chainage		0-200 m	201-400 m	401-600 m	601-800 m	Average/Min.
1	Shaded length % on Cycle track/lane						Average
2	% length of divided carriageway in the segment						Average
3	Observed peak speed						Average
4	Land use*						Average
5	Length with service lane						Total
6	Quality of service lane(Good, Bad, poor)*						Average
7	Length of Footpath						Total
8	Quality of footpath (Good, Bad, Poor)*						Average
9	No. of hawkers present						Total
10	No. of parked IPT						Total
11	No. of parked private vehicles on carriageway						Total
12	Height of cycle track/lane w.r.t to carriageway						Average
13	Minimum width of cycle track/lane						Min.
14	Segregation width between cycle track/lane/path & carriageway						Average
15	Edge height	Left Side					Average
		Right Side					Average
16	Minimum Turning Radius						Min.
17	No. of obstructions						Total
18	Slope of Ramp*						Average
19	Presence of cycle specific signage & marking						Total
20	Location of bus stop*						
21	No. of property entrances						Total
22	No. of secondary lane entrances / minor junctions						Total
23	No. of signalised or traffic calm pedestrian/cycling crossings at carriageway						Total
24	Level of cycle track/lane crossing at minor junction/collector road entrance*						Average
25	Level of cycle track/lane crossing at property entrance*						Average
26	No. of cycle/NMV parking						Total
27	Quality & maintenance of Cycle track/ lane						Average
28	Quality of landscaping & environment						Average
29	Encroachment on cycle track/lane by private vehicles*(refer description sheet)						Average
30	Approx. % of total cyclist using bicycle infrastructure						Average

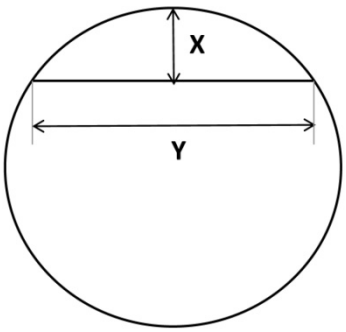
31	Approx. % of total NMV parking using designated parking NMV bays					Average

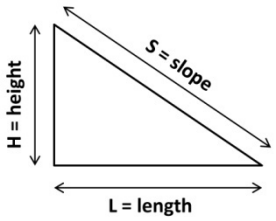
d. Observation Sheet (Night) - LHS and RHS

OBSERVATION SHEET (NIGHT) -LHS						
S.No.	**Chainage**	**0-200 m**	**201-400 m**	**401-600 m**	**601-800 m**	**Average/Min.**
1	Lighting on cycle track - lux level (40 lux, 20 lux, >10 lux)*					
2	Lighting uniformity on cycle track/lane/path (Good, Bad, Poor)*					
3	No of hawkers					

OBSERVATION SHEET (NIGHT) -RHS						
S.No.	**Chainage**	**0-200 m**	**201-400 m**	**401-600 m**	**601-800 m**	**Average/Min.**
1	Lighting on cycle track - lux level (40 lux, 20 lux, >10 lux)*					
2	Lighting uniformity on cycle track/lane/path (Good, Bad, Poor)*					
3	No of hawkers					

e. Description Sheet (Day and Night) – LHS & RHS

DESCRIPTION SHEET (DAY)		
S.NO.	**SURVEY FORM - LHS & RHS**	
4	**Land Use**	
A	Commercial /Retail	
B	Residential	
C	Others - Institutional, Recreational, Green, etc.	
D	Commercial + Residential	
E	Residential + Others	
F	Commercial + Others	
6	**Quality of service lane**	
	Good (Grade A)	Width >= 6m, Lighting level=18 lux, Uniformity =40 %, No Obstructions, Footpath - 1.8m, segregated
	Bad (Grade B)	Width 4.5m to 6m, Lighting level=15 lux, Uniformity =33 %, No Obstructions, Footpath - 1.2 to 1.8m, segregated
	Poor (Grade C)	Width >=4.5m, Lighting level>15 lux, Uniformity =33 %, Obstructions present, Footpath - 1.2, unsegregated
8	**Quality of footpath**	
	Good (Grade A)	Width 1.8m, Height-18 cm, No Obstruction, Excellent surface quality, Proper cross slope, barrier free
	Bad (Grade B)	Width 1.8 to 1.5m , Height-20 cm, Obstructions present but clear width 1.2m achieved, Excellent surface quality, Proper cross slope, barrier free, Pavement may not include tactile
	Poor (Grade C)	Width = 1.5m , Height-20 cm, Obstructions present but clear width 1.2m achieved, Poor surface quality, Improper cross slope, Not disabled friendly, Poor surface quality of pavement.
16	**Calculate turning radius** **$R = Y/2 + X^2/8 \times Y$**	

18	**Calculate slope** $S^2 = H^2 + L^2$	
19	**Location of Bus stop**	
A	No bus shelter on kerbside	
B	Cycle track between bus shelter & carriageway	
C	Bus stop between cycle track and carriageway	
D	Bus stop on cycle track	
24	**Level of cycle track/lane crossing at minor junction/collector road entrance**	
A	At carriageway level	
B	Level of cycle track remains same (above carriageway)	
C	At footpath level	
25	**Level of cycle track/lane crossing at property entrance**	
A	At carriageway level	
B	Level of cycle track remains same (above carriageway)	
C	At footpath level	
29	**Encroachment on cycle track/lane by private vehicles*(refer description sheet)**	
	Well enforced	No encroachment by motorist & no parking
	Partly enforced	Encroachment by motorist near intersections & no parking
	Lack enforcement	Motor vehicles routinely encroach & park on cycle track

DESCRIPTION SHEET (NIGHT)		
S.NO.	**SURVEY FORM - AT NIGHT**	
1	**Lighting on cycle track - lux level**	
	40 lux	Distinguishable till 200 m
	20 lux	Distinguishable till 100 m
	> 10 lux	Distinguishable till 50 m
2	**Lighting uniformity level**	
	Good	No dark patches throughout the track/lane
	Bad	Clearly visible dark areas between light poles
	Poor	No lighting at all in the entire track/lane