

Public Transport Accessibility Calculator Guide

Transport Category



DRAFT

Public Transport Accessibility Calculator Guide

Transport Category

Client: Green Building Council of Australia

ABN: N/A

Prepared by

AECOM Australia Pty Ltd

Level 9, 8 Exhibition Street, Melbourne VIC 3000, Australia

T +61 3 9653 1234 F +61 3 9654 7117 www.aecom.com

ABN 20 093 846 925

22-Apr-2014

AECOM in Australia and New Zealand is certified to the latest version of ISO9001, ISO14001, AS/NZS4801 and OHSAS18001.

© AECOM Australia Pty Ltd (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

DRAFT

Quality Information

Document Public Transport Accessibility Calculator Guide



Ref p:\60315776\4. tech work area\4.3 esd\02_transport\prescriptive
method\commuting mass-transport\reports\140422 green star transport category -
public transport accessibility calculator guide (draft).docx

Date 22-Apr-2014

Prepared by Chris Walker

Reviewed by Renan Grace

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	17-April-2014	For Review	Chris Walker Senior ESD Consultant	
B	22-Apr-2014	For Issue	Chris Walker Senior ESD Consultant	

DRAFT

Table of Contents

1.0	Introduction	1
2.0	Public Transport Accessibility credit development	2
3.0	How the calculator works	2
3.1	Where to find the calculator and how to enter data	2
3.2	Results output	2
3.2.1	Graphical Display	3
3.3	Victorian based projects	4
4.0	Determining points from the Transport Calculator	4
5.0	Link to the Car Parking Accessibility Index	4
6.0	Documentation Requirements	4
Appendix A		
	Project Examples	A

DRAFT

1.0 Introduction

The Green Building Council of Australia (GBCA) and AECOM have developed a Public Transport Accessibility Calculator ('the Calculator') that may be used to validate the Prescriptive Pathway in all Green Star rating tools where projects can demonstrate reflects how well a particular destination is served by public transport (see Figure 1).

As an alternative to the Transport category's Performance Pathway, the Calculator determines the number of points awarded out of the 3 available for the Public Transport Accessibility credit. This Calculator Guide ('the Guide') should be used in conjunction with the Public Transport Accessibility Calculator in the Green Star Design and As Built tool.

The Calculator determines the number of points awarded based on the number of residents that can access the nominated destination through the use of public transport within a 45 minute time-band during morning peak hour.

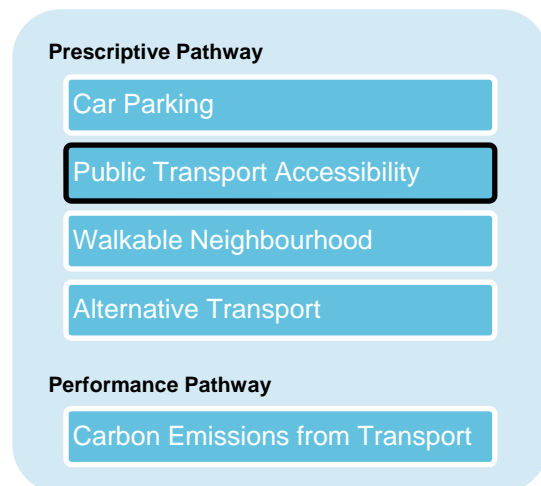


Figure 1: Green Star Transport Credits

DRAFT

2.0 Public Transport Accessibility credit development

The Public Transport Accessibility credit involves the use of a uniquely developed Public Transport Accessibility Index (PTAI) to determine the projects score that reflects how well a particular destination is served by public transport.

The measure of the accessibility relates to the number of residents that can access the nominated destination through the use of public transport within a 45 minute time-band during morning peak hour.

The 45 minute threshold includes:

- Walk time to and from the public transport stop at both ends of the trip;
- In-vehicle time; and
- Wait/transfer times.

3.0 How the calculator works

The calculator works by:

1. Using Google Maps to search for the nominated project address and allocate a statistical area (SA2);
2. Querying data sourced from Google Transit to determine which other SA2's contain a population of residents that can access the nominated destination through the use of public transport within a 45 minute time-band during morning peak hour, with the exception of Victoria. The analysis for Victorian based locations is based on AECOM's analysis of existing public transport services databases. Dynamic data is not currently available for Victorian based public transport networks.
3. 2011 Census data is then used to determine the population of the SA's that meet the design parameters.

