The Transportation Research Thesaurus (TRT): An Overview

Janet Daly
TRIS Indexing Manager
jdaly@nas.edu
June 2020
These slides will explain:

• What the TRT is
• How it is structured
• Why it is useful
• How it is updated
What is the TRT?

- A tool to improve the indexing and retrieval of transportation information
- Provides a common and consistent language between producers & users of information
The TRT is:

• A Controlled Vocabulary: restricted list of terms

AND

• A Taxonomy: hierarchically structured system of organizing concepts

AND

• A Thesaurus: provides information about each term and its relationships to other words
1993-1996 The TRT initially developed (NCHRP 20-32)

1997-2001 The TRT is updated and TRIS records converted to use the TRT. User Guide published. (NCHRP 20-32(2))

2007 TRB assumes in-house maintenance of the TRT. The TRT integrated into TRIS. The TRT published on Internet (NCHRP 20-70)

2008-Definitions added for many terms (NCHRP 20-79)

2016-First comprehensive assessment of the TRT launched (NCHRP 20-109)
Today’s TRT

• LARGE~12,100 terms (9,600 “preferred” terms and 2,500 “nonpreferred” terms)
• COMPREHENSIVE-Covers all modes and functions of transportation
• TARGETED-Covers only transportation
• FREE TO USE
  – Integrated into TRIS databases
  – Searchable at http://trt.trb.org
The TRT is structured into 21 facets. Below are the top terms in each of the facets. All of the TRT terms are arranged into hierarchies below one of these top terms. The hierarchies differ in size and complexity—some facets are as many as 12 levels deep. Other facets have only a few levels. The top terms in many cases correspond roughly with the TRT subject areas.

<table>
<thead>
<tr>
<th>A: Transportation</th>
<th>N: Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>B: Transportation operations</td>
<td>P: Facilities</td>
</tr>
<tr>
<td>C: Management and organization</td>
<td>Q: Vehicles and equipment</td>
</tr>
<tr>
<td>D: Communication and control</td>
<td>R: Materials</td>
</tr>
<tr>
<td>E: Planning and design</td>
<td>S: Physical phenomena</td>
</tr>
<tr>
<td>F: Construction and maintenance</td>
<td>T: Disciplines</td>
</tr>
<tr>
<td>G: Testing</td>
<td>U: Mathematics</td>
</tr>
<tr>
<td>H: Safety and security</td>
<td>V: Areas and regions</td>
</tr>
<tr>
<td>J: Environment</td>
<td>W: Time</td>
</tr>
<tr>
<td>K: Economic and social factors</td>
<td>X: Information organization</td>
</tr>
</tbody>
</table>
Sample TRT Structure

Below is a VERY simplified view of one hierarchy. In this example, a very broad term, Materials, is subdivided into Classes and Properties, and each of those has been subdivided. An indexer or a searcher can use any term, depending on how specific they want to be.
Example of Term Details

This display for a term, Risk Assessment, illustrates the TRT’s features, including the term’s hierarchy, definition, broader term, and related terms. “Use For” terms are synonyms that are not TRT terms themselves. Instead, a searcher is directed to use the preferred term.

Top Terms > Safety and security > Risk > Risk assessment

Risk assessment (Hka)

Definition
The identification and evaluation of critical assets in terms of their susceptibility to the consequences of terrorist attacks or acts of war and a recommendation of options to address those weaknesses. (Source: AASHTO Glossary)

Use For
Vulnerability assessment

Broader Term
Risk (Hk)

Related Terms (Hierarchical)
Crash exposure (Hke)

Related Terms (Associative)
Risk management (Cnb)
Crash risk forecasting (Hbxxsv)
Environmental risk assessment (Jfd)
Different Words, Same Meaning

There are many ways to express the concept, “a location where a lot of crashes happen.” All of these ways are included as non-preferred terms to the TRT concept “High risk locations.” This makes it easier to find all records that address this concept with one search.
TRB Subject Areas are very broad, and retrieve thousands of results in TRID. Using a more specific TRT term can reduce the results to only the most relevant.

<table>
<thead>
<tr>
<th>TRB Subject Area</th>
<th>TRT Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security &amp; Emergencies</td>
<td>Disaster Resilience; Bombings; Computer Security</td>
</tr>
<tr>
<td>Planning/Forecasting</td>
<td>Travel Demand; Smart Growth</td>
</tr>
<tr>
<td>Materials</td>
<td>Concrete (or even more specific--Reinforced Concrete, Cast in Place concrete, etc.)</td>
</tr>
<tr>
<td>Vehicles/Equipment</td>
<td>Intelligent Vehicles; Electric buses; Tires</td>
</tr>
</tbody>
</table>
Every record indexed by TRB’s Transportation Research Information Services is assigned index terms.

- Index terms are TRT terms.
- Any TRT term can be assigned.
- Professional indexers choose index terms for each record.
- 5-8 terms are chosen that capture the important concepts of the publication or project.
- Index terms answer the question, “What is this publication/project about?”

Example of TRT terms in TRID record:
Searching TRID using TRT Terms
(http://trid.trb.org)

• In the Advanced Search display, begin typing an index term.
• If the term is in the TRT, matching terms will appear in a drop down list from which you can select terms.
• Best matches appear first.
• More than one term may be selected; the default Boolean operator is OR.
• Similar search capabilities exist in RIP and PubsIndex.

Example TRID search showing drop down list for “waste”
How Agencies and Universities are Using the TRT

Finding Information
- Selecting terms for literature searches
- Text mining to discover trends & patterns in research
- Locating definitions

Organizing Information
- Indexing/cataloging their own library catalogs and collections (including NTL’s ROSA-P repository)
- Finding keywords for Technical Report Documentation page
- Seeding content management system taxonomies
New Terms in the TRT

• Sponsors, TRIS indexers, staff, public can suggest
• Send suggestions via form at https://trt.trb.org/newterms.asp
• All suggestions considered by TRT Subcommittee
  Terms can be accepted, declined, or tabled

Decisions based on:
  Use in literature
  Use by searchers
  Gap in existing terminology
  “Staying power”
Suggest a TRT term
https://trt.trb.org/newterms.asp

More Information about the TRT

*NCHRP Research Report 874*, The Transportation Research Thesaurus: Capabilities and Enhancements

Use the TRT in the TRIS Databases:

TRID  trid.trb.org
RIP   rip.trb.org
PubsIndex  pubsindex.trb.org