



# quickGreen

Version 1.1.15

## Quick Start Guide

Quick Start Guide by  
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# Introduction

quickGreen is a graphical tool for measuring and calculating traffic signal phase intergreens. It is designed not only to speed up the measurement process but also to reduce errors, improve the ease of checking of intergreens and assist with archiving.

Phase Intergreens are important safety parameters which ensure sufficient clearance times between traffic starting and stopping at a traffic signal junction. They must be determined as part of a junction's design process usually by considering the junction's geometry and the paths taken by different traffic movements. In the UK phase intergreens are measured and calculated using the method described in the Department for Transport's Traffic Advisory Leaflet TAL 1/06. This involves determining conflict points between traffic movements and measuring the relative distances traffic movements must travel to reach each conflict point from a scale drawing. TAL 1/06 can then be used to convert this information into intergreen values.

quickGreen assists with the calculation of intergreens by carrying out the repetitive conflict distance measuring work which is time consuming for a person to do but is easy for a computer. As well as speeding up the process of calculating intergreens it also reduces the likelihood of measurement or arithmetic errors, makes it very easy to check the intergreens and provides a convenient way of archiving the intergreens and the process by which they were calculated. Having calculated an intergreen matrix the intergreens can be easily transferred to other software such as LinSig to carry out traffic signal calculations.

## Model Building Sequence

The following steps will guide you quickly through a typical sequence for constructing a quickGreen model.

### Start a New File

- Click the "File -> New" menu option to start a new file.

### Load a Background Layout

- The Background Import Wizard ("Layout -> Background Import Wizard") guides you through three different methods for importing a background image for the junction:

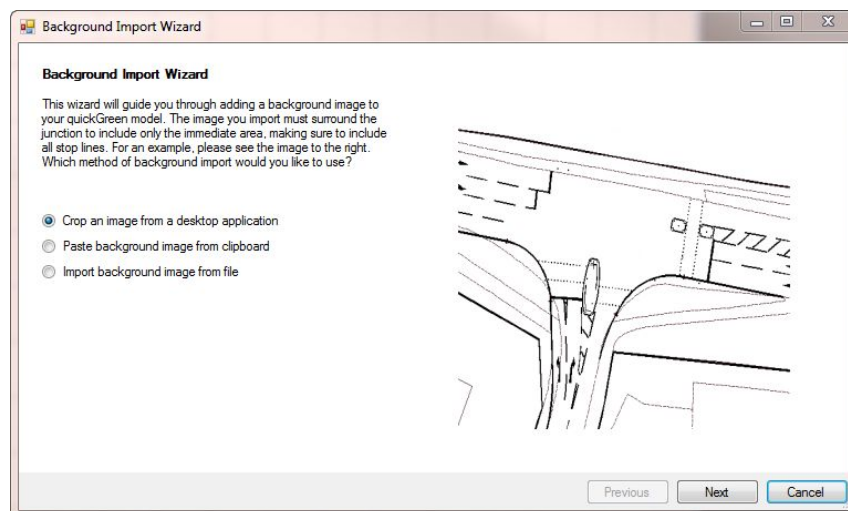


Figure 1 - Background Import Wizard

- You have the option of taking a cropped screen capture of another running application (e.g. a drawing open in AutoCAD), pasting an image that you've already copied onto your clipboard, or loading an image file.
- Whichever method is used to import the background image, you will be able to achieve better accuracy with a higher resolution image that is cropped to focus on just the junction without a wider surrounding area. In particular, when importing from an image file it is advisable to ensure the image file has been created at a higher resolution, cropped to just the junction. This will help to reduce the loss in detail and accuracy when you magnify the image in quickGreen.

## Calibrate the Background Layout

- Click and drag the orange Calibrator bar so that it is positioned along a known distance on the Background Layout. For example, this could be scale bar on the drawing, or a span across an approach whose width has already been measured.
- Now open the Calibrate Background Layout window ("Layout -> Calibrate Background Layout"). Click the "Edit Calibrator" button and enter the true length that the Calibrator bar represents.

