List of Appendices

Reader-Friendly Writing, Graphics, and Document Tools

The Document Creator tool is no longer available due to compatability issues and budget constraints. Please use the Font Style Sheet in Appendix B to create your own templates.

Project Management Tools

References

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State Environmental Policy Act Rules. WAC 197-11-400 to WAC 197-11-610.

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WSDOT/FHWA/City of Seattle. 2004. *Draft Alaskan Way Viaduct Environmental Impact Statement*. March 2004.

WSDOT/FHWA *Draft SR 520 Bridge Replacement and HOV Project Environmental Impact Statement.*

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WSDOT Internal Communications Website. Accessed April 2007. wwwi.wsdot.wa.gov/communications/toolkit/.

Appendix A - Additional Resources

What information is contained in this appendix?

Appendix A provides you with resources you can use to help create reader-friendly environmental documents. The first resource is a list of additional writing, graphic design, and example reader-friendly documents. The second resource is a folio summarizing the four key reader-friendly principles.

**Washington State
Department of Transportation**

Additional Resources

Resources for Writing

1. WSDOT's Communications Website—available on the WSDOT internal website at http://wwwi.wsdot.wa.gov /communications/toolkit/. This site includes the *WSDOT Communications Tool Kit* and other resources that will help you write clearly.

2. *Planning in Plain English* by Natalie Macris. American Planning Association, http://www.planning.org.

3. Plain Language Action and Information Network Website, http://www.plainlanguage.gov.

4. *Style: Ten Lessons in Clarity and Grace* by Joseph Williams.

Graphic Design Resources

1. WSDOT's graphic design office can provide you with graphic design tips and support on your projects. You can contact them at (360) 705-7423. Additional information is available on WSDOT's internal website at http://wwwi.wsdot.wa.gov/communications /graphiccommunications/.

2. WSDOT's geographic information system (GIS) service department can provide you with training materials and GIS support on your projects. Contact Elizabeth Lanzer at (360) 705-7476 for more information.

3. Edward Tufte Website: http://www.edwardtufte.com/tufte/.

4. *The Visual Display of Quantitative Information* by Edward Tufte.

5. *Envisioning Information* by Edward Tufte.

6. *Visual Explanations: Images and Quantities, Evidence and Narrative* by Edward Tufte.

7. *Show me the Numbers: Designing Tables and Graphs to Enlighten* by Stephen Few.

WSDOT Environmental Documents

1. Vancouver Rail Project NEPA/SEPA Draft Environmental Impact Statement, February 2002.

2. Draft Alaskan Way Viaduct Environmental Impact Statement, March 2004.

Where can I learn more about WSDOT's Reader-Friendly Environmental Documents?

WSDOT Environmental Procedures Manual and The Reader-Friendly Toolkit:
The Reader-Friendly Toolkit is a companion document to the Washington State Department of Transportation (WSDOT's) Environmental Procedures Manual. You should use both the Toolkit and the manual when you prepare WSDOT environmental documents. The Environmental Procedures Manual provides you with WSDOT environmental guidance, and the Toolkit gives you specific tools you can use to make your documents easier to understand.

WSDOT Graphics Website:
The Washington State Department of Transportation Graphics Department has many tools available online for employees with access to the WSDOT Intranet. These tools can be accessed at: wwwi.wsdot.wa.gov/Communications/Graphics.

"Plain-Talk Writing" class information:
www.writewordsusa.com.

"Reader-Friendly Writing" class information:
email readerfriendlytraining@parametrix.com
or call (253) 501-1050.

Reader-Friendly Toolkit - online:
www.wsdot.wa.gov/environment/compliance/ReaderFriendly.htm

The Plain Language Action Network website:
www.plainlanguage.gov

Joseph M. Williams' book: *Style: 10 Lessons in Clarity and Grace*

Natalie Macris' book: *Planning in Plain English*
This book is available through the American Planning Association at:
www.planning.org

For more information: This folio provides an overview of WSDOT Reader-Friendly principles and efforts.
For more information, please contact:

Environmental Services Office
Special Projects Manager:

Kathleen McKinney
(360) 705-7304
mckinnk@wsdot.wa.gov

Environmental Services Office
Policy Branch Manager:

Carol Lee Roalkvam
(360) 705-7126
roalkvc@wsdot.wa.gov

Who needs to know about Reader-friendly concepts?

All Washington State Department of Transportation (WSDOT) staff, consultants, agency reviewers, decision-makers and the public.

When do we apply Reader-Friendly concepts?