It is important to note that due to the data being sourced from Google Transit servers, there is a limit of 3 complete spreadsheet calculations (i.e. run through to 100%) that can be run from any given IP address per day.

Project Limit → 3 Public Transport Accessibility calculation/day/IP address

4. The data is then presented in text format (see 3.2), as well as a graphical representation (see 3.2.1).

3.1 Where to find the calculator and how to enter data

The calculator may be found at the following web address: [<link>](#).

Step 1: Enter the address of the building to be assessed. The address must be entered in the following format:

<Street Number>, <Street Name>, <Street Type>, <Suburb>, <State Code (e.g. NSW)>, <Postcode>

Address

Figure 2 Project address input

Step 2: Press the Calculate button. You will need to wait a few minutes until the calculation is complete.

CALCULATE

The time indicator will inform you of the progress (0%→100%) through the calculation process.

100% complete

Figure 3 Calculation progress bar

3.2 Results output

The calculator will generate results in the following format.

DRAFT

Address	
Population Number	0
Points	0 / 3
Car Parking Accessibility Index	Accessibility Rating 1
Browser link for map	

Figure 4 Project results output

Find following a description of the output results of the calculator.

Table 1 Description of results output

Category	Description
Population Number	An approximation of the number of residents that can access the nominated destination through the use of public transport within a 45 minute time-band during morning peak hour. This is based on statistical area (SA2) population data sourced from the 2011 Census
Points	Points achieved for the credit (0 points, 1 point, 2 points, 3 points)
Car Parking Accessibility Index	Relates to the Car Parking credit and determines the projects Car Parking Accessibility Index (Accessibility Index 1, Accessibility Index 2, Accessibility Index 3)
Browser link for map	Browser link for project to access the graphical display of the calculation results. This web page will automatically open upon completion of the calculation, however, this link can be used to access this display any time after the calculation has been run

3.2.1 Graphical Display

As well as the results described in Table 1, the calculator also generates a graphical output of where the population are accessing the site from.

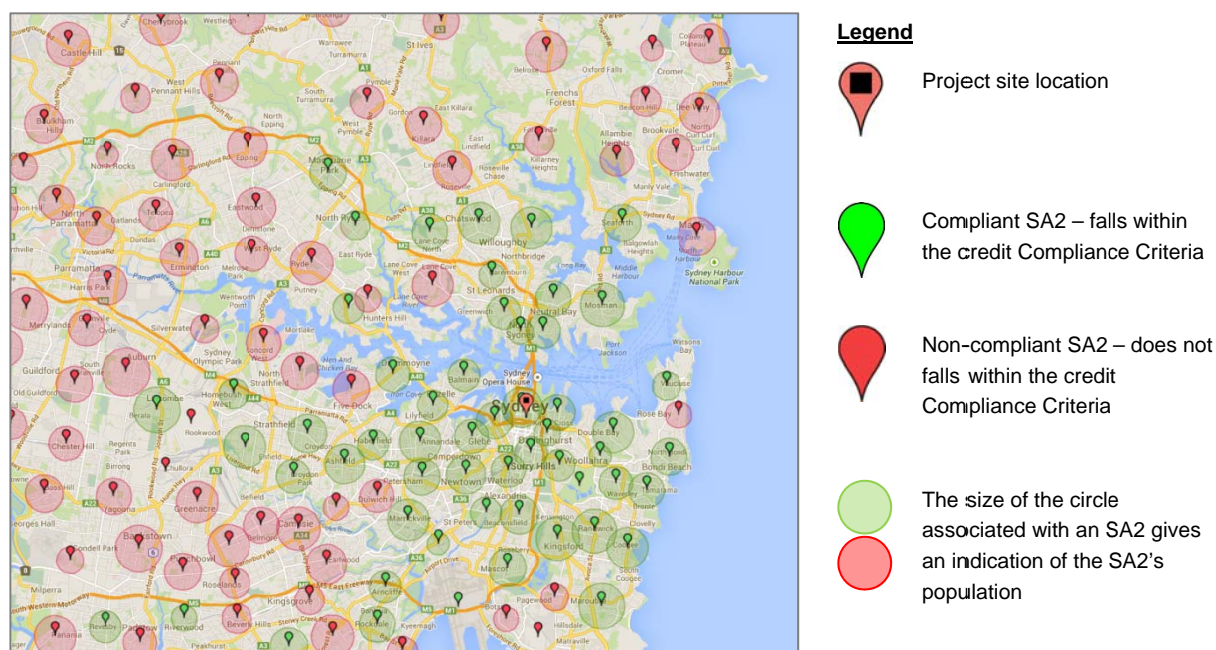


Figure 5 Public Transport Accessibility calculator graphical display

DRAFT

By clicking on any of the SA2 location icons, the graphical display will also generate a list of the 4 most time efficient ways to travel from that SA2 to the project site location, via public transport.

