Traffic Safety Research article template:
style and formatting guidelines

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Abstract

Write abstract in one paragraph. Do not use text treatments (bold, italic, underline). Be concise and stick to what is unique and most important in your work. What is the (real) traffic safety problem that motivated your work? What is the specific research question you tried to answer? What data and method did you use? What are your most important findings and conclusions? How does your work add to already existing knowledge?

Keywords

keyword\_1, keyword\_2, keyword\_3 (lowercase, in alphabetical order)

# General technical requirements

* Submit your manuscript as a Word document, do not convert it to .pdf.
* Make sure to remove all comments and accept all changes if you used the Change Tracker tool.
* If you submit a revised version, mark your changes with the Text Highlight tool. Do not use change tracker to show your updates. Describe how your changes address reviewers' comments in a separate document.
* Use Word styles ([link](https://support.microsoft.com/en-us/office/add-a-heading-in-a-word-document-3eb8b917-56dc-4a17-891a-a026b2c790f2)) to create section heading (Heading 1, Heading 2, etc.).

# Italic, bold and other type treatments

Generally, text treatments should be applied sparsely. Untreated roman type is the standard typeface used for text matter.

## Italic type

Italic type can be used for:

* To indicate quoted text, particularly if relatively long: It was defined by Johnsson (1977) as ‘*…a degree to which the response to treatment can be explained*’.[[1]](#footnote-1)
* Emphasis and highlighting: The severity of a traffic conflict is determined by its *initial conditions* rather than its *outcome*.
* To indicate that a word is in a foreign language: The decision about the Vision Zero (in Swedish *nollvisionen*) as the national long-term goal in traffic safety was approved by the parliament in 1998.
* In references, to indicate work titles (rules are complex, consult the APA reference style guide, 7th edition—[link](https://apastyle.apa.org/style-grammar-guidelines/references)).

## Bold type

The bold type is mostly used in headings. Other uses should generally be avoided. An allowed exception is in bulleted lists, when an item receives a short title (in bold), which is then further explained in regular roman text.

Three typical scenarios could be distinguished:

* **Type A**. The road user passes with its current speed.
* **Type B**. The road user slows down and then accelerates again.
* **Type C**. The road user stops and waits for the sufficient gap. This strategy was particularly common for slow moving vehicles.

For emphasis, use rather the *italic* type.

## Capitals

Capitals are mostly used in abbreviations. Do not use capitals for emphasis (use *italics* instead).

Capitals can be used in tables to distinguish the last row when necessary, e.g. Total (see the table examples in section 7).

Section headings are written in sentence case, i.e. only the first letter of the first word is capitalized. Exceptions are proper names and abbreviations appearing in the middle of the heading.

2.2.1 Data collection procedure

3.2 Implications of Vision Zero on traffic safety work

4.1 Results of ANNOVA test

## Underlining

Avoid underlining at all costs. The hyperlinks should not be underlined either, e.g. email@email.com.

# Special symbols

Special symbols can be inserted using ALT codes (on Windows computers) or copied and pasted from services such as [www.amp-what.com](https://www.amp-what.com/).

* Left single quotation mark ( ‘ ): ALT + 0145 or [link](https://www.amp-what.com/unicode/search/%26lsquo)
* Right single quotation mark ( ’ ): ALT + 0146 or [link](http://www.amp-what.com/unicode/search/%26rsquo)
* Left double quotation mark ( “ ): ALT + 0147 or [link](https://www.amp-what.com/unicode/search/%26ldquo)
* Right single quotation mark ( ” ): ALT + 0148 or [link](https://www.amp-what.com/unicode/search/%26rdquo)
* Apostrophe ( ' ): ALT + 39 or [link](https://www.amp-what.com/unicode/search/%26apos)
* Hyphen, minus ( - ): ALT + 45 or [link](https://www.amp-what.com/unicode/search/%26dash)
* En rule ( – ): ALT+ 0150 or [link](https://www.amp-what.com/unicode/search/%26ndash)
* Em rule ( — ): ALT + 0151 or [link](https://www.amp-what.com/unicode/search/%26mdash)
* Ellipsis ( … ): ALT + 0133 or [link](https://www.amp-what.com/unicode/search/ellipsis)
* Non-breaking space: ALT + 0160 or [link](https://www.amp-what.com/unicode/search/%26nbsp)
* Degree sign ( ° ): ALT + 0176 or [link](https://www.amp-what.com/unicode/search/%26deg)
* Dot multiplication sign ( ⋅ ): ALT + 0183 or [link](https://www.amp-what.com/unicode/search/%26sdot)

## Quotation marks and apostrophe

The left ( ‘ and “ ) and right ( ’ and ” ) quotation marks, as well as the apostrophe ( ' ), are all different punctuation marks with distinct functions. They should not be mixed up.