The Reader-Friendly format should be used for all environmental documents, including EISs and EAs. It is not required for supporting documents such as technical memos and discipline reports.
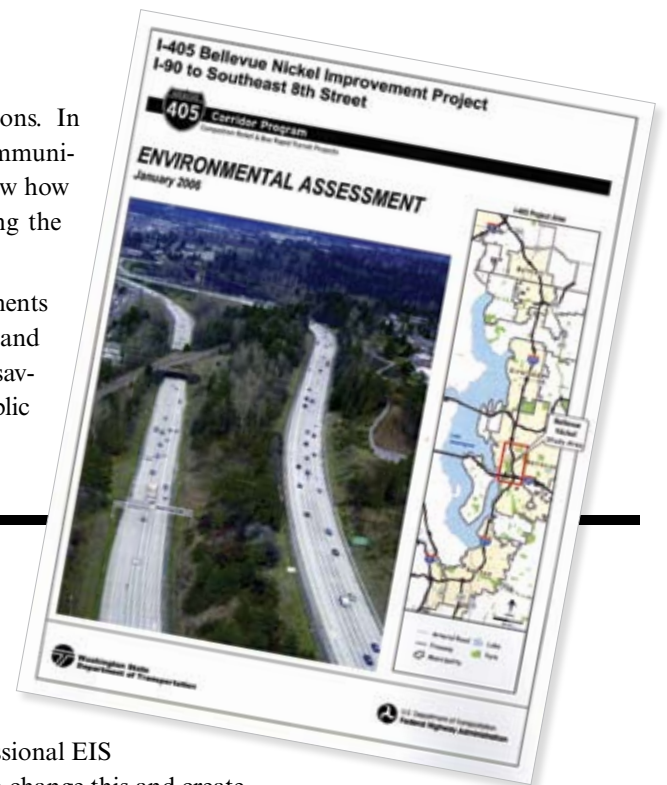

Reader-Friendly Documents

A new direction for communicating complex environmental issues

A New Direction

WSDOT is working to improve the quality of all documents and publications. In our project-level environmental reviews, we are trying to change how we communicate the results of technical analysis. We need our public documents to show how we propose to meet a transportation need while protecting and enhancing the surrounding land, water, and communities.

Our new, Reader-Friendly environmental assessments and impact statements have helped build public trust and have reduced frustration with over-sized and overly complex documents. It has also benefited the project teams in time savings with faster reviews, and by generating more constructive and concise public comments because the public has a better grasp of our proposals.

Why do we need Reader-Friendly Environmental Documents?

"The environmental documents we've been producing are written for professional EIS readers and attorneys and not for decision makers or the public. We need to change this and create documents that can successfully meet the needs of all the important audiences."
— Excerpt from the Reader-Friendly Toolkit

"User-friendly documents show our respect for people and their time. They are also good customer service. Clearly written documents make it easier for citizens to understand how to access service and the roles of all the parties involved.

Documents written in Plain Talk will include:

- Clear language that is commonly used by the intended audience;
- Only the information needed by the recipient, presented in a logical sequence;
- Sentences, written in active voice, that make it clear who is responsible for what;
- Layout and design that help the reader understand the meaning on the first try. This includes adequate white space, bulleted lists, helpful headings and other proven techniques."

— Governor's Executive Order 05-03: 'Plain Talk'

What are the KEY Reader-Friendly concepts?

1. Tell a Story

Environmental documents tell stories about proposed projects in the communities where we live, work and play. The graphic above was used to tell a story of why an existing state highway must be fixed. Proper use of graphics and the following tips help us create documents that tell a story:

- Write clearly and use simple language;
- Organize documents to tell a story;
- Explain the problem and why people should care; and
- Describe both the negative and the positive effects associated with the project.

2. Engage the Reader

Traditional Headings:	Reader-Friendly Headings:
Purpose and Need	Why do we need this project?
Project Termini and why they are logical	Where is the project located?
Social and Community Impacts	How would the project affect local neighborhoods and the people who live there?

Can an Environmental Impact Statement (EIS) be engaging? Yes! We can create an EIS that connects with people if we make the reader a character in the story, use question and answer headings, and avoid jargon.

Question and answer headings draw readers in and direct them to the information they are most interested in. These headings also give writers an opportunity to make NEPA-required topics more inviting to readers, as shown in the example traditional vs. Reader-Friendly headings above.

3. Make it Brief

Example: The draft EIS for the Viaduct project was 168 pages, twenty-five documents totaling 4,000 pages were in the appendix CD.

* It is essential to tell your readers where they can find the supporting material, for this we have developed cross-referencing tools.