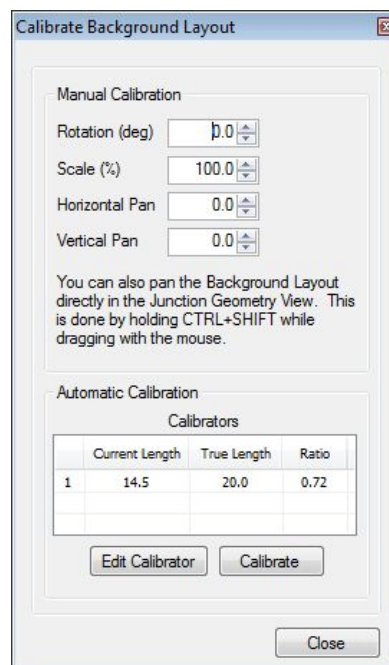


Figure 2 - Calibrate Background Layout

- Finally, click the "Calibrate" button to perform the calibration.

## Add Lanes

- Add a lane by using the menu ("Lanes -> Add New Lane") or using the right-click pop-up menu.
- Position the Lane over the lane markings on the Background Layout so that the front of the Lane rectangle is lined up with the stop line.

- If the Lane has an Advance cycle Stop Line, ensure that the front of the Lane is positioned at the front stop line. More details about working with ASLs is provided later in this guide.

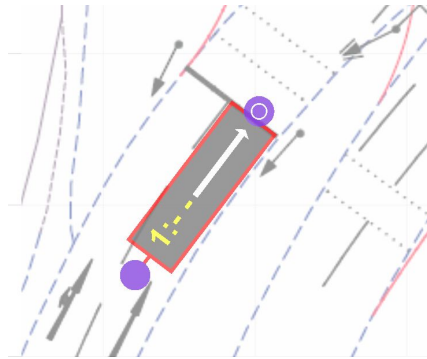


Figure 3 - Lane lined up with stopline

- You can adjust the Background and Foreground transparency to make it easier to line up lanes with the background

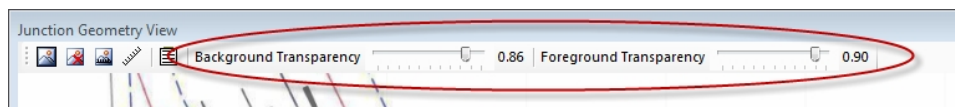


Figure 4 - Background and Foreground Transparency sliders

- You can set the lane width by opening the Edit Lane window (double-click the lane to open the Edit Lane window). Note that the lane width setting is only used for visual appearance.
- You will also need to add Exit Lanes on the exits of the junction.

## Add Pedestrian Crossings

- Add a Pedestrian Crossing by using the menu "Pedestrian Crossings -> Add Pedestrian Crossing") or using the right-click pop-up menu.
- Position the pedestrian crossing by dragging its corners so that it lines up with the crossing on the Background Layout.
- Ensure that the dotted sides of the Pedestrian Crossing correspond with the studded edge of the crossing on the road.

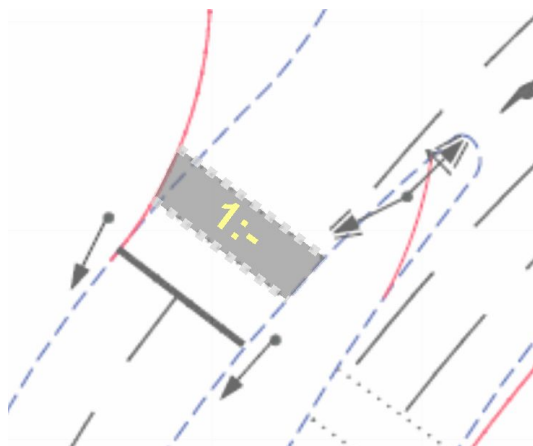


Figure 5 - Pedestrian Crossing

## Add Turn Paths

- To add a Turn Path, hold the SHIFT key down and then click on the handle at the front of the Lane and drag onto the appropriate Exit Lane (which will be highlighted in green when you have dragged into the correct position). Initially this will create a straight Turn Path which can then be refined to a curved Turn Path as described in the following steps.

