



ACTIVE TRAVEL TOOL FINAL REPORT



About the Road Safety Foundation

The Road Safety Foundation is a UK charity founded in 1986 which advocates for safe and healthy mobility through the adoption of Safe Systems. Our recent work focuses on:

- Identifying investment packages likely to give high returns and analysing the safety performance of roads over time.
- Providing the approach, tools and training necessary to support road authorities in taking a proactive approach to road risk reduction.
- Undertaking research to progress knowledge and policy.

Over the last 20 years, the charity has maintained a particular focus on safer road infrastructure through the establishment of the European Road Assessment Programme and the development of the International Road Assessment Programme (iRAP) and its protocols for measuring infrastructure safety. The RSF is responsible for supporting the Road Assessment Programme in the United Kingdom, and its work serves as a model of what can be achieved, with key research and innovation being replicated in RAP programmes across the world.

Recently, the charity has:

- Supported DfT's Safer Roads Fund carrying out surveys of the 50 highest risk local 'A' roads in England, training local authorities, and modelling the impact of schemes that together made the £100 million investment portfolio
- Provided support and technical insight to Highways England in their SRN-wide iRAP initiative
- Undertaken an independent review for the Office of Rail and Road into how Highways England prioritises investments to improve safety outcomes on the strategic road network
- Led the Older Drivers Task Force report with government support to develop the national Older Driver Strategy Supporting Safe Driving into Old Age

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For more information

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1. EXECUTIVE SUMMARY

In 2021, The Road Safety Trust funded the Road Safety Foundation to develop an Active Travel Tool which aims to help UK road authorities evaluate active travel facilities for both safety according to Safe System principles and age and ability. The tool allows a spot evaluation of the different available facilities for a given road, rather than a network or route-based evaluation that can be achieved using the full International Road Assessment Programme (iRAP) methodology as detailed on the iRAP website¹ or CycleRAP.

The tool uses safety Star Ratings, together with an age and ability criteria to compare bicycle and pedestrian facilities, such as footways, crossings and Low Traffic Neighbourhoods (LTN). It is envisaged that the tool will be used to support practitioners in their decision making and help communication of safety and Level of Traffic Stress (LTS) considerations to road safety stakeholders and the public.

The tool can be accessed from the iRAP ViDA frontpage <https://vida.irap.org/en-gb/dashboard> then clicking on the icon shown in Figure 1 below.

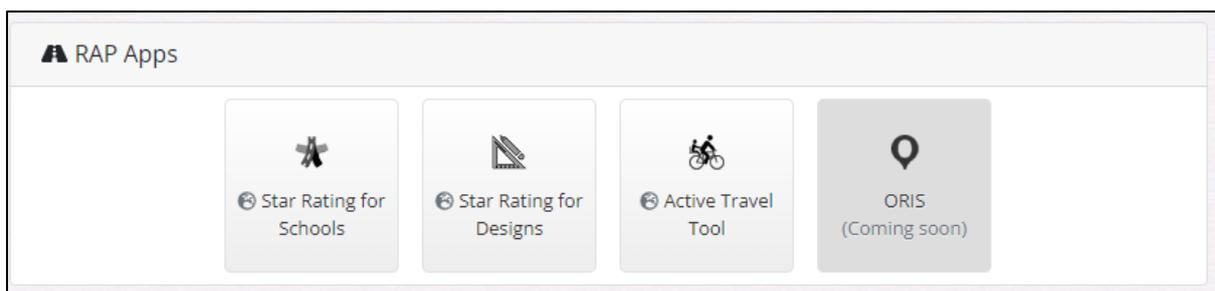


Figure 1: Screenshot of location of Active Travel Tool

Star Ratings

The Active Travel Tool allows practitioners to see how different facilities for cycling and walking would change the safety Star Ratings for pedestrians and cyclists under different conditions of speed and flow. Star Ratings are a measure of the level of safety which is ‘built-in’ to the road. Five-star roads are the safest while one-star roads are the least safe.

The iRAP Star Rating Model was developed by the world’s leading road infrastructure research organisations and is fully documented on the iRAP website.²

Age and ability criteria for road safety treatments

Age and ability criteria, based on level of protection from traffic, speed and the number of lanes of the road, evaluates suitability of three categories of treatments for different types of cyclists and pedestrians:

- Cycleways, footways and shared use paths
- Crossings

¹ <https://irap.org>

- Low Traffic Neighbourhoods

The criteria are used to categorise a facility into a 'stress' level, and broadly align with those used by the **Level of Traffic Stress (LTS)** rating system originally developed by Mekuria, Furth and Nixon (2012).

- Low stress: where a child of ~8 years of age or a person with a disability would feel confident using the facility independently
- Medium stress: where parents accompanying children, elderly persons or adults unfamiliar with the traffic situation would feel confident using the facility
- High stress: where only able-bodied adults who are familiar with the traffic situation would feel confident using the facility, and
- Very high stress: where only those who are very familiar with traffic conditions and not sensitive to high traffic speeds would feel confident using the facility.

The Active Travel Tool was launched on 24th June 2022 and has received feedback that it is useful and that there are a number of different ways to use it. It is hoped that comments received on requested changes can be addressed in a future update if the changes are relevant and achievable.

RSF and iRAP will continue to promote the tool and would like to thank The Road Safety Trust for providing the funding for this project.

2. INTRODUCTION

2020 was extraordinary for travel because of the Covid-19 pandemic; such a swift change in travel habits has never been seen before.