Environmental Impact Statements (EISs) can exceed 1,000 pages, even though NEPA regulations state that in most cases, they should be less than 150 pages long (40 CFR 1502.7). To make it brief, the main document should focus on what is relevant to the decision, providing supporting materials for technical and legal reviewers in the appendices. Environmental documents can also be made shorter by using graphics to convey complex information.
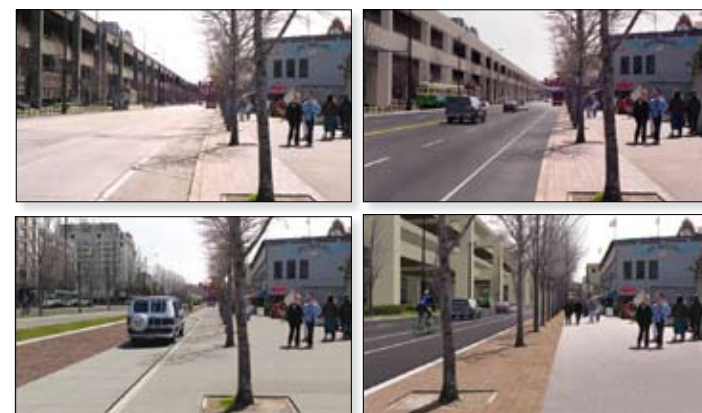
4. Make it Visual

Graphics are much more interesting to readers and can be more useful than plain tables or text. When using graphics and photographs in Reader-Friendly layouts, be sure that they are clearly labeled for reference.

One way that WSDOT uses graphics, is to highlight the differences between a set of alternatives - such as the streetscape design visualization shown above.

What are some of the challenges in making a document Reader-Friendly?

Write clearly and use simple language

Writing in a Reader-Friendly style takes practice. Your writing needs to be clear and your thoughts complete - using simple, and relevant language. Technically correct environmental documents are crucial. But they must be technically correct *and* well written.

Writing clearly and using simple language doesn't mean "dumbing information down." For years we have written environmental documents that are impersonal and vague because we thought that was how they were supposed to be. In many cases, environmental writers present a lot of information, analysis, and data, but they don't draw conclusions. Now we need to train ourselves to communicate more directly.

Writing clearly is a skill, and it takes work to do it well. You must think clearly before you can write clearly. Sometimes the reason environmental documents are difficult to understand isn't just because the writing is poor - sometimes the thinking is incomplete. If the author doesn't know what the analysis or data demonstrate, writing clearly is impossible.

Keep verbs active and make the doers of action the subject of your sentences. Keep your subject and verb close to each other in sentences. Your paragraphs and sections should be short. Keep technical concepts and terms relevant to the reader. In addition, it helps to have a clear direction to start from. That's where a well-thought-out outline will benefit writers, especially if it's written in a question-and-answer format.

Write your question headers with care

Creating appropriate questions for your headings is critical since they become the drivers for the content of the document. Once you create a question, make sure the first paragraph provides the question's answer. The questions help the writer get to the point and present the information that the reader needs to know instead of providing unnecessary information that can distract the reader.

Focus on layout

Use plenty of white space to make it easy for people to read your document. Refer to the Reader-Friendly Toolkit for proper fonts and formatting. The suggested fonts for the Reader-Friendly format were carefully selected to make the document easy to read. Your layout should be consistent, with sidebars always placed in the right margin. Text and graphics should be grouped together.

What would YOU rather read?

Traditional Writing

"Intersections that are projected to operate with especially long delays or overcapacity during the PM peak hour are identified as "congested intersections". These intersections are those that operate under LOS F conditions (average vehicle delay of greater than 80 seconds) or ICU greater than 100 percent. Congested intersections are further identified as "highly congested" if they exceed 110 seconds of average vehicle delay and have an ICU of great than 110 percent."

Notice how this paragraph talks about LOS, PM Peak, and ICU - meaningless terms to most readers.

Reader-Friendly Writing

"What are congested and highly congested intersections?

Congested intersections are intersections that cause drivers considerable delay. A driver might wait between one and two minutes to get through a traffic signal at a congested intersection. At a highly congested intersection, a driver might wait two minutes or more to get through the traffic signal."

This paragraph explains the same information as the traditional EIS paragraph only the reader can clearly understand the language and how they will be affected by the issue.

Appendix B - Format and Document Creator Instructions

What information is contained in this appendix?

WSDOT wants to create environmental documents that have a similar look and feel. WSDOT also wants to incorporate elements such as sidebars and white space to help make documents easier to read. To accomplish these goals, WSDOT is providing font and document styles for people to use when creating environmental documents using Microsoft Word. This appendix includes:

- Font style sheet for WSDOT environmental documents

- Example of font styles applied to a mock-up document

- Instructions on how to use the Document Creator

The font style sheet gives you the information you need to set up your Microsoft Word document so it looks like the *Reader-Friendly Document Tool Kit*. You can either set up your own template in Microsoft Word using these style specifications, or you can use a tool called the Document Creator, that already has the document styles set-up for you. It is your choice.

