

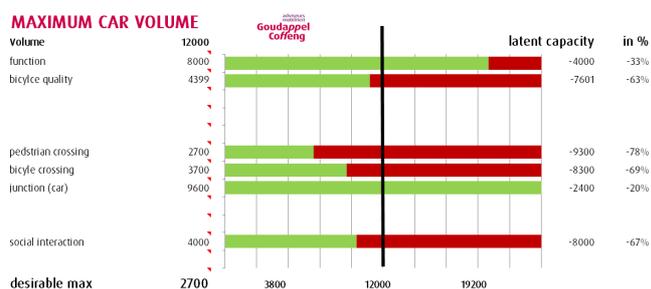
FLOW dashboard as part of road scanner

Use of tool for FLOW analysis at link level

Goudappel Coffeng NL, Rico Andriesse

A medium-sized city in the Netherlands is looking for ways to improve road safety, quality and traffic flow. Study area is the road between the city centre and railway station area. This connection is a busy street with some shopping facilities. To determine the quality for all road users, we used our road scanner tool to apply the FLOW analysis.

The key question: how many cars can pass here safely without affecting the safety and quality for other users of the street? For example: how many cars may use this road to have a good cycling quality given the existing facilities and car speed?



Output of the road scanner tool



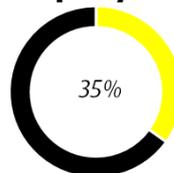
Existing situation

It became clear that reducing car volumes was challenging and there was not enough space to accommodate all road users: choices would have to be made. However, in the current situation, it was unclear what part of the road could be used more effectively.

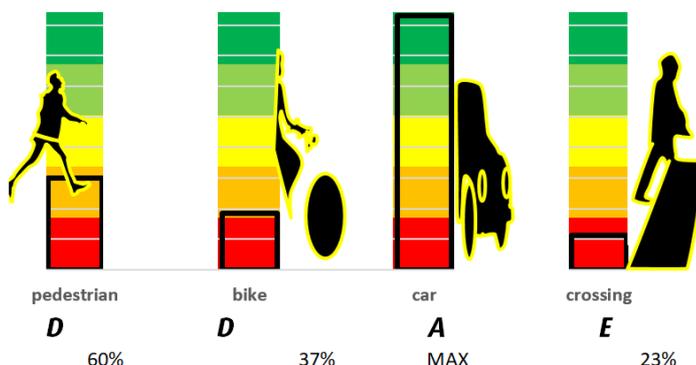
Volume car traffic

Volume car current: 12000 cars/day
Maximum desirable volume: 2700

Total capacity usage



User quality levels

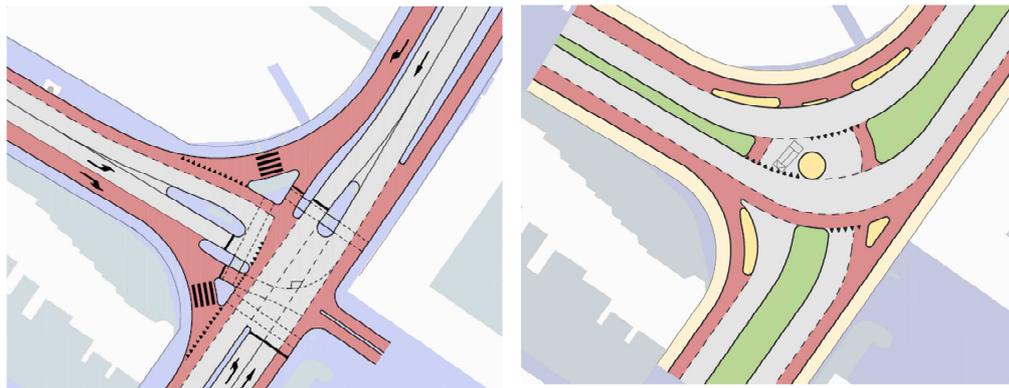


FLOW dashboard in road scanner tool

A newly developed addition will help make that choice. The FLOW methodology provides an insight into what part of the road capacity can be used more effectively. The FLOW dashboard first calculates the quality for different road user groups. The available width for pedestrians, bicycles

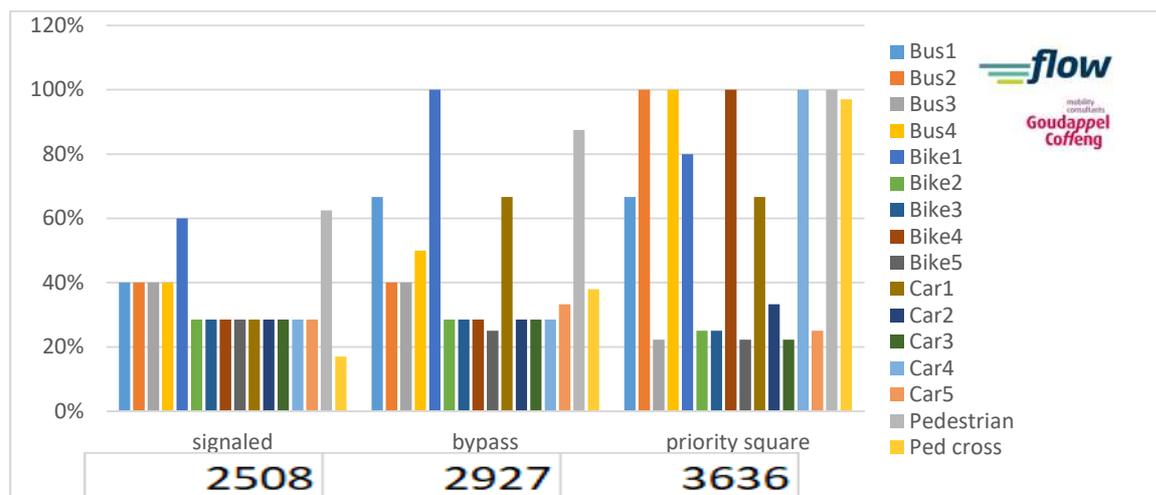
and cars are divided by the desired width for a desired quality. For crossings the quotient of the current and desired car volume is calculated. Following the FLOW methodology the quality for all road users together is calculated by weighted average.

In this particular case, increasing the capacity for cyclists, pedestrians and road users crossing the street improves total quality. Reducing car volumes would be necessary however. At the same time, this would have a negative impact on buses and hence the funding of the project. A possible solution would be to redesign the junction located at the end of the street and try to rearrange the space in the street. Two designs were selected.



Two of the possible junction designs: signalized (left) and priority square (right)

The FLOW methodology was used to calculate the pros and cons of the designs. By using car volumes, bus volumes and counts for cyclists and pedestrians, we calculated a FLOW score for all three scenarios, one score per user group (direction/mode). The time lost by cars, most cyclists and buses at the junction was factored in. We also used a quality index (car volume/desirable volume and available road width/desirable width) for cyclists in mixed traffic and for pedestrians.



FLOW calculation results for user groups by junction design type

The FLOW calculations show that the priority square generates the highest overall score, but also the biggest differences between directions and modes. Concluding, this has not stopped the debate. However, the FLOW calculations are helpful to obtain good-quality information.