In May 2020, the government announced a new Emergency Active Travel Fund (EATF) where Local Authorities could bid for funds to implement temporary active travel facilities in phase 1 and more permanent facilities in phase 2. The overall fund was £222 million.

Increasing levels of active travel has environmental and health benefits, but to achieve truly healthy mobility, safety must also be considered. Cyclists and pedestrians are known as vulnerable road users for good reason - the frailty of the human body is clear when paired with motorised traffic.

There was an opportunity to determine what EATF facilities (temporary or permanent) work from a safety perspective and use this knowledge to help deliver safer pedestrian and cycling facilities. The sharing of best practice and innovation is also key to any opportunities to increase safe walking and cycling in the future.

The project aimed to bring together information about the active travel schemes implemented and use this information to develop useful guidance material for future implementation of such facilities.

To complete this project, RSF formed a partnership with Warwickshire County Council, Hampshire County Council, West Sussex County Council, Staffordshire County Council, Transport for Greater Manchester and Kent County Council.

3. AIMS AND OBJECTIVES OF THE PROJECT

The project aimed to bring together information about the active travel schemes implemented and use this information to develop useful guidance material for future implementation of such facilities.

The original aims of the project were:

1. To capture information about the schemes in a consistent manner and categorise these into 'typical facilities'
2. To review safety-related data (crash, flow and speed) to give an early indication of the safety of 'typical facilities'
3. To provide a guide for design and speed management covering the typical facilities and two pieces of information and how they vary under different speed and flow conditions:
 - a. Risk scores (using the iRAP model) by road user type (pedestrians, cyclists, motorcyclists and vehicle occupants)
 - b. An age and ability review of facilities drawing on the principles of Level of Traffic Stress (LTS)
4. Promotion of good practice.

The project evolved over time however, the objectives remained the same.

The main output of the project was an Active Travel Tool which uses the long established iRAP Star Ratings system with the LTS principles. This provides a new way of thinking about how pedestrians and cyclists will be impacted by different measures and active travel schemes.

The project relied on the collaborative Steering Group of representatives from Warwickshire County Council, Hampshire County Council, West Sussex County Council, Staffordshire County Council, Transport for Greater Manchester and Kent County Council. These representatives provided input to the project and feedback on the tool once it had been designed.

The success of the project will be evidenced by practitioners using the Active Travel Tool. Early feedback indicates it is useful and that there are a number of different ways to use it. The tool is free to air and will be available to a worldwide audience so it is hoped that it will be useful for many more practitioners.

4. ACTIVITIES

The project originally had five components alongside project management and technical oversight. The detail of the work packages and outputs are listed below.

- **Work Package 0 - Project Management**

Work undertaken: Management of the project, provision of Progress Reports.

- **Work Package 1 – Scheme capture and Work Package 2 – Safety data review**

Work undertaken: A request was made to the Local Authority partners for details of schemes they had undertaken under the EATF.

Various data were requested including the date of installation, date of removal (if applicable), the cost, start and end points of the scheme, who the scheme was aimed at, a description of the scheme and traffic flow/speed/crash data before installation, during and after removal

In consultation with the Steering Group members, the RSF captured some information about the funded facilities which are listed at Appendix A

It became clear on receipt of information from Local Authorities that due to the speed at which the Government had encouraged Local Authorities to implement schemes, the authorities had not had time to undertake ‘before’ surveys. In addition, some schemes were implemented and removed quickly for a variety of reasons, as such data were not available for the ‘during’ period. Moreover, those schemes that were implemented were often not in place for a long period.

Work Package 2 had been intended to be a review of safety data. It had been hoped that crash, speed, flow and uptake data would be available from the Local Authorities for the routes upon which the EATF facilities had been implemented. In addition, consultation results and feedback from the public were going to be reviewed. However, as outlined above, very little data were available and so it was not possible to undertake this work package in the manner intended.

Moreover, it became clear that there were not that many different ‘types’ of temporary EATF facilities, and so it was determined that future work needed to be expanded to include more permanent facilities as well as temporary. It was hoped that this would increase the future impact of this work, ensuring that the guide produced was as comprehensive as possible.

The list of typical schemes was discussed with the RSF technical team and was expanded to include many more possible scheme layouts, which would be subjected to review using the iRAP model and the age and ability review. These typical layouts were proposed in Output 1 and are listed at Appendix B.

- **Work Package 3 - Star Rating of typical scheme layouts and modelling of different scenarios**

Once the list of the typical layouts had been finalised, consultation was undertaken with Local Authority Partners, following which it was felt that it would be better to develop an interactive tool that would allow the road authority to enter in details about their road and the iRAP Star

Ratings and LTS results would then be displayed for all of the possible different active travel facilities.

The first phase of this work was to map the ‘typical layouts’ with the associated Star Rating and LTS.

An example of this mapping can be seen in Figure 2 below.

Road Information				
Speed limit	40mph			
Operating Speed (85th percentile)	40mph			
Number of lanes	One			
Vehicle flow (AADT)	8000			
Pedestrian footway		Star Rating	Level of Traffic Stress evaluation	iRAP descriptor
No footway at all				Sidewalk - drivers side & passenger side (two variables)
				20 None
				6 Informal path 0m-<1.0m
				5 Informal path >=1.0m
a. No segregation		High		0.1 Non-physical separation 0m-<1.0m
b. Light segregation (e.g. traffic cones, flexi-post, planters etc.)		Med		0.09 Non-physical separation 1.0m-<3.0m
				0.075 Non-physical separation >=3.0m
c. Heavy segregation (e.g. concrete blocks, crash barriers etc.)		Med		0 Physical barrier

Figure 2: Mapping the layout to the Star Rating and LTS

Once the mapping was complete, the information was provided to the iRAP development team. The Active Travel Tool was designed and installed on the iRAP ViDA tool on 9th May and demonstrations of it were undertaken with Steering Group Members on 10th and 19th May 2022. A screen shot of the tool can be seen in Figure 3.