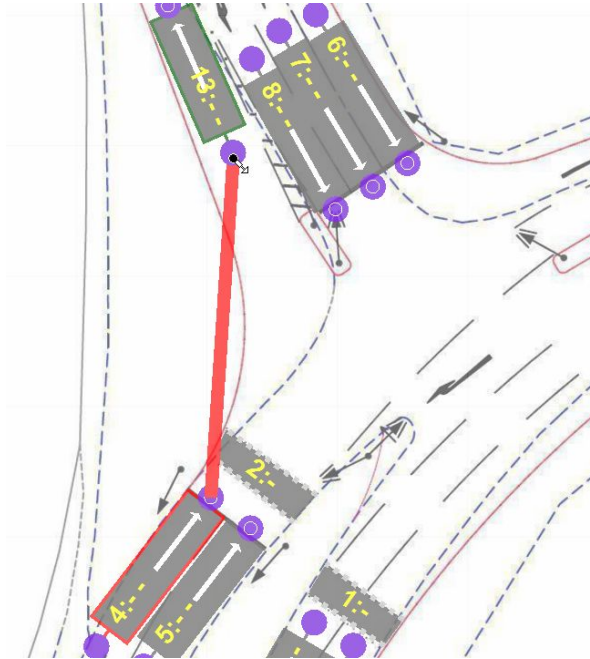


Figure 6 - Adding a Turn Path

- One or more Control Points will need to be added so the Turn Path can correctly represent the curved path of the traffic.
- To add a Control Point, right-click in the middle of the Turn Path and select the “Add Control Point” option. Click and drag the Control Point to adjust the curvature of the Turn Path. Usually only one or two Control Points are needed.

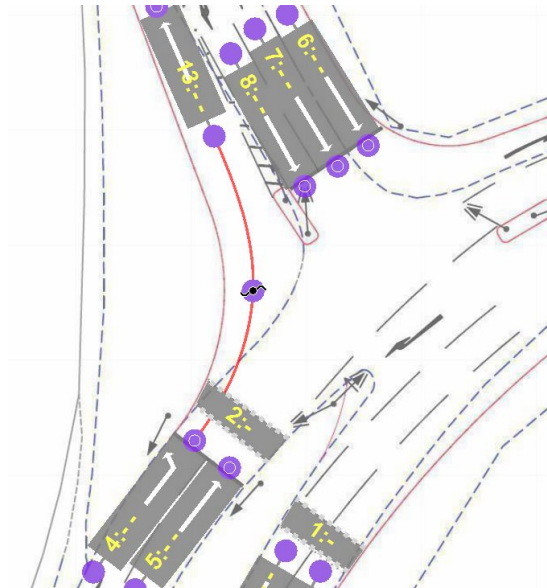


Figure 7 - Adding a Control Point to a Turn Path

## Add Phases

- Phases are added using the Traffic Signal Phases window (“Signals -> Traffic Signal Phases”). Click the “Add Phase” button to add each new Phase, specifying the phase type for each phase.

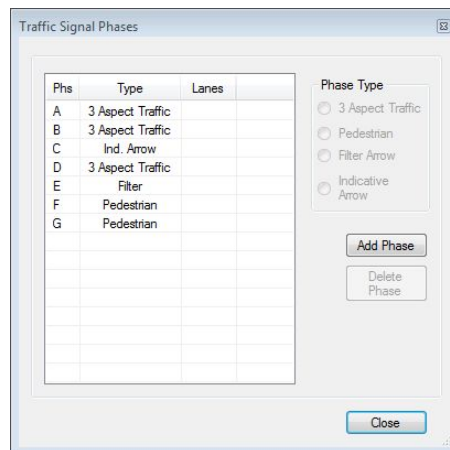


Figure 8 - Traffic Signal Phases

## Specify the Signal Control of each Lane

- In the Edit Lane window you can select which Full Green Phase and which Arrow Phase controls the lane

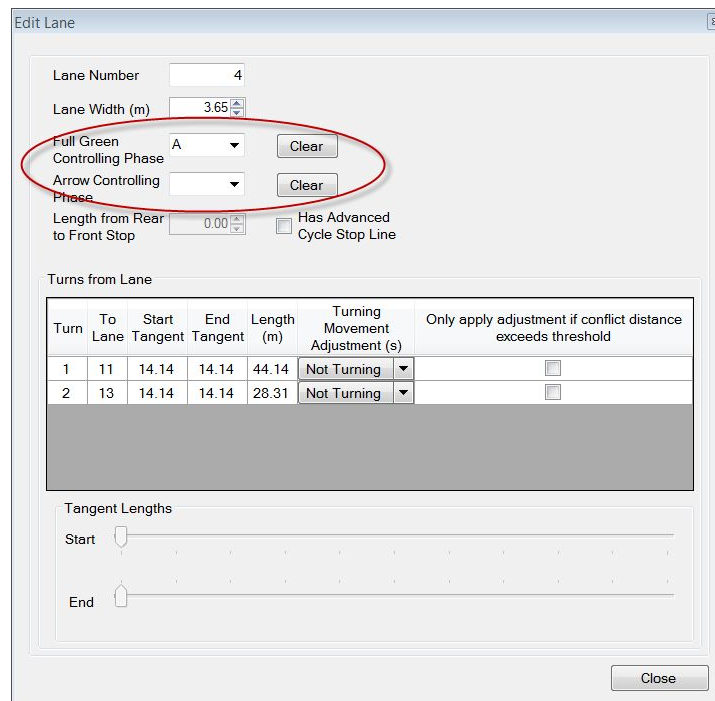


Figure 9 - Specify signal control of Lane

## Examine the Intergreen Matrix.

- You can now view the calculated Intergreen Matrix (“Signals -> Phase Intergreen Matrix”).

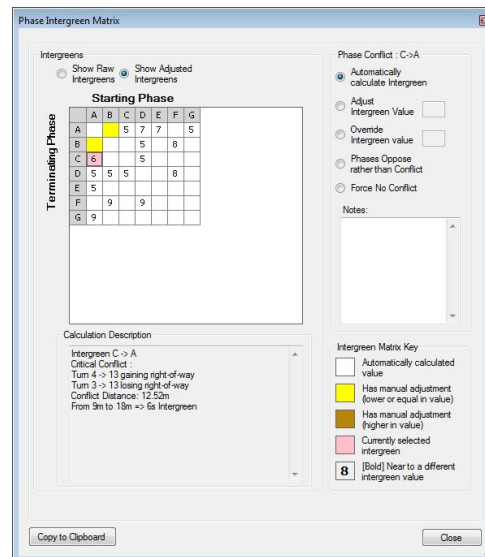


Figure 10 - Phase Intergreen Matrix

- If you select a particular cell in the Intergreen Matrix, the relevant Turn Paths will be highlighted in the Junction Geometry View. In addition, an explanation of the critical conflict point and the Intergreen calculation is provided beneath the Intergreen Matrix.
- If two phases control lanes where one gives way to the other, you can select the “Phases Oppose rather than Conflict” option which will cause that Intergreen value to be omitted from the matrix.
- Check the intergreens for all phase pairs that conflict, and that phase pairs that do not conflict have no Intergreen.

## Specify any adjustments to the Intergreen Matrix

There are two ways in which intergreen values can be adjusted.

- Where it is required to add a fixed number of seconds to all turning movements, this can be done automatically and is described in more detail later in this guide.
- Where it required to adjust an intergreen value for any other reason, this can be done manually for each intergreen value. For example, if traffic is known to proceed particularly slowly on a specific movement, you may wish to increase the Intergreen value. This can be done by selecting the “Adjust Intergreen Value” option and entering the amount you want to adjust the Intergreen by.



- If you make any adjustments such as these it is advisable to include a note to explain why you have done so.



**Figure 11 - Manual adjustment of Phase Intergreen**



## Advance Cycle Stop Lines

- The position of Advance Cycle Stop Lines can be specified either graphically or by entering the length from rear to front stop line in the Edit Lane dialog.

