

Knowing our Business

Strategic Information Management

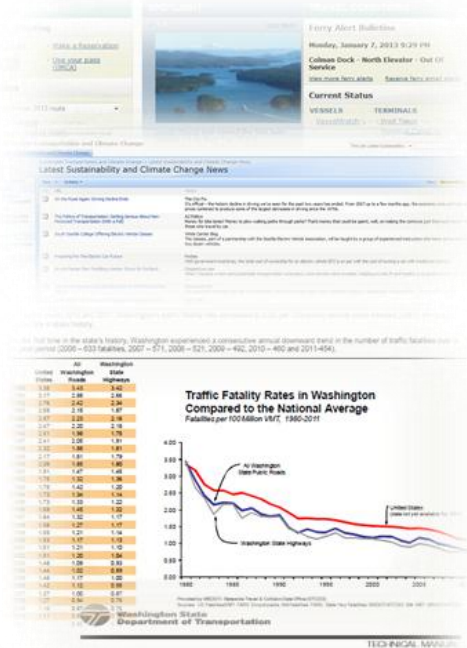
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Joint Midyear Meeting for TRB and AASHTO Committees

Washington, D.C.

June 11, 2013



The screenshot shows a web portal with a navigation menu on the left, a main content area with news articles, and a table of traffic data. The table has columns for 'Year', 'Washington State', and 'National Average'. Below the table is a line graph titled 'Traffic Fatality Rates in Washington Compared to the National Average' showing data from 1980 to 2011. The graph shows a general downward trend for both Washington State and the National Average, with Washington State consistently having a lower fatality rate per 100 million VMT.

Year	Washington State	National Average
2011	1.21	1.40
2010	1.21	1.40
2009	1.21	1.40
2008	1.21	1.40
2007	1.21	1.40
2006	1.21	1.40
2005	1.21	1.40
2004	1.21	1.40
2003	1.21	1.40
2002	1.21	1.40
2001	1.21	1.40
2000	1.21	1.40
1999	1.21	1.40
1998	1.21	1.40
1997	1.21	1.40
1996	1.21	1.40
1995	1.21	1.40
1994	1.21	1.40
1993	1.21	1.40
1992	1.21	1.40
1991	1.21	1.40
1990	1.21	1.40

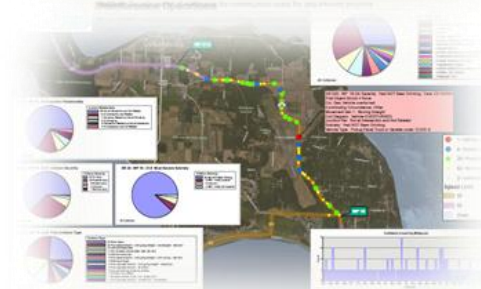
Maintenance Manual

M 51-01.04
October 2010

Cost Estimating Manual for WSDOT Projects

Description: The Cost Estimating Guidance for WSDOT Projects provides a consistent approach to cost estimating, estimate review, estimate documentation, and management of estimate data. It provides guidance on how to treat common and recurring challenges encountered in the cost estimating process. This guidance should be used as a tool in the project delivery process.

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Manual Manager: Chuck Wilham
Originator: Strategic Analysis and Estimating Office
of Pages: 31



Information hierarchy

Data: Pure and simple facts

Information: Structured data that includes meaning

Knowledge: The ability to use information to achieve objectives

Wisdom: The capacity to choose worthwhile objectives

What is information?

- Narrative/textual information (manuals, plans, NEPA documents, reports)
- Tabular data
- Geospatial data
- Images
- Videos/podcasts
- Websites
- Images
- Legacy data, new data
- Paper and born digital
- Internal records, publications, archival materials
- Artifacts

The Information Age

The constant dilemma of the information age is that our ability to gather a sea of data greatly exceeds the tools and techniques available to sort, extract, and apply the information we've collected.

Jeff Davidson

Why is information management important?

- Employees spend 15 to 35% of their time looking for information – that is a tremendous loss of productivity
- Need to ensure we're using the current version of the authoritative source
- Up to 80% of an organization's information typically takes the form of unstructured content.
- Perception of duplicative efforts/inefficiencies in current information management practices
- Need to improve findability and access to the information resources we have – if you can't find it, you can't use it
- Need to improve the relevance of what we find
- Need to improve current capability and plan for more interoperability of systems
- Need to manage resources for information system licenses, hardware, support staff
- Changing demographics and increasingly mobile workforce

Information 2.0

The form of information and methods to design and deliver information continue to change. Including increased demand for interoperability, real time/just in time delivery, and better access.

A Changing Medium

- As the subject matter needs and analytical tools have changed, so too have the practices for developing databases and information networking
 - Fewer self contained databases
 - More data applications that pull data from a common source
 - Less use of folder structure for managing content, more tagging/meta data to support dynamic searches
- Information literacy in the 21st century
 - What is good information? Where does one find it?
 - How is it managed?
- Creating a standard of practice for 21st century information management
 - Expectations for information use(s)
 - Management actions required
 - Roles and competencies needed
 - Big Data
 - Open Data

Why is Information Management so difficult?