The Technical Report Output 3 was provided to The Road Safety Trust on 23rd May 2022.

Output 4, the Guidance document was written and is provided as part of a “Help” page in the Active Travel Tool.

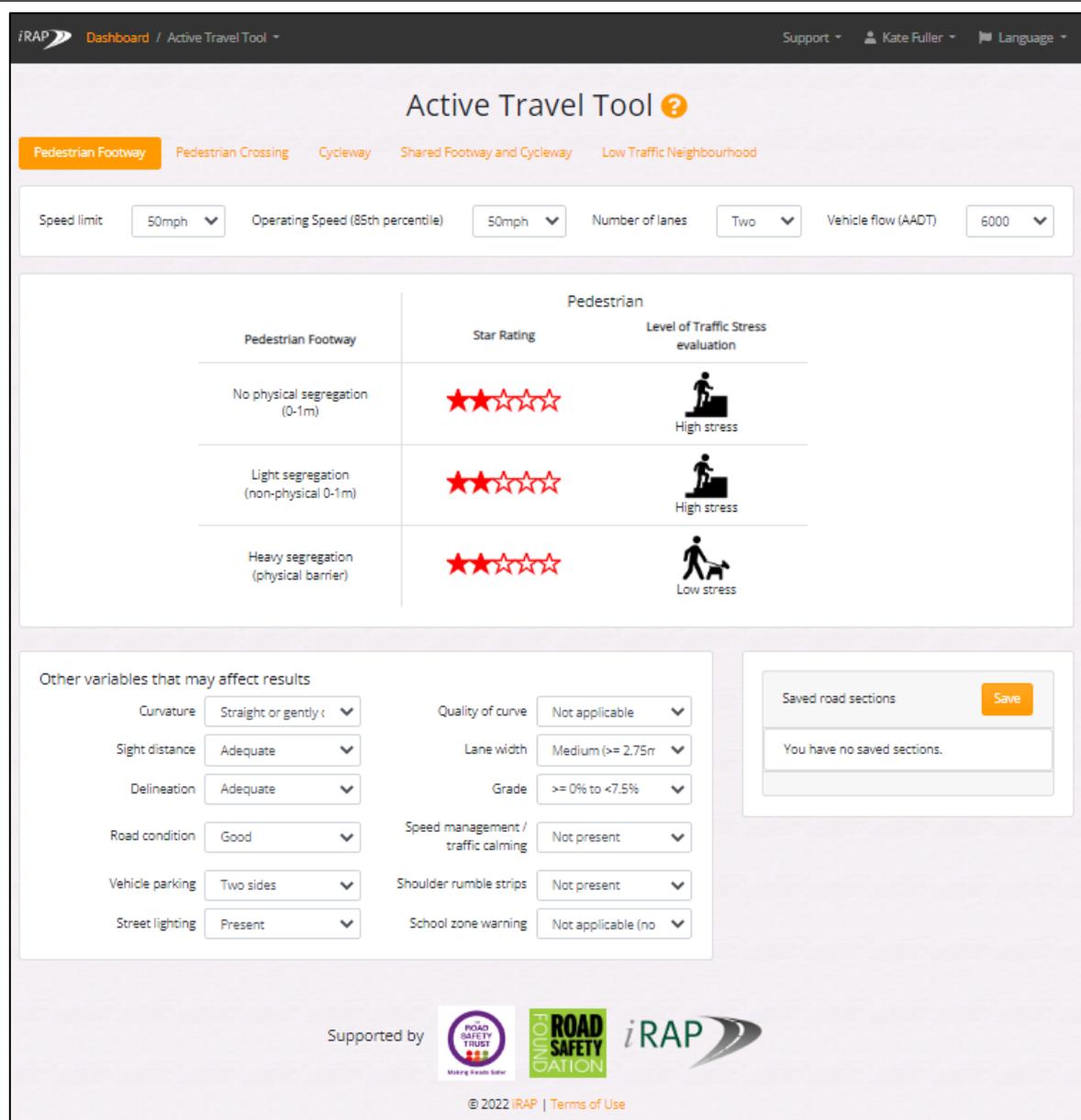


Figure 3: Screenshot of the Active Travel Tool

- **Work Package 4 – Age and ability review**

Work undertaken: RSF developed criteria for assessment of suitability of facilities under different flow and speed conditions based on NACTO-GDCI *Designing Streets for Kids* (2020) manual and the principles of LTS. LTS is an approach that allows the suitability of facilities for different cyclist types at a network level to be assessed (LTS 1 – suitable for children, LTS 2 – suitable for ‘interested but concerned’, LTS 3 – suitable for ‘enthused but confident’ and LTS 4 – suitable for ‘strong and fearless’).

- **Work Package 5 – Reporting and dissemination**

Work undertaken: A webinar was held on 24th June 2022 to provide a demonstration of the tool. The webinar was promoted extensively on LinkedIn and Twitter.

There were 74 delegates who attended the event which included an introduction to the project, a demonstration of the tool, an explanation into the Level of Traffic Stress, what Star Ratings are and feedback that had been provided to date. There was also a question-and-answer session.

Output 3 – Technical Report covering Work Packages 1-4 was provided to The Road Safety Trust on 23rd May 2022.

Output 5 – Updates to the iRAP road safety toolkit were in place after the webinar launch.

Output 6 – The webinar was held on 24th June 2022.

Output 7 – Dissemination and evaluation report was provided to The Road Safety Trust on 27th June 2022.

5. THE METHODOLOGY USED TO EVALUATE THE PROJECT AND THE RESULTS OF THE EVALUATION

Feedback was sought from Steering Group Partners at demonstrations of the tool. Access was subsequently provided for the Steering Group so they could use the tool and provide feedback.

Where comments were received regarding changes to the tool, some were addressed in this project but some require more detailed investigation work and have been placed on a list for future releases and development of the tool.

Demonstrations of the Tool

The Active Travel Tool was demonstrated to the Steering Group members on 10th and 19th May. Feedback was received at the meeting and a feedback form was sent around after the meeting. The feedback received is detailed below.

10th May – Warwickshire County Council

“The level of traffic stress is really useful.”

“Priority crossings for pedestrians and cyclists would be useful to be included.”

19th May - Hampshire County Council, Kent County Council, Transport for Greater Manchester, West Sussex County Council

A request was made to add a 60mph speed limit.

Kent County Council felt that “it is a helpful, really good tool”. They stated that their design guide was being rewritten and the tool could help influence the design guidance.

Transport for Greater Manchester liked the tool, they liked the use of both speed limit and operating speed. They felt it would help look at different situations from a pedestrian’s perspective.

Feedback Forms

A summary of the comments received from the feedback forms is below.

Question 1 - How might you use the tool?

- “To demonstrate to decision makers, stakeholders and the public that speed and certain types of crossing facility can cause pedestrians and cyclists stress, and that speed is not only directly related to road safety; and to show that 20mph limits and operating speeds have a marked positive result on this.”
- “We could use this to show that some places may only have a good safety record because the stress levels mean people would not choose to walk there.”
- “We could also potentially use this to set acceptable levels of “stress” through the development of our movement and place framework. A lower average annual daily traffic flow would be needed for this, if it were developed, I’d suggest using the levels in the Healthy Streets framework as we’ll also be using that.”

- “I see this tool being used at the option selection stage for Crash Remedial Measures or schemes looking to implement active travel measures. The tool will be used to test various remediation measures.”
- “To assess existing school sites, or for looking at risk associated with crossings on various speeds/types of road.”
- “Potential to use to test concept designs ahead of stakeholder/public engagement. Outputs should complement information submitted with bids for external funding (e.g., Active Travel Fund).”

Question 2 - Who might use the tool?

- “Transport Planners, engineers, the public and Councillors if this was available to them.”
- “This will predominantly be used by our scheme designers in our engineering and active travel teams, as a way of producing a baselined evidence base for scheme intervention options. The outputs may be shared with Parishes or Members, thanks to the simple to understand graphics. The tool will also be used by our analysis team in support of project designers.”
- “Active travel teams in our school safety team. Road safety auditors in the safety engineering team.”
- “Transport Planners/policy/highways engineers/our consultants.”

Question 3- How might the tool complement other guidance/processes/procedures?

- “It could support the development of our movement and place framework as the variables and speeds could help us identify what would be required to create a low stress environment for the different street types.”
- “The tool could be used as part of our option analysis when planning new schemes.”
- “We also operate a Highway Improvement Plan (HIP) process with Parish Councils, where safety issues or safety related priority schemes are identified. This tool could be used to assess the proposals for suitability.”
- “We have a Design Guide used as a supplementary planning document for adoption by Local Planning Authorities. There is an intention to review this guidance to ensure it aligns to safe system principles. This tool could assist with baselining risk for particular design features.”
- “It could assist with implementing/retrofitting LTN1/20 into the County and compare different crossing types.”
- “It would complement Propensity to Cycle Tool, Active Modes Appraisal Toolkit and LTN 1/20 guidance.”

Question 4 - Is there anything missing that would be useful?

- “How the stress level might differ if you were an adult with a disability, or a parent with a buggy.”

- “Changing the descriptions in the cycleway tool to match LTN1/20 would be very helpful. E.g., light segregation does not only mean off-road path but could be on-road with wands.”
- “Guidance on the derivation of the stress levels would be useful to understand the extent of the stress. Is the stress presented by any number making it a continuous value (like the risk score) or just categorical? If continuous like the risk score it would be useful to see these numbers in case you are reducing stress levels but not sufficiently to reduce the category.”
- “Definition/ description of how Low Traffic Neighbourhoods are being assessed by the model as I believe these are new features in ViDA.”
- “A specific attribute to compare the use of safety cameras. E.g., fixed and average speed.”
- “For shared surfaces / areas – stress level evaluation for the level of stress towards different individual users e.g., pedestrians having to share space with cyclists and vice versa. This may help to evaluate the stress impact that is much debated at present based on perceptions in many places, although the feedback acknowledged that more research may be required to facilitate this unless already available.”
- “It would be useful to have parallel crossings to compare risk between crossing types which could assist with retrofitting LTN1/20.”