Single ( ‘xxx’ ) or double ( “xxx” ) quotation marks indicate the exact words written/said by others. The same quotation mark type (single or double) should be used consistently throughout the manuscript. If the quoted text itself contains quotation marks, different types of marks are used, i.e. ‘Xxx “yyy” xxx xxxx.’ If the two quotation marks come close together, put a non-breaking space (see section 3.3) between them: ‘ “Yyyy” xxxx xxxx.’

Quotation marks can be used to introduce a term that is relevant for the manuscript but otherwise is not well-known or used: Such behaviour, further referred to as a ‘delayed left turn’, is particularly common at Site 1. Once introduced, the term is further used without the quotation marks.

Apostrophes are used to indicate possession (driver's behaviour) and in plural form of letters and numbers (three 7's in a row). It can also be used in contractions (don't), but such forms are not recommended for the academic writing.

## Hyphen, en rule, and em rule

Hyphen is readily available on the standard keyboard. It is used as the minus sign in numbers (-12.5%) or in compound words (cross-reference). It is *not* used as a punctuation mark in compound sentences.

En rule ( – ) is used to indicate the range, e.g. 12%–15%, Sites 1–5 (sites one to five), found on pages 254–265, 10–12 October 2010, 45°–60°.

Em rule ( — ) has many uses, performing functions similar to those of commas, parentheses or colons: These tools—all based on unsupervised learning methods—are getting rapid popularity in transportation modelling.

No spaces are inserted before or after en and em rules.

## Non-breaking space

Non-breaking space prevents automatic line break at its position. For example, you would want to ensure that 10 kilometres always stay together on the same line rather than ‘10’ concluding one line and ‘kilometres’ starting the next line.

Non-breaking space is used:

* To separate three-digit groups in large numbers: 125 234
* To separate a quantity from its units of measure: 12.5 kg, 9.8 m/s2
* In formulas, to create some ‘air’ and improve readability: A = 3 ⋅ 4.

## Other commonly used symbols

* Per cent: 12.6% (no space); 12%–15% (always repeated)
* Degree sign: 25° (no space); 22°–24° (always repeated)
* Dot multiplication sign: 3 · 4 = 12 (with non-breaking spaces around, it is a formula); 1.25·102 (no spaces, it is a single number written in the scientific format).

# Numbers and dates

## Number formatting

Use *full stop* ( . ) as the decimal sign. Use non-breaking space to separate three-digit groups. Use hyphen as a negative sign: 125 300.55; -11.56; 33.5%; -6.55·105.

Alternatively, you may use a comma to separate three digit groups: 125,300.55. Make sure to use the same number format consistently throughout the paper.

It is common to use words for quantities below ten and use digits for larger quantities (five participants, but 25 bicyclists). Do not mix them, though: 5 to 25 participants, not ~~five to 25~~.

## Units of measure

Both abbreviated and fully written units of measure are separated by a non-breaking space: 23 kg; 90 km/h; 11 a.m.; 23 kilograms; 3 miles; the structure weighs 63 tons.

Note that units become plural when the quantity is more than one (3 kilograms, but 0.5 litre)

The exceptions are per cent and degree symbols which are not spaced: 25%; 33.5º.

## Currencies

The currency symbols precede the numerals (no space):

$25; €70.5; $15 billion.

Three-letter currency codes are separated with a non-breaking space:

EUR 40 000; USD 1 billion; SEK 500.

## Number ranges

Use *en rule* ( – ) to link the range numbers:

12–15; 95 000–110 000; 4.5–5.6 (no spaces before or after the rule)

For ranges including negative number use words to avoid confusion:

95% CI = -7.56 to -6.15.

Units of measure are not repeated:

5–6 kg; 1 000–2 500 litres

Exceptions are per cent and degree signs: 25%–30%; 12.5°–13.5°.

## Dates

The preferred date format is 12 September 2022.

A named day is separated by a comma: Friday, 30 September 2022.