If you choose to use the Document Creator you **must read the instructions provided in this appendix before you use it**. If you are a WSDOT employee, you can access the Document Creator from your desktop. Instructions on how to navigate to the Document Creator templates are provided in this appendix. If you are a consultant or local agency, you can obtain a copy of the Document Creator by contacting WSDOT's Environmental Services Office. Please note - the Document Creator is a licensed product and it can only be used to create WSDOT documents.

The Document Creator tool is no longer available due to compatibility issues and budget constraints. Please use the font style sheet to create your own templates.

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Font Styles for WSDOT's Environmental Documents

Bullet

- Normal + Indent: Hanging 0.25", Bulleted, Tabs: 0.25", Automatically update

Caption Picture

Font: Arial Narrow, 8 pt, Italic, Expanded 0.6 pt, English (U.S.), Kern at 8 pt, Flush left, Line spacing exactly 12 pt, Space before 4 pt after 6 pt, Widow/orphan control

Chapter Heading

Font: Arial, 22 pt, Bold, English (U.S.), Kern at 22 pt, Flush left, Line spacing exactly 22 pt, Space before 72 pt after 72 pt, Widow/orphan control, Border: Bottom (Single solid line, Auto, ½ pt Line width), Border spacing: 1 pt

Chapter Summary

Normal + Font: Italic, Space after 16 pt

Exhibit Number

Normal + Font: Arial, 8 pt, Bold, Kern at 8 pt, Right 0", Line spacing at least 8 pt, Space after 0 pt

Exhibit Title

Exhibit + Font: 12 pt, Kern at 12 pt, Line spacing exactly 12 pt

Footnote Text

Normal + Font: Arial, 7 pt, Expanded 0.6 pt, Kern at 7 pt, Line spacing exactly 12 pt, Space before 3 pt

Header Text

Normal + Font: Arial, 8 pt, Kern at 8 pt, Right 0", Line spacing exactly 8 pt, Space before 6 pt after 12 pt, Tabs: 0.25", 6.25" right flush, 6.5" right

1 Heading 1 Style

Normal + Font: Arial, Bold, Indent: Hanging 0.25", Keep with next, Level 1, Numbered, Tabs: 0.25"

Heading 2

Normal + Font: Arial Bold, 11 pt, Bold, Line spacing exactly 14 pt, Space after 0 pt, Keep with next, Level 2

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Department of Transportation**

Heading 3

Normal + Font: Arial, 11 pt, Expanded 0.3 pt, Kern at 11 pt, Line spacing exactly 14 pt, Space after 0 pt, Keep with next, Level 3

1. List Number

Normal + Indent: Hanging 0.25", Numbered, Tabs: 0.25"

Major Heading

Normal + Font: Arial, 18 pt, Bold, Line spacing exactly 18 pt, Space before 12 pt after 9 pt

Margins

Top: 1.25". Bottom: 1". Inside: 1". Outside: 1".

Left Side (text and large tables): 4.25" wide.

Right Side (sidebar and photo area): 2" wide.

Normal Text

Font: Times New Roman, 12 pt, English (U.S.), Kern at 12 pt, Right 2.25" Flush left, Line spacing exactly 16 pt, Space after 8 pt, Widow/orphan control

Sidebar Heading

Font: Arial, 8 pt, Bold, English (U.S.), Kern at 8 pt, Flush left, Line spacing exactly 12 pt, Space before 6 pt, Widow/orphan control, Border: Top (Single solid line, Auto, ½ pt Line width), Border spacing: 1 pt

Sidebar Text

Sidebar Heading + Font: Times New Roman, 9 pt, Not Bold, Kern at 9 pt, Border: Top (No border), Bottom (Single solid line, Auto), Border spacing: 0 pt

Table Footnote

Table Text + Font: 6 pt, Italic, Expanded 0.6 pt, Kern at 6 pt, Line spacing exactly 10 pt, Space before 0 pt after 0 pt

Table Headings

Normal + Font: Arial, 8 pt, Bold, Expanded 0.6 pt, Kern at 8 pt, Right 0", Line spacing exactly 11 pt

Table Text

Normal + Font: Arial, 8 pt, Right 0", Line spacing exactly 12 pt, Space before 2 pt after 2 pt

Chapter 1 Chapter Heading

This document has been formatted using WSDOT's document and font styles for environmental documents. This text style is called chapter summary, and the chapter heading style is shown above. WSDOT has a tool called the Document Creator that will automatically set up your Microsoft Word document to look like this one. If you plan to create your environmental documents without using the Document Creator, please format them so they look similar to this document.

Major Heading Style

The major heading style should be used in cases when you need a heading to come before the heading 1 style. Heading 1 is the heading you should use for your main questions in your document. Look at the *Reader-Friendly Document Tool Kit* for additional examples about when Heading 1 should be applied.