Question 5 - Any other comments

- “It’s a really good tool and I’m looking forward to opening it up and sharing my screen in online meetings so I can repeatedly show that speed impacts on how people feel using (or avoid using) our streets.”
- “The ability to evaluate stress levels by comparing speed limit to operating speed was particularly useful, for example from road danger reduction or perception of safety perspectives.”
- “Being able to compare the above variable to the context for walking and cycling and different measures will help to evaluate options at scheme development stage in addition to the existing situation. The star rating is particularly useful as it demonstrates that a significant positive impact is possible by focusing on adjustments to speed (limit or operating).”
- “The low traffic neighbourhood tab is particularly interesting and useful to demonstrate other benefits. Locally there has been some public debate and feedback on the initial rollout and the metrics used to justify implementation. The tool makes it easier to demonstrate a different perspective.”

Webinar

A webinar was held on 24th June 2022 to provide a demonstration of the tool. The webinar was promoted extensively on LinkedIn and Twitter.

There were 74 delegates who attended the event which included an introduction to the project, a demonstration of the tool, an explanation into the Level of Traffic Stress, what Star Ratings are and feedback that had been provided to date. There was also a question-and-answer session.

The attendees included 39 representatives from Local Authorities and representatives from Jersey, Turkey and Malta together with a number of attendees from consultancies and people working in the active travel field.

6. WHAT WENT WELL

Overall, the project went well and there were a number of successes.

1. Good partnership working – Local Authorities

The Steering Group was made up of a number of Local Authorities with whom RSF had worked with before: Warwickshire County Council, Hampshire County Council, West Sussex County Council, Staffordshire County Council, Transport for Greater Manchester and Kent County Council. Although data was difficult to obtain (detailed in Section 7), the Local Authorities were extremely helpful in suggesting what would be useful and what would not work well. Ultimately it was their feedback which resulted in a different direction for the project. Some of the partners also trialled the software and provided useful feedback.

2. Good partnership working – iRAP

When the project was planned, there had been no intention to provide a software tool, however as the project developed, the input from the iRAP team was requested. They worked hard to provide a tool which needed interpretation from the RSF vision to providing working software to realise that vision. What has been created dovetails perfectly into the existing suite of software.

3. Webinar

The webinar was well attended and the presentations were provided by partners iRAP and the RSF team. There was a good question and answer session and attendees appeared to find the session helpful.

4. The flexibility of The Road Safety Trust

As outlined previously in this report, the project evolved into being something quite different to that originally envisaged. Because of the change of direction from a hard copy document to a software tool, there were time and personnel ramifications. The Road Safety Trust were very understanding in allowing the change in scope and duration and their encouragement and flexibility enabled the team to provide this tool.

5. Good opportunities to publicise the Tool

There have a number of conferences and events which the RSF team have been invited to speak at which has meant that the details of the project have been disseminated widely. Additionally, RSF works with many Local Authorities and continues to highlight the benefits of using the tool.

7. WHAT WOULD BE DONE DIFFERENTLY

The project was successful in meeting the objectives set out at the start of the project and being delivered within time, budget and quality criteria. However, if starting the project again, there are things that could be done differently.

1. **Understand better in the bid planning stage what data is available**

Some time was lost at the start of the project trying to obtain data from the Local Authorities. It would have been better to understand in the bidding stage what type of data was available.

2. **Involve more Local Authorities**

Because of personnel changes within some of the Local Authorities, not all of the partners were able to maintain their presence throughout the entire length of the project. If more partners had been involved, this may have increased the volume of data that could have been used and extra partners could have provided more feedback on the project at appropriate times.

8. CONCLUSIONS AND RECOMMENDATIONS

When this project was conceived, it was envisaged that it would deliver a high-quality ‘designed’ guide providing a library of typical facility layouts and their Star Rating risk score for different road users under different speed and traffic flow conditions. The guide would provide advice to practitioners seeking advice on active travel facilities both in UK and overseas.

However, it became clear in the consultation with Local Authority partners that they would prefer to start with a given road type – i.e., the road that they are planning on looking at for active travel facilities, and then to see how different facility types would perform both in terms of iRAP Star Ratings and also Levels of Traffic Stress.

Since this would require many permutations of starting point to capture all possible road types (i.e., variations of number of lanes, posted speed, 85th percentile speed, traffic flow etc.), it was felt that it would be better to develop an interactive tool that would allow the road authority to enter in details about their road, and the iRAP Star Ratings and LTS results would then be displayed for all of the possible different active travel facilities.

The tool was piloted with the partner Local Authorities and feedback was received regarding the tool including the following comments:

- “It’s a really good tool and I’m looking forward to opening it up and sharing my screen in online meetings so I can repeatedly show that speed impacts on how people feel using (or avoid using) our streets.”
- “The ability to evaluate stress levels by comparing speed limit to operating speed was particularly useful, for example from road danger reduction or perception of safety perspectives.”
- “Being able to compare the above variable to the context for walking and cycling and different measures will help to evaluate options at scheme development stage in addition to the existing situation. The star rating is particularly useful as it demonstrates that a significant positive impact is possible by focusing on adjustments to speed (limit or operating).”
- “The low traffic neighbourhood tab is particularly interesting and useful to demonstrate other benefits. Locally there has been some public debate and feedback on the initial rollout and the metrics used to justify implementation. The tool makes it easier to demonstrate a different perspective.”

Where comments were received regarding changes to the tool, some were addressed in this project but some require more detailed investigation work and have been placed on a list for future releases and development of the tool.