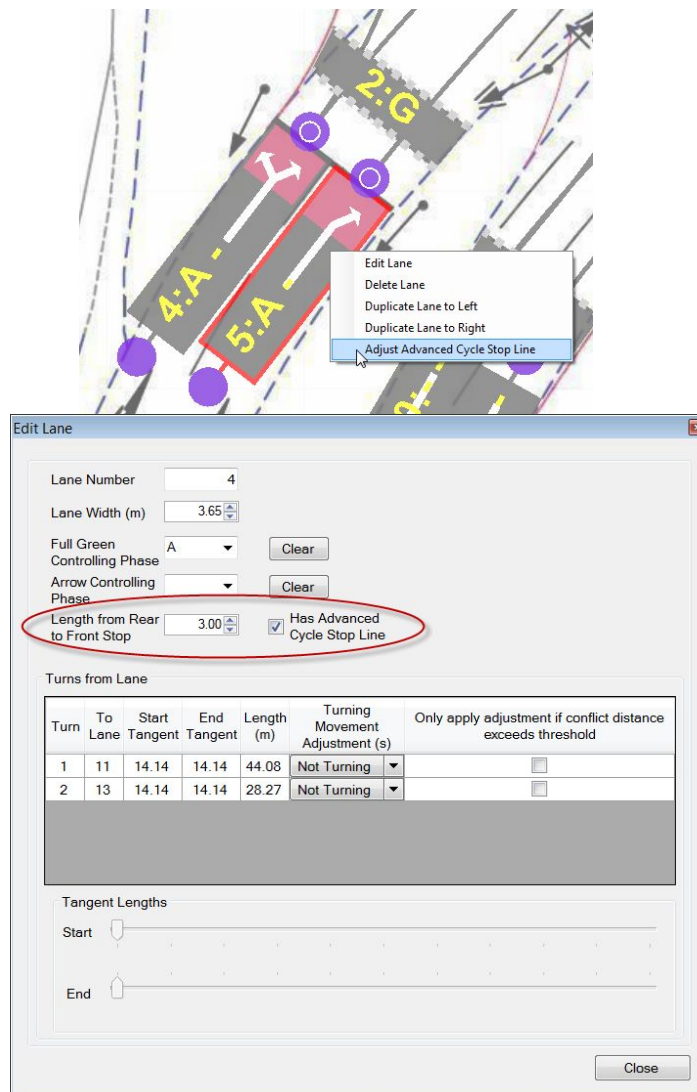


Figure 12 - Specifying Advance Cycle Stop Line position

- When quickGreen calculates the Intergreen Matrix, you can specify in the Junction Settings whether ASLs should be incorporated in the calculations ("Junction -> Junction Settings"). When incorporating ASLs, quickGreen will measure conflicts from either the front or rear stop line, whichever is the 'worst-case' for that particular intergreen.

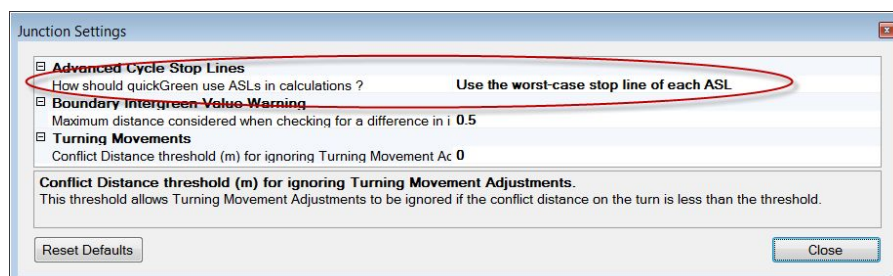


Figure 13 - Specify whether ASLs should be incorporated in the calculations

## Automatic Intergreen Adjustment for Turning Movements

- Although it is possible in quickGreen to manually adjust intergreen values to take into account slow turning movements, quickGreen also has a facility to automatically add a fixed number of seconds to any intergreens for turn paths that are specified as Turning Movements.
- To specify a Turn Path as a Turning Movement, double-click on the Turn Path to open the Edit Lane dialog and select the number of seconds required for the automatic adjustment. The Turn Path will be drawn as a dashed line to indicate it is a Turning Movement.

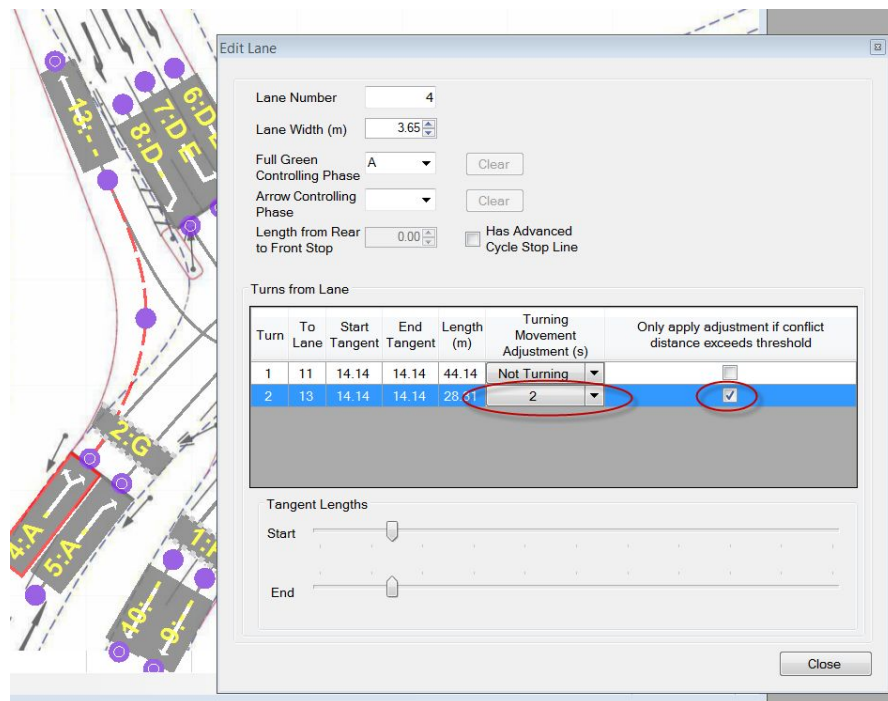


Figure 14 - Specify a Turn Path as a Turning Movement

- You can also choose to apply the automatic adjustment to the intergreen only if the corresponding Conflict Distance value is greater than a specified threshold. This means the automatic adjustment will not be unnecessarily applied. To enable this feature for the Turning Movement tick the tickbox in the Edit Lane dialog.
- To specify the threshold that will apply if the above tickbox is ticked, set the value in the Junction Settings dialog ("Junction -> Junction Settings"). This can be set to a positive or negative value..

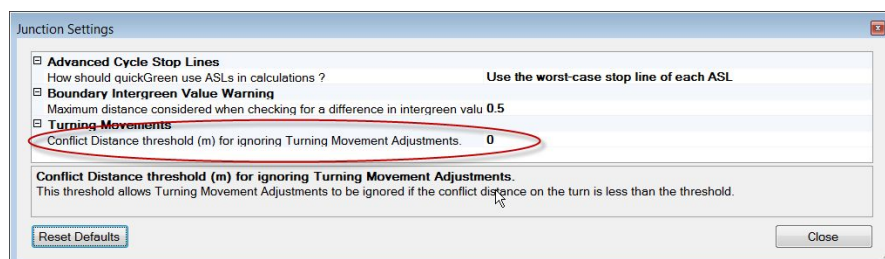


Figure 15 - Specify Threshold for Ignoring Automatic Turning Movement Adjustments

- Note that the automatic intergreen adjustment is only applied to intergreens for which the Turning Movement is terminating.

- If a phase controls multiple Turn Paths, only some of which are Turning Movements, the automatic intergreen adjustment will only be applied if the conflict on a Turning Movement is the critical conflict.

## Audit Log Records

- In order to assist with keeping a record of changes made to a quickGreen model, audit records can be saved as part of the quickGreen model itself. ("File -> Audit Log Records").
- Note that quickGreen only facilitates the storage of audit log records and deliberately does not provide any restriction on editing or deleting existing log records.

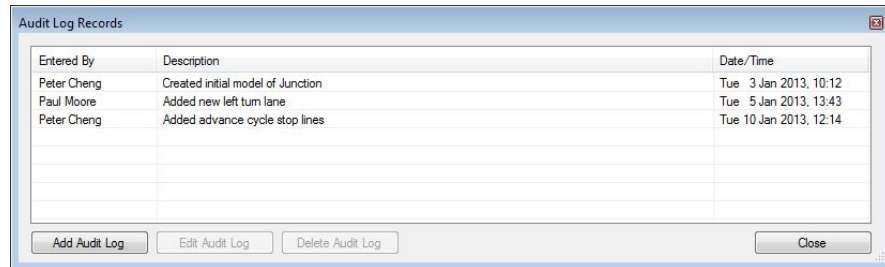


Figure 16 - Audit Log Records

## Reporting

- You can create a report by selecting the "Reports -> Create Report" menu option.
- You can choose which elements of the input data and results that you wish to include in your report.
- The report will be produced in standard PDF format.