Sidebar Heading Style

This is what your sidebar heading and text should look like. Also notice the lines at the top and bottom of the sidebar.

1   Heading 1 Style

Heading 1 is shown above. This text is the normal text style, and it is the style you will use most frequently throughout your document.

Heading 2 Style

Heading 2 is shown above. Normal text should also be used under the heading 2 style.

Heading 3

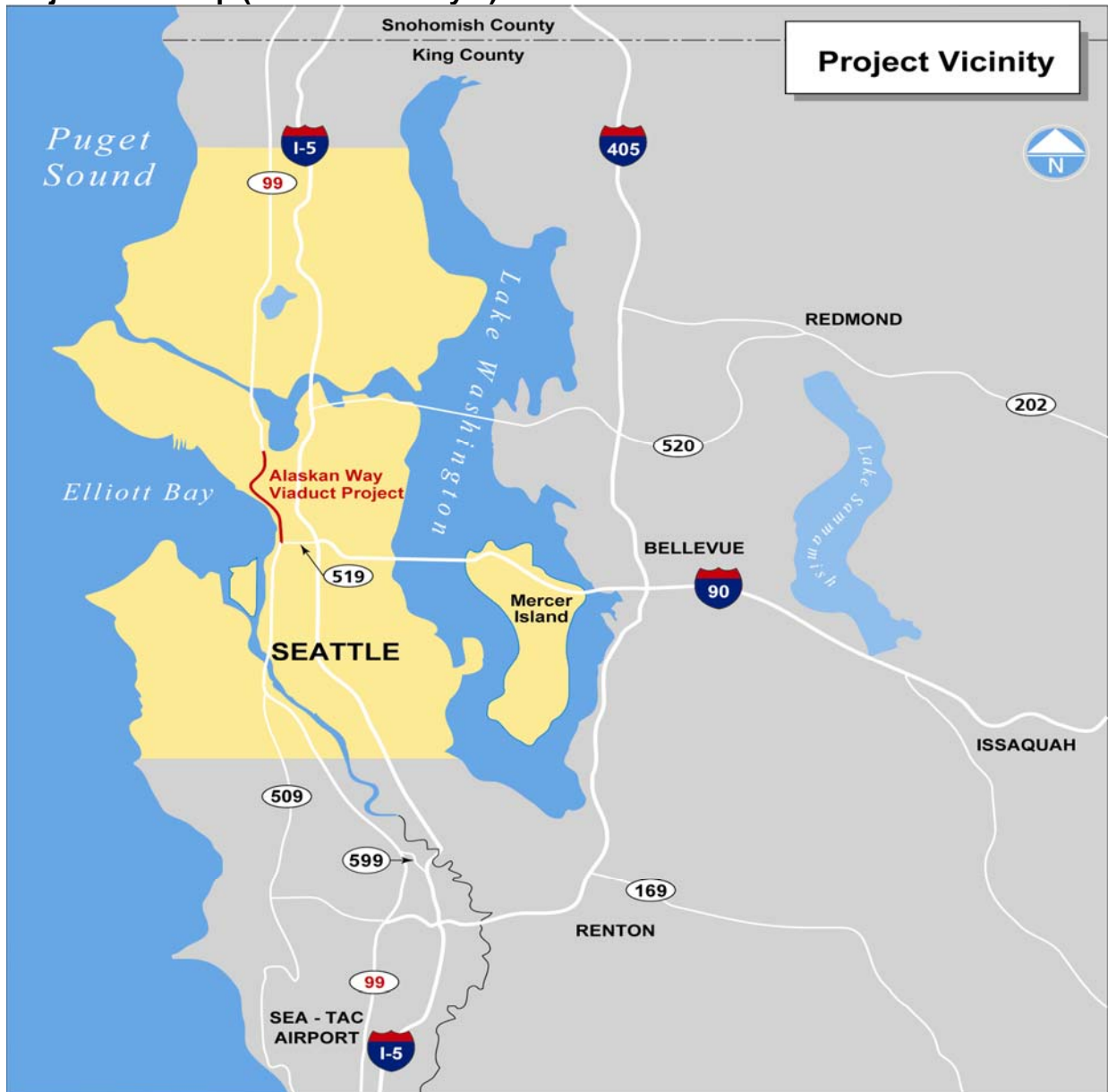Heading 3 is shown above. The map below shows you styles for exhibit numbers, exhibit titles, and captions. There are three places to put graphics: across the entire width of the page, on

the left side with most of your text, or on the right-side with sidebars.

Exhibit 1-1 (Exhibit Numbering Style)
Project Area Map (Exhibit Title Style)

Caption Picture Style – Captions should look like this

2   What heading style is this?

This is heading 1 again with a footnote reference[1]. The photos shown below span across the left-hand side of the document.