The tool can be reached on the iRAP ViDA frontpage³ <https://vida.irap.org/en-gb/dashboard>.

³ The tool can be accessed from the iRAP ViDA frontpage <https://vida.irap.org/en-gb/dashboard>.

The tool is also summarised on the iRAP website <https://irap.org/active-travel-tool/> (Figure 4) which also provides an email address for comments and feedback on the tool. Comments and requests for changes to the tool will be collated with a view to making changes to the tool in future updates.

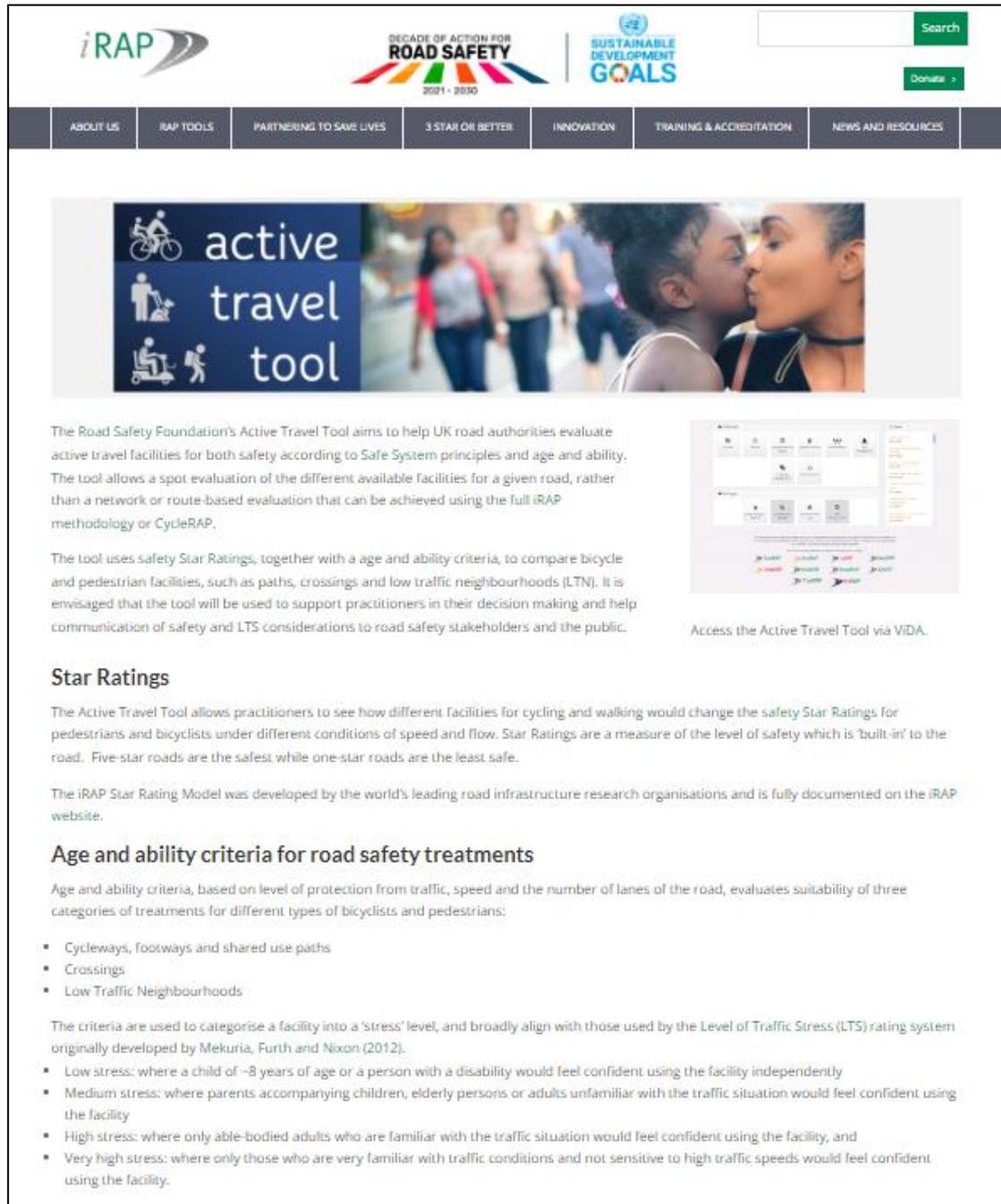


Figure 4: Screen shot of the iRAP website

Final Conclusion

The project went well and its success will be evidenced by practitioners using the Active Travel Tool. Early feedback indicates it is useful and that there are a number of different ways to use it. The tool is

free to air and will be available to a worldwide audience so it is hoped that it will be useful for many more practitioners.

It is hoped that comments received on requested changes can be addressed in future releases and development of the tool.

RSF and iRAP will continue to promote the Tool and would like to thank The Road Safety Trust for providing the funding this project.

9. HINTS AND TIPS FOR FUTURE PROJECTS

This is largely covered in Section 7; the main learning is to try and engage partners early in the scheme if data is required from them to ensure they have the data and can provide it in a timely fashion. Assumptions should not be made about what data they may have.

APPENDIX A – HIGH-LEVEL OVERVIEW OF SCHEMES

Local Authority	Name of scheme	Type of scheme	Who for?	Installed	Removed
Kent County Council	Reynolds Lane, Tunbridge Wells	Prohibition of motor vehicles	Pedestrians and cyclists	30/08/2020	N/A
	Drapers Mills Primary Academy, School Street	School Street – restriction on motorised traffic at school drop off/ pick up times	Pedestrians and cyclists	06/07/2020	N/A
	St. Mary's Primary School accessibility Improvements	Footway provision using timber planters	Pedestrians	01/11/2020	N/A
	Tonbridge Town Centre	20mph zone	Pedestrians and cyclists	18/09/2020	N/A
	Faversham Town Centre	20mph zone	Pedestrians and cyclists	18/09/2020	N/A
Staffordshire County Council	Station Street, Burton	Road closed to eastbound traffic and footway widening	Pedestrians	19/08/2020	10/12/2020
	Lichfield Street, Burton	Widened footway	Pedestrians	17/08/2020	10/12/2020
	St. Peter's Bridge, Burton	Reduced speed limit, cycle symbols on carriageway	Cyclists	20/08/2020	10/12/2020
	Church Street, Tamworth	Widened footway	Pedestrians	11/08/2020	10/12/2020
	Conduit Street, Lichfield	Widened footway	Pedestrians	25/08/2020	N/A
	St John Street, Lichfield	20mph speed limit, build outs and changes to signal timings	Pedestrians	26/08/2020	10/12/2020

Local Authority	Name of scheme	Type of scheme	Who for?	Installed	Removed
	Greenhill, Lichfield	Widened footway	Pedestrians	24/08/2020	10/12/2020
	Bridge Street, Newcastle	Widened footway	Pedestrians	12/08/2020	10/12/2020
	Chell Road, Stafford	Widened footway	Pedestrians	07/08/2020	10/12/2020
	South Walls, Stafford	New two-way cycle lane along one side of one-way street	Cyclists	06/08/2020	11/01/2021
	Albert Road, Lower Gungate, Tamworth	Widened footway	Pedestrians	10/08/2020	10/12/2020
Warwickshire County Council	Kenilworth Town Centre	Temporary 20 mph speed limit, road closure and removal of planters	Pedestrians	01/06/2020	Expected 19/07/2021 ⁴
	Leamington Spa Town Centre	Pedestrianisation of The Parade	Pedestrians	01/06/2020	Expected 19/07/2021
	Stratford upon Avon Town Centre	Changes to barriers, and parking restrictions in Bridge Street. Closure of the High Street 10am – 6pm Union Street – parking restrictions	Pedestrians and cyclists	01/06/2020	Expected 19/07/2021
	Warwick Town Centre	Various closures, one ways to provide extensions to historic narrow footways	Pedestrians	01/06/2020	30/07/2020

⁴ End date of Covid restrictions in England

Local Authority	Name of scheme	Type of scheme	Who for?	Installed	Removed
West Sussex County Council	A286 Chichester ring road (2km)	Provision of lightly segregated cycle lanes in each direction. Widened existing cycle lane on the Northgate Gyratory system. Cycle symbols to be applied to the carriageway where light segregation is not possible. Shared bus and cycle lanes to be provided on Avenue de Chartres. A 20mph speed limit applied to the extent of the scheme	Cyclists	24/08/2020	January 2021
	A259 Bognor Regis to Chichester (5km)	Vegetation clearance of the existing off-carriageway cycle track.	Cyclists	29/06/2020	N/A
	A24 Worthing (2.9km)	Lane one of the dual carriageway reallocated to provide lightly segregated cycle lanes in each direction. A 20mph speed limit introduced.	Cyclists	11/09/2020	January 2021
	Three Bridges to Manor Royal, Crawley and Pound Hill to Crawley town centre (4.5km)	Protected on-carriageway cycle lanes provided on Hazelwick Avenue, connecting with the existing National Cycle Network 21 route.	Cyclists	14/09/2021	January 2021
	Upper Shoreham Road, Shoreham (2.7km)	Light segregation using traffic delineator posts provided on Upper Shoreham Road.	Cyclists	25/09/2021	January 2021
	A281/ B2237 Horsham ring road (0.9km)	A protected cycle lane provided by reallocating lane one of the north/eastbound carriageway.	Cyclists	25/09/2021	January 2021

Local Authority	Name of scheme	Type of scheme	Who for?	Installed	Removed
	A22 East Grinstead (1.7km)	Light segregation added to the existing cycle lane on London Road. The northern end of the lane extended to Felbridge. At the southern end, the lane extended to Maypole Road to facilitate connection with the town centre via quieter roads and NCN21	Cyclists	15/09/2021	January 2021

APPENDIX B – LIST OF SCHEMES

1. Pedestrian footway
 - a. No segregation
 - b. Light segregation (e.g., traffic cones, flexi-post, planters etc.)
 - c. Heavy segregation (e.g., concrete blocks, crash barriers etc.)
2. Pedestrian crossing
 - a. Signal controlled
 - b. Zebra
 - c. Traffic island
 - d. Informal
3. Shared use footway/cycleway off road
 - a. No segregation from motorised vehicles
 - b. Light segregation from motorised vehicles
 - c. Heavy segregation from motorised vehicles
4. On road cycleway in direction of motorised traffic
 - a. No segregation
 - b. Light segregation
 - c. Heavy segregation
5. Off road cycleway in direction of motorised traffic
 - a. No segregation
 - b. Light segregation
 - c. Heavy segregation
6. On road cycleway two-way
 - a. No segregation
 - b. Light segregation
 - c. Heavy segregation
7. Off road cycleway two-way
 - a. No segregation
 - b. Light segregation

- c. Heavy segregation
8. Closures/barriers:
- a. Modal filtering/Active Streets/Low Traffic Neighbourhoods
 - b. Full closure to motorised traffic

TERMINOLOGY

Safe System

The Safe System approach underpins all aspects of an effective road safety management system. The approach is built on the premise that no one should be killed or seriously injured while using the road network.