Sydney - Haymarket - The Rocks
 Population attributed: 22760
 Effective Time: 5.6 minutes
 Option 1: 7 minute trip. Arrives 22/04/2014 8:29:53 AM. Bus (PrePay Only - City to La Perouse (Express)).
 Option 2: 6 minute trip. Arrives 22/04/2014 8:27:53 AM. Bus (City to North Bondi).
 Option 3: 6 minute trip. Arrives 22/04/2014 8:25:53 AM. Bus (PrePay Only - City to Coogee (Express)).
 Option 4: 7 minute trip. Arrives 22/04/2014 8:26:46 AM. Bus (City to North Bondi).

Figure 6 Travel options and times from selected SA2 to project site location via public transport

3.3 Victorian based projects

Due to the lack of dynamic public transport data (i.e. Google Transit data) available for Victoria, no graphical output will be displayed. Instead, Victorian based projects will be presented with only the results output found in Figure 4.

Once Victorian dynamic public transport data becomes available, projects will then be required to produce the graphical display as part of their submission to the GBCA.

4.0 Determining points from the Transport Calculator

Up to 3 points are available in this credit based on the number of residents that can access the nominated destination through the use of public transport within a 45 minute time-band during morning peak hour, according to Table 2.

Table 2: Point assignment

Number of points	0	1	2	3
Number of people	0-149,999 people	150,000-299,999	300,000-449,999	450,000+

5.0 Link to the Car Parking Accessibility Index

The results output from the Public Transport Accessibility calculator includes a designation of the sites Car Parking Accessibility Index (see 3.2). This Accessibility Index (i.e. Accessibility Index 1, Accessibility Index 2, and Accessibility Index 3) is to be used when determining the projects compliance requirements for the related Car Parking Transport credit.

6.0 Documentation Requirements

Refer to the Technical Manual for Documentation Requirements for Design and As Built submissions.

DRAFT

Appendix A

Project Examples

DRAFT

Example #1

The Green Building Council's Sydney Office: 179 Elizabeth St, Sydney, NSW, 2000.

Once the project address had been inserted according to section 3.1, press the "Calculate" button.

Address 179 Elizabeth Street, Sydney, NSW, 2000

After waiting up to 10 minutes, the calculation will be complete.



The spreadsheet will then display the results for the specific project site location.

Address 179 Elizabeth Street, Sydney, NSW, 2000
Population Number 979,593
Points 3 / 3
Car Parking Accessibility Index Accessibility Rating 3
Browser link for map C:\XXXXXXXXXXXX\179 Elizabeth Street, Sydney, NSW

For this specific project site location, the results include:

Category	Description
Population Number	979,593 people can access the site by public transport within 45 minutes, during morning peak hour
Points	3 points
Car Parking Accessibility Index	Accessibility Index 3 – highly accessible. This is to be used for the Car Parking credit Compliance Criteria
Browser link for map	C:\XXXXXXXXXXXX\179 Elizabeth Street, Sydney, NSW, 2000.html – this will be specific to each user's computer. This link can be used to access the graphical display (see 3.2.1)

The graphical display (see Figure 7) shows the compliant SA2's, those that contain people that can reach the project site location within 45 minutes using public transport during morning peak hour.

The graphic can also be used to see trends (overlay seen in green) in the origin of the people accessing the site, and the key public transport corridors that allow them to access the site within the time allotment.

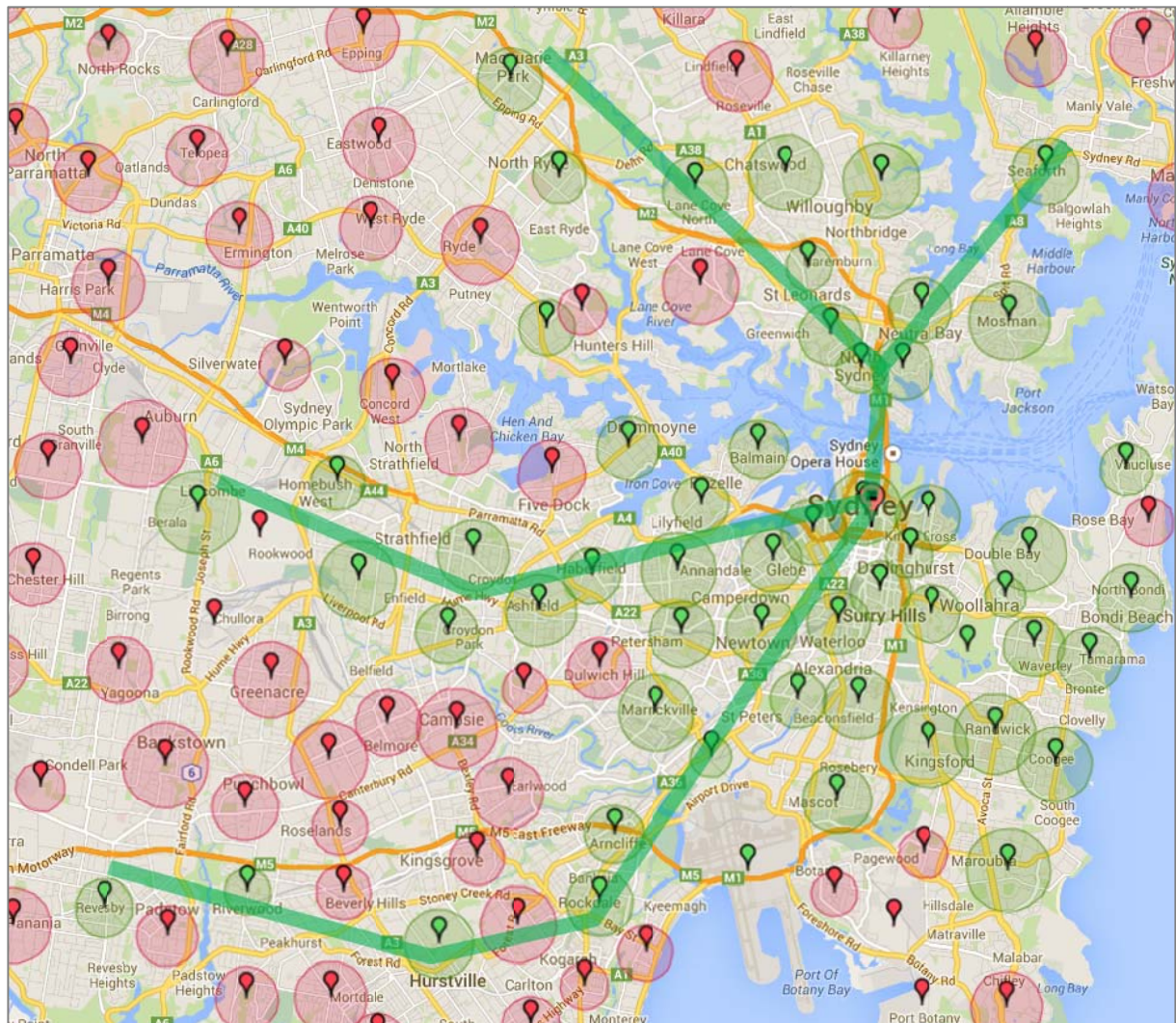
DRAFT

Figure 7 Graphical display of results for 179 Elizabeth Street, Sydney, NSW, 2000

DRAFT

Example #2

The Green Building Council's Melbourne Office: 1 Nicholson St, Melbourne, VIC, 3000.

Once the project address had been inserted according to section 3.1, press the "Calculate" button.

Address 1 Nicholson St, Melbourne, VIC, 3000

After waiting up to 10 minutes, the calculation will be complete.



The spreadsheet will then display the results for the specific project site location.

Address 1 Nicholson St, Melbourne, VIC, 3000
Population Number 797,488
Points 3 / 3
Car Parking Accessibility Index Accessibility Rating 3
Browser link for map No outputs or mapping available for Victorian addresses

For this specific project site location, the results include:

Category	Description
Population Number	797,488 people can access the site by public transport within 45 minutes, during morning peak hour
Points	3 points
Car Parking Accessibility Index	Accessibility Index 3 – highly accessible. This is to be used for the Car Parking credit Compliance Criteria
Browser link for map	No outputs or mapping available for Victorian addresses (see 3.3)