Interrelated Issues/Different Business Units-Different Needs

- Creation platform
- Format(s)/reports needed
- Scale
- Sensitivity
- Currency needed/shelf life of info
- Version control
- Metadata
- Who will use the content?
- Who can access it?
- Real time and/or asynchronous
- Supporting findability
- System design
- Stable repository, ephemeral
- Distribution/“Marketing” of resource
- Generational implications
- Integration into the network at host site and other user systems
- Roles & responsibilities for creation, publishing, storing....
- Skill set needed to manage/maintain the info type
- Where is it stored?
- More....

Who uses transportation information?

- WSDOT employees
- Contractors, consultants, vendors
- Academic institutions
- Other transportation agencies
- Non-profit organizations (transportation-related and other)
- Legislators
- System users
- Others

Why isn't Google Enough?

- It's a house of cards:

Google and other search engines rely on authoritative information sources for source material
- Search processes are proprietary. Gist is:
 - Spiders crawl your site to learn what's there and the relationship of pages.
 - System "remembers" so it can be retrieved
 - May track who's using your site – are trustworthy sites linking
 - Many other known and unknown factors
- The point is:

We're the source of information they use, they help us find our own information and also make it more visible to others.
- Not all information types are found through Google

A rose by any other name....

(Shakespeare)

Whether we call it metadata, thesaurii, tagging, or key words, categorization schema substantially improve the ability to find and narrow information searches and improve productivity.

What's the big deal about language?

- Our language is changing continuously
 - IVHS, Intellidrive, VII, V2V, connected vehicles ...
 - Accident, crash, collision
 - Context Sensitive Design, Context Sensitive Solutions, Complete streets, Livability
- If you search for one term, you may not find related historical material because the terms may not be linked
- Improving relevance (to find what you want) is driven by metadata/classification schema
- Future employees may want to find the information you create today. We need to manage language so they can find it too.

70% of all ECM (enterprise content management) initiatives will fail due to an under-investment in taxonomy – Gartner

Facets of Knowledge Management

What is Knowledge?

Knowledge is the set of information, facts, truths, and principles that have been learned throughout time.

Knowledge also comprises the skills one acquires through experience, education and training.

- Knowledge Technologies
- Knowledge Asset Management
- Knowledge Assessment and Evaluation
- Intellectual Capital Management
- Communities and Collaboration
- Culture and Communication
- Knowledge Operations
- Organizational Learning
- Knowledge Leadership and Strategy
- Knowledge Architecture

R&D Framework to Improve Transportation Information and Knowledge Management

When eating an elephant take one bite at a time.

Creighton Abrams

Information management addresses the intersection of business needs, content management, and technology. Too often we focus on technology to solve an undefined problem and expect the content to manage itself.

1. Strategic Information Management Policy and Practice
2. Information Technology & Architecture
3. Capture, Storage, Findability, and Retrieval
4. Distribution and Reporting
5. Human Elements

*Developed for SCOR
Needs to be a broadly owned concept*

NCHRP 2014 SCOR Approved Projects

There is no greater harm than that of time wasted.

Michelangelo

Enterprise information uses a unified approach, a common language, and linked structured and unstructured information resulting in deeper business insight and an engaged workforce.

- Guidance for Transportation Executives for Planning and Programming Information Management Investments (\$250,000)
- Improving Findability, Relevance, and Sharing of Transportation Information (\$500,000)
- A Knowledge Management Primer for Transportation Agencies (\$175,000)

**Findability
precedes usability.
You can't use what
you can't find.**

*Peter Morville,
Ambient Findability*

Prevent ROT:
Redundant, Out of
Date, Trivial
Information that
degrades the content
quality.

Everybody's issue

- We are all information users
- Many of us are information creators
- Many of us manage people and programs that collect, create, manage, or publish information
- Important to clarify roles and competencies for:
 - Clarification of information needs and priorities by **business units**
 - Application of **content management** best practices for the needed uses in the near term and long term.
 - Best **technology choices** (software, hardware, design) to meet business unit functionality and content management as well as integration into the existing systems and staffing

WSDOT Data & Information Principles

1. Data and information are critical to effective business decision making at WSDOT and shall be maintained in a manner appropriate to meet business needs.
2. Data and information are strategic, long-term assets – owned by WSDOT, not by individual business units. They are findable, retrievable, and shared.
3. Data and Information shall be collected once, stored once and used multiple times.
4. Data and information that is not used shall not be collected or stored.
5. Data and information that is used by multiple applications or shared across business units shall be defined and managed from an enterprise perspective and fit for a variety of applications.
6. Data and information investments will consider business priorities, program impacts, and trade-offs.
7. Data and information shall be managed to ensure availability, security and integrity—it shall be both safe from harm and accessible by those who need them.
8. Data and information governance, costs, and stewardship processes will be transparent.

Contact information

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AASHTO RAC TKN Task Force:

<http://research.transportation.org/Pages/TransportationKnowledgeNetworks.aspx>