The Safe System approach recognises that humans are fallible and will make mistakes. There are also limits to the kinetic energy exchange which humans can tolerate (e.g., during the rapid deceleration associated with a crash) before serious injury or death occurs. A key part of the Safe System approach requires that the road system be designed to take account of these errors and vulnerabilities so that road users can avoid serious injury or death on the road. A Safe System approach has the following characteristics:

- Mistakes, errors of judgment and poor decisions are intrinsic to humans. The road system needs to be designed and operated to account for this.
- Humans are fragile. Unprotected, we cannot survive impacts that occur at greater than around 30km/h.
- The ‘engineered’ elements of the system – vehicles and roads – can be designed to be compatible with the human element, recognising that while crashes might occur, the total system can be designed to minimise harm, particularly by making roads self-explaining and forgiving of human error.

Road safety is a responsibility shared between those who use roads and those who manage, design, build and maintain the road system and those who provide post-crash care.

In a Safe System, road safety problems are treated by considering the interaction of several components of the transport system, rather than by implementing individual countermeasures in relative isolation. This means that the full range of solutions, infrastructure, traffic and speed management, vehicle standards and equipment and road user behaviour need to be addressed.

Implementing the Safe System approach requires developing and strengthening a country’s institutional management capacity to focus on achieving results aimed at elimination of deaths and serious injuries.

The Safe System Approach evolved from Sweden’s Vision Zero Approach and Sustainable Safety in the Netherlands.

A targeted approach towards this ambition is recommended in the OECD report that focuses on setting and achieving ambitious road safety targets within a Safe Systems approach. This report builds on the key recommendations of the World report on Road Traffic Injury Prevention that set out the strategic initiatives necessary to improve country road safety performance. These are to:

- Identify a lead agency in government to guide the national road safety effort.
- Assess the problem, policies and institutional settings relating to road traffic injury and the capacity for road traffic injury prevention in each country.
- Prepare a national road safety strategy and plan of action.
- Allocate financial and human resources to address the problem.
- Implement specific actions to prevent road traffic crashes, minimize injuries and their consequences and evaluate the impact of these actions.
- Support the development of national capacity and international cooperation.

Guidelines for implementing the World Report recommendations have been developed in a report from the World Bank Global Road Safety Facility. This report discusses road safety management capacity reviews and Safe

Systems projects and provides detailed guidance for the management and investment framework that is necessary to support the successful implementation of the World Report recommendations. The guidelines specify two key stages for implementation:

1. Stage 1 – conduct a country capacity review that addresses recommendations 1-4 and specifies an investment strategy and identifies Safe System implementation projects.
2. Stage 2 – prepare and implement Safe System projects based on good practice solutions that address priorities and build monitoring and evaluation procedures.

CycleRAP

CycleRAP is an easy, affordable and fast method of evaluating road and bicycling infrastructure for safety. It aims to reduce crashes and improve safety specifically for cyclists and other light mobility users by identifying high risk locations without the need for crash data.

CycleRAP will power software tools used for pinpointing and mapping where bicyclist and light mobility crashes are likely to occur. The model uses data about the features of a road, street or path to evaluate the risk of crashes for cyclists and light mobility users—irrespective of the type of facility (or whether it is on or off road) and for all crash types. It can be used anywhere in the world.

Safety Star Ratings

iRAP Star Ratings are used for road safety inspection, road safety impact assessments and in designs. Star Ratings are an objective measure of the level of safety which is ‘built-in’ to the road through more than 50 road attributes that influence risk for vehicle occupants, motorcyclists, cyclists, and pedestrians.

Star Ratings reflect the risk as it relates to an individual road user. 1-Star roads have the highest risk and 5-Star roads the lowest risk. Star Ratings can be produced without reference to detailed crash data.

The Star Rating models underpin Fatal and Serious injury estimations and Investment Plans, all of which are integrated in iRAP’s online platform, ViDA.

Level of Traffic Stress (LTS) rating system

Level of Traffic Stress (LTS) is a rating given to a road segment or crossing indicating the traffic stress it imposes on cyclists. Levels of traffic stress range from 1 to 4 as follow:

- LTS 1: Strong separation from all except low speed, low volume traffic. Simple crossings. Suitable for children.
- LTS 2: Except in low speed / low volume traffic situations, cyclists have their own place to ride that keeps them from having to interact with traffic except at formal crossings. Physical separation from higher speed and multilane traffic. Crossings that are easy for an adult to negotiate. Corresponds to design criteria for Dutch bicycle route facilities. A level of traffic stress that most adults can tolerate, particularly those sometimes classified as “interested but concerned.”
- LTS 3: Involves interaction with moderate speed or multilane traffic, or close proximity to higher speed traffic. A level of traffic stress acceptable to those classified as “enthused and confident.”
- LTS 4: Involves interaction with higher speed traffic or close proximity to high-speed traffic. A level of stress acceptable only to those classified as “strong and fearless.”

There are criteria for determining LTS for route segments and crossings. LTS criteria were first published in 2012 in a report by Mekuria, Furth, and Nixon published by the Mineta Transportation Institute.