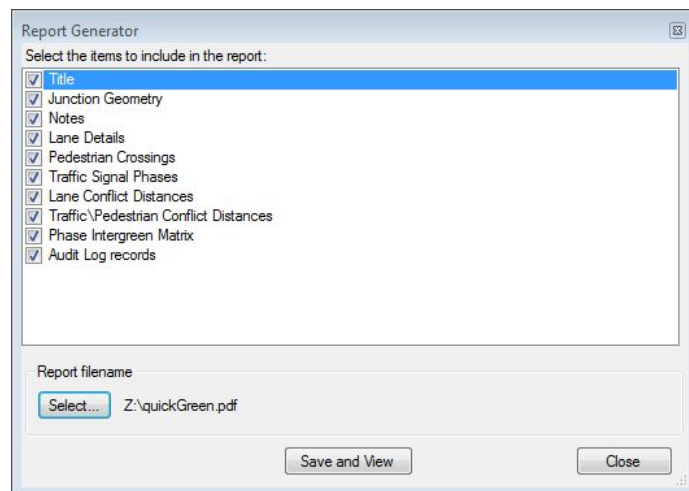


Figure 17 - Report Generator options

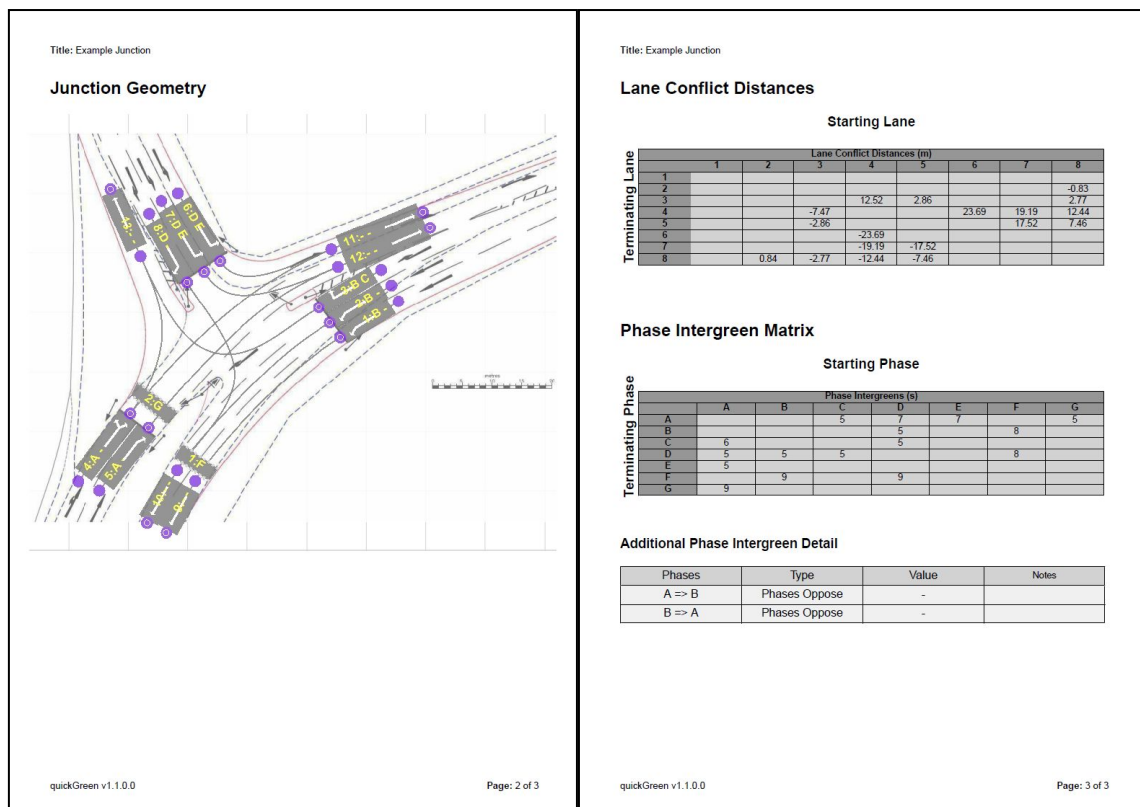


Figure 18 - Sample Report Pages