Do not use -st, -rd, -th in conjunction with the figure (~~1st April 1980~~). Avoid using all-figure forms as they could mean different things in different countries (~~7/5/12~~).

Use en rule to indicate a date range: 12–15 September 2020; data collection during the winter period 2019–2020.

# Lists

## In-text lists

The purpose of the paper is threefold: (*i*) to explore the existing literature on the problem, (*ii*) to identify knowledge gaps, and (*iii*) to suggest future research directions.

The commas between the list items can be replaced by semicolons ( ; ), especially if the listed text is complex and contains commas already.

## Displayed lists

The purpose of the paper is threefold:

* to explore the existing literature on the problem
* to identify knowledge gaps
* to suggest future research directions.

Note that the first word of each list item is not capitalised, as well as the absence of punctuations at the end the list items. Use a full stop after the *last* item to complete the entire sentence.

However, if listed items are complete sentences themselves, they are treated as such.

This paper presents two sub-studies that were done in a sequence:

1. The first study included interviews with cyclists in order to understand their perception in traffic.
2. Based on the interview results, a theoretical framework was formulated and tested in a smaller pilot in VR-simulated environment.

## Serial (Oxford) comma

The *TSR* recommends using serial commas (commas put before the ‘and’ of the final list item). In the example below, it is not clear whether e-cyclists belong to the same group with cyclists or with e-scooters:

Three groups of road users were considered—pedestrians, cyclist and e-cyclists and e-scooter riders.

Serial comma helps avoiding such ambiguity:

Three groups of road users were considered—pedestrians, cyclist and e-cyclists, and e-scooter riders.

Consult a grammar book for more nuanced discussion on the serial comma usage.

# Equations

Use Word equation builder ([link](https://support.microsoft.com/en-us/office/write-an-equation-or-formula-1d01cabc-ceb1-458d-bc70-7f9737722702)) to create equations.

General recommendations are:

* Do not overload text with formulas; consider providing mathematical details in an appendix rather than the main text.
* Provide explanation for each variable included in the formula.
* Number your equations; this is not necessary for equations written in-line with the text. Knowing speed (*v*) and time (*t*), the travelled distance can be calculated for any moment as $S=v∙t$.

Travel distance is calculated as:

$S=v\_{0}∙t+\frac{a∙t^{2}}{2}$ (1)

where $v\_{0}$is the initial speed, m/s; *t* is the time elapsed, s; and *a* is the acceleration, m/s2.

# Tables

Use Word table tool ([link](https://support.microsoft.com/en-us/office/insert-a-table-a138f745-73ef-4879-b99a-2f3d38be612a)) to create tables.

Place tables in the manuscript directly after the paragraph in which it was first mentioned (see Table 1). Make sure that all tables are referenced in the text.

Table 1 Example table title (keep it short)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Column 1 | Column 2 | Column 3 | Column 4 | Column 5 |
| Row header | Type A | 11\* | 11 212† | 45.6 |
| Row header | Type B | 25 | 56 733 | 32.0 |
| Row header | Type C | —‡ | 877 | 35.8 |
| Total | n/a§ |  | 68 822 | 113.4 |

A general note related to the entire table.

\* A note related to a specific value/cell in the table. Mark specific notes with a system of indices different from that used in the main text (e.g. \*, †, ‡, §, #, \*\*, ††, ‡‡, §§, ##, \*\*\*, †††, etc.).

† Use non-breaking space to separate groups of three digits (11 212, not ~~11,212~~). Use full stop point as the decimal sign.

‡ Use em rule ( — ) to indicate absent values.

§ Use ‘n/a’ for ‘not applicable’.

General formatting requirements are:

* Do not use single-columned tables. Strictly speaking, such data do not require tabulation and is better presented as a bulleted list.
* Avoid using shading and border lines, except for separating the header and the bottom of the table (see Table 1).
* Do not use cell shading to convey information such as the significance level of the value it contains. Instead, use indices (stars or other symbols) directly after the values that are further explained in the table notes. Put the index in the same cell as the value it describes, do not create a separate column for that.
* Centre-align all column headers, except for the first column header which is always left-aligned.
* Left-align table data: (*i*) contents of the first column; (*ii*) columns containing long text
* Centre-aligntable data: columns containing short text
* Right-align table data: columns with numerical data.
* For numerical data, use the same number of decimal points within the same column.
* Keep table title short. If explanations are necessary, use the notes under the table.
* Do not put full stop ( . ) at the end of the title unless it makes a complete sentence (subject + verb).
* Tables with multiple sections must have the same number of columns across all sections. If that is not possible, divide the table into multiple tables.
* Avoid making table structures overly complex through excessive usage of merged cells. Values that do not belong to any particular column (which is usually the case with AIC, BIC, R2, etc.) are better fit in the table footnotes.
* Do not insert images or equations inside table cells. Make a figure instead.

# Figures

Always import a figure as *one* single image (.png or .jpg). Editable objects such as Excel charts, textboxes, lines, etc. must be exported as an image and then imported again.

Place the figure in the manuscript directly after the paragraph in which it was first mentioned. Make sure that all figures are referred to in the text (see Figure 1).



Figure 1 Example figure title (keep it short): (*a*) first figure panel; (*b*) second figure panel

General formatting requirements are:

* Make sure the text size is readable.
* Select colours that will work well in black-and-white print.
* Use *one* signal colour if necessary.
* Avoid clutter, such as 3D-effects, diagram area borders, gridlines, etc.
* Keep text orientation horizontal.
* Keep figure titles shot. Do not put full stop ( . ) at the end of the title unless it makes a complete sentence (subject + verb).

About the authors (compulsory)

The manuscript *must* include a photo and a short professional biography (5–8 lines) for each of the authors. If in doubts about what to write, check the articles already published in the *TSR* for examples.



Professor **Author One** received her PhD at the University of Sciences. Her research interests cover traffic safety, urban planning, and, recently, decision making and policy implementation within large state organizations. Since 2019, she acts as the head of the Virtual Reality lab at University of Sciences.

Acknowledgement (if relevant)

If the current research derives from earlier works (e.g. preprints, conference presentations, reports or academic theses), the authors *must* clearly state so in the ‘Acknowledgements’ section.

Contributors not included in the list of the authors may be mentioned here, too.

An earlier version of this work was presented as a poster at XXX conference. The authors would like to thank Mr. Big Expert for the valuable comments on the draft of this manuscript.

CRediT contribution (compulsory)

All authors of a submitted manuscript *must* state their contributions in the ‘CRediT contribution statement’ section. The same applies even if the manuscript has a single author.

CRediT, Contributor Roles Taxonomy ([link](https://doi.org/10.3789/ansi.niso.z39.104-2022)), is a high-level taxonomy that includes 14 roles typically played by the authors of a scientific paper. These include:

* **Conceptualization:** ideas; formulation or evolution of overarching research goals and aims
* **Data curation:** management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use
* **Formal analysis:** application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data
* **Funding acquisition:** acquisition of the financial support for the project leading to this publication
* **Investigation:** conducting a research and investigation process, specifically performing the experiments, or data/evidence collection
* **Methodology:** development or design of methodology; creation of models
* **Project administration:** management and coordination responsibility for the research activity planning and execution
* **Resources:** provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools
* **Software:** programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components
* **Supervision:** oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team
* **Validation:** verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs
* **Visualization:** preparation, creation and/or presentation of the published work, specifically visualization/data presentation
* **Writing—original draft:** preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation)
* **Writing—review & editing:** preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision—including pre- or post-publication stages.

The role titles are to be used ‘as is’ without any changes. For each author, the relevant roles are picked from the list, separated by commas:

**Author One:** Conceptualization, Funding acquisition, Methodology, Writing—original draft, Writing—review & editing. **Author Two:** Supervision, Validation, Writing—review & editing. **Author Three:** Methodology, Supervision, Validation, Writing—original draft, Writing—review & editing.

Data availability (if relevant)

The authors are encouraged to responsibly share relevant data and research methodology (e.g. computer code) through open access repositories. Explanations on how these could be accessed is provided in the ‘Data availability’ section.

The anonymized dataset and analysis code can be downloaded at <https://doi.org/xxxx/xxxyyy>.

The data are available on request to the authors.

Declaration of competing interests (compulsory)

A submitted manuscript *must* include a ‘Declaration of competing interests’, even if authors have no interests to declare (in this case, they should clearly state so).

The authors report no competing interests.

Declaration of generative AI use in writing (compulsory)

The authors *must* state whether in preparation of the manuscript they used generative AI or AI-assisted tools, and if so, specify the tool and the reason for using it.

The authors declare that no generative AI was used in this work.

During the preparation of this work the authors used XXX (tool, version) in order to YYY (reason). The output was reviewed and revised by the authors who take full responsibility for the content of the publication.

Ethics statement (compulsory)

A submitted manuscript *must* include an ‘Ethics statement’. Usually, it will contain a reference to the ethical evaluation of the research plan performed by a relevant authority (specifying the authority and the decision identifier).

If a study was exempted from requiring an ethical approval, the reasons for and the procedure for arriving at such conclusion must be provided.

The methods for data collection in the present study have been approved by Swedish Ethical Review Authority (Decision XXX-YYY).

Funding (compulsory)

The authors *must* state which funding agencies, and through which grants, financed the research described in the manuscript. If no external funding was received, it should be clearly stated so, too.

If a funder directly affected some of the decisions related to this research, this must be clearly described.

This research was funded by the Swedish Transport Administration (grant XXX-XXX).

No external funding was used in this research.

References

*Traffic Safety Research* applies the APA referencing style, 7th edition ([link](https://apastyle.apa.org/style-grammar-guidelines/references)).

In-text references:

Many evaluation studies do not account for the effects of well-known confounding factors (Elvik 1997; Hauer 2015).

As shown by Elvik (1997) and Hauer (2015), many evaluation studies do not account for the effects of well-known confounding factors.

Reference list:

*Journal article*

Belin, M.-Å., Tillgren, P., & Vedung, E. (2012). Vision Zero – a road safety policy innovation. *International Journal of Injury Control and Safety Promotion*, 19(2), 171–179. <https://doi.org/10.1080/17457300.2011.635213>

Godthelp, H. (2023). Towards a safe system in low- and middle-income countries: vehicles that guide drivers on self-explaining roads. *Traffic Safety Research*, *5*, Article e000029. <https://doi.org/10.55329/avnw4364>

*Report*

Gettman, D., Pu, L., Sayed, T., & Shelby, S. (2008). *Surrogate Safety Assessment Model and Validation* (Report No. FHWA-HRT-08-051). Federal Highway Administration. <https://www.fhwa.dot.gov/publications/research/safety/08051/08051.pdf>

*Conference paper/presentation*

Elvik, R., Erke, A., & Christensen, P. (2009, 11–15 January). *Elementary units of exposure*. TRB Annual Meeting, Washington D. C., USA.

Güttinger, V. A. (1982). *From Accidents to Conflicts: Alternative Safety Measurement*. International Workshop on Traffic Conflicts Techniques, Leidschendam, the Netherlands. <https://www.ictct.net/wp-content/uploads/XX-Leidschendam-1982/Guttinger_1982.pdf>

*Book*

Edvardsson Björnberg, K., Hansson, S. O., Belin, M.-Å., & Tingvall, C. (Eds.) (2023). *The Vision Zero Handbook: Theory, Technology and Management for a Zero Casualty Policy*. Springer. <https://doi.org/10.1007/978-3-030-76505-7>

Hauer, E. (2015). *The art of regression modelling in road safety*. Springer. <https://doi.org/10.1007/978-3-319-12529-9>

*Book section*

Hansson, S. O. (2023). Zero Visions and Other Safety Principles. In K. Edvardsson Björnberg, S. O. Hansson, M.-Å. Belin, & C. Tingvall (Eds.), *The Vision Zero Handbook: Theory, Technology and Management for a Zero Casualty Policy*. Springer. <https://doi.org/10.1007/978-3-030-76505-7_2>

*Thesis*

Hydén, C. (1987). *The development of a method for traffic safety evaluation: the Swedish traffic conflict technique* [Doctoral thesis, Lund University]. <https://www.ictct.net/wp-content/uploads/SMoS_Library/LIB_Hyden_1987.pdf>

*Web-page*

FHWA. (n.d.). *Crash modification factors clearinghouse*. U.S. Department of Transportation, Federal Highway Administration. <https://www.cmfclearinghouse.org>

Always provide the DOI identifier when available. Note that the identifier must be a full hyperlink including ‘https://doi.org/…’. If no DOI for a reference exists, provide an URL where it can be downloaded.

1. Note that the blue colour is used to merely distinguish the text examples from the instructions. It does not mean that the submitted article should be written in blue text. [↑](#footnote-ref-1)