This is an example of how your graphics can be shown in the same area as your text.

Here is some more normal text for you to see how it looks like when you've got it surrounded by pictures and tables.

3   What should a table look like?

Format your tables to look like the one shown below. The table below shows you what a table looks like if it is located on the left side of your document. Bigger tables can stretch across the page, and smaller tables can be shown in the right-hand margin like the photo shown to the right.

Caption Picture Style - This is an example of a picture placed in the right margin. Make sure it's the same width as a sidebar

Exhibit 1-2
Table Title

Location (Table Heading Style)	Population	Average Household Size
Bellevue (table text style)	109,569	2.37
Kirkland	45,054	2.12
Bridle Trails	10,689	2.24
Northtowne	5,705	2.12
Lakeview	2,583	1.64
Bel-Red/Northup	2,438	2.20

Table Footnote Style: Table footnotes look like this

[1] Footnote Style: Author Surname, Author First Name. *Title of Publication*, Date.

4   What bullets and numbers look like?

Bullets and numbering within the text should look like this:

- Here is bullet number 1

- Here is bullet number 2

If you need to create a numbered list it should look like this:

1. This is the first item listed

2. This is the second item listed

This is more of the normal text style.

Document Creator Instructions

Understanding Document Templates

What is the Document Creator?

The Document Creator is a series of automated document templates created to make it easier for you to create well-designed WSDOT environmental documents using Microsoft Word. A document template defines the layout and appearance of a document. Templates contain document settings such as page layout and margins and predefined styles for text and headings. Templates can be programmed to automate processes so it is easier for people to create and format Microsoft Word documents.

The Document Creator provides customized document templates that automate page layout and formatting to help you save time. For example, the Document Creator automatically sets up your document's fonts and headings, page and exhibit numbering, sidebars and tables, and it has even been programmed to automatically generate an acronyms list and table of contents.

The Document Creator is set up to create two different types of WSDOT documents: a complete EIS, EA, or discipline report that matches the format of the *Reader-Friendly Document Tool Kit*, or a short, simple document such as these instructions.

Why should I use the Document Creator?

Using the structure provided by the Document Creator will save you time. The layout and text styles are already set up, so you will not have to determine what fonts to use, what your headings will look like, etc. The Document Creator will make it easy for you to add reader-friendly elements to your documents, such as sidebars, tables, and graphics. The Document Creator also takes the guesswork out of complicated tasks such as generating a table of contents. It will take you a little time to get familiar with the Document Creator, but once you learn how to use it, it will make your work easier.

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When can I use the Document Creator?

The Document Creator is a licensed product and it can only be used to create WSDOT documents. If you are a WSDOT employee, you can access the Document Creator from your desktop – instructions are provided later in this document. If you are a consultant or local agency, you can obtain a copy of the Document Creator from Environmental Services. If you are not working on a WSDOT project, but you want to set up your own document that looks like the *Reader-Friendly Document Tool Kit*, you may use the font style guide provided in Appendix A of the *Reader-Friendly Document Tool Kit*.

Where can I get a copy of the Document Creator?

Contact Environmental Services Office at (360) 705-7483 to get a copy of the Document Creator.

Do I have to use the Document Creator?

You do not have to use the Document Creator to create WSDOT environmental documents. However, WSDOT staff and consultants should be using the font and document styles provided in Appendix A of the *Reader-Friendly Document Tool Kit* to create EISs and EAs. You may use the Document Creator or the styles to create discipline reports and technical memos, but it is at the project team's discretion.

The Document Creator does have limitations. Microsoft Word is not designed to be a graphic layout program. So, it is not designed to handle extensive graphics or graphics that have large file sizes. This is something you should consider as you determine what software you will use for your documents.

What types of templates have been created as part of the Document Creator?

A set of templates has been created to use for documents such as an EIS, or EA. Another template has been created for simple handout documents.

The set of templates created for technical reports includes:

- Front Matter (title page, fact sheet, etc.)

- Report Chapters (main chapters of the document)

- Back Matter (list of preparers, references, etc.)

▪   Table of Contents (TOC) and Acronyms

You will need to use all four of these templates to create an environmental report such as an EIS, or EA. All of these templates are programmed to work together to generate a table of contents and acronyms list.

The handout template is similar to the document template but has fewer features. It is *not* designed to create a full technical document with several chapters, front, and back matter. The handout template should be used for shorter reports, such as these instructions, that don't require multiple chapters or a table of contents.

Using the Document Creator templates

How do I get started?
Before you can get started, you need to be familiar with the Menu bar and the Formatting toolbar in Microsoft Word. You will need to know where these toolbars are located in order to follow the instructions provided.
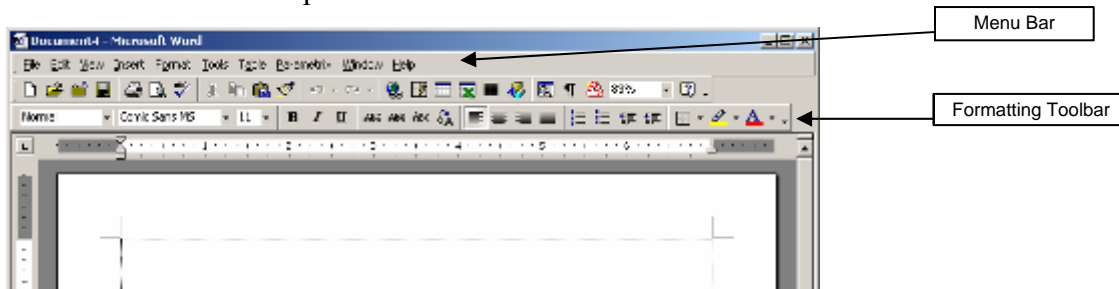
Toolbars

If you don't see the Formatting toolbar on your screen, select View/Toolbars from the menu bar and make sure both of the top two toolbars—Standard and Formatting—are checked. If neither is checked, you'll need to select them one at a time. Now Word's default toolbars should appear on your screen.

How do I get the templates on my computer?
Next, you need to load the document templates onto your computer.

WSDOT Computers

If you are working on a WSDOT computer, the templates will already be available to you on WSDOT's server. However, you will need to tell Word where to find them by setting a "Workgroup Template" location.

1. Select Tools/Options from the Word menu (you must have a document open or a blank document on the screen).
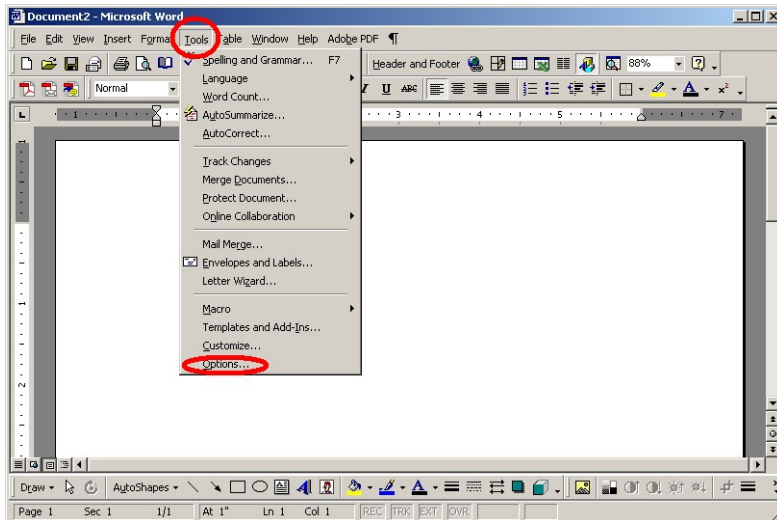
2. Click the "File Locations" tab in the Options window. Select the line that says "Workgroup templates" and then click the "Modify" button.
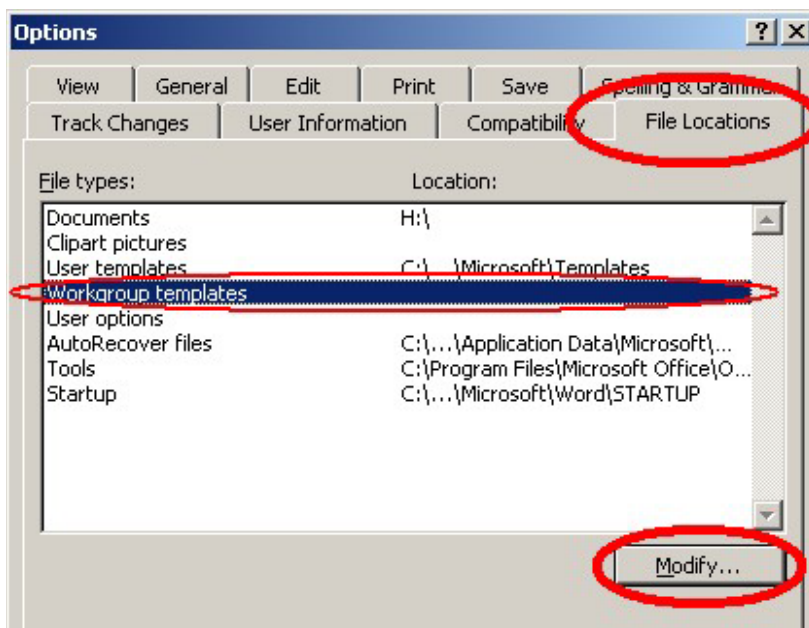
3. Navigate to the folder W:\DOTApps\Reader_Friendly. (The W:\ drive is mapped to different "Corporate on…" servers in each region, but the folder structures are the same for the folder you need here.) HINT: You won't actually open the folder named "Reader Friendly."

4. Then click OK, then OK again.

You have now told Word where to find the templates. You won't have to do this again unless you get a new PC.

Non-WSDOT Computers

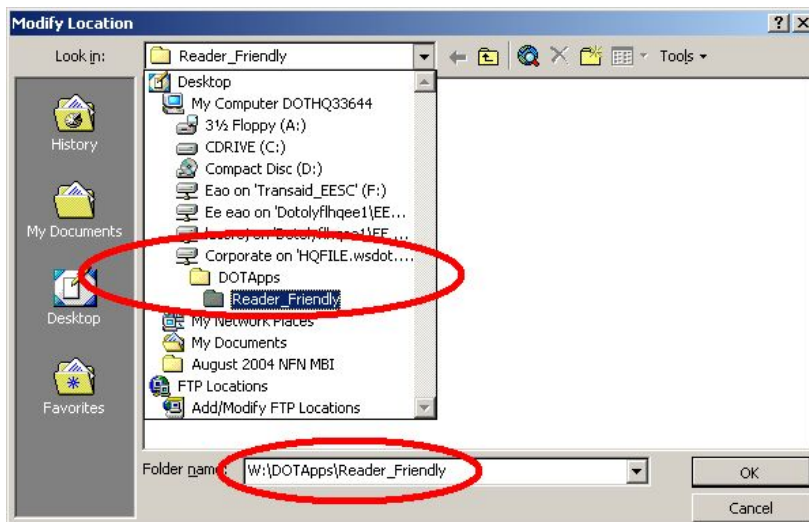If you are going to use these templates on a single computer, you will need a copy of the Document Creator installation CD. Close all of your open programs and put the CD in the drive. Follow the instructions on the screen, and the templates will be copied to your system. Then skip to the next section, "How do I handle the macro security warning?" (If Autorun is disabled on your computer, you will need to manually run the Setup.exe program on the CD.)

If you need to install the templates on a server for access across a local or wide area network, please contact your Network Administrator. The files in the "Document Creator" folder on the CD will need to be copied to a folder named "WSDOT Reports" in your Word workgroup templates area. The location

of this folder can be found in Word's Tools/Options/File Locations dialog.
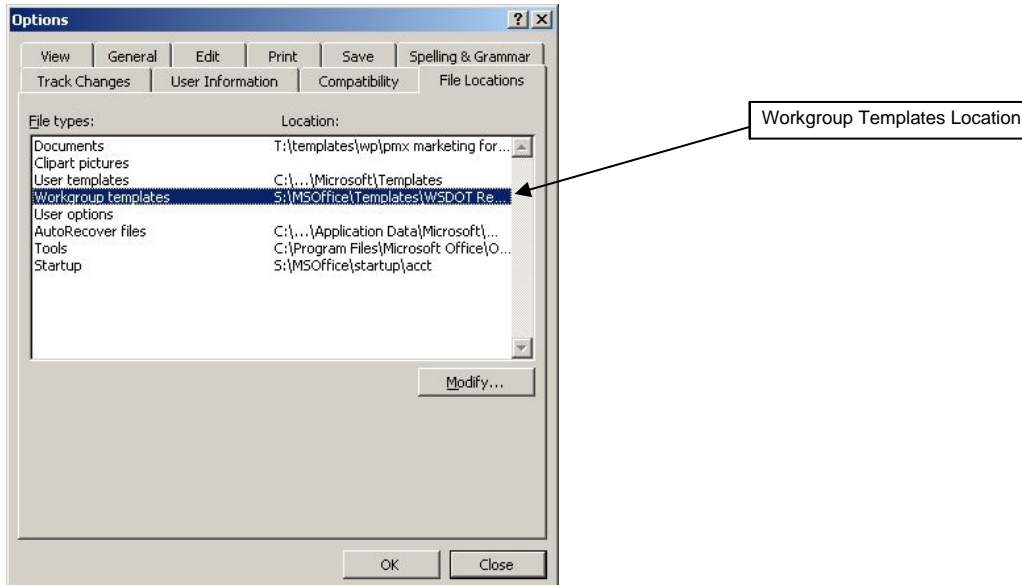
How do I handle the macro security warning?

Depending on your Word version and your security settings, the first time you open one of these templates, you may see a "Security Warning" dialog box similar to the one below.

Check the "Always trust macros from this source" option and click the "Enable Macros" button. This dialog box will only appear the first time you use one of the templates.

How do I use the templates?

Once the templates have been installed on your computer, open Microsoft Word. Select File/New from the menu. Click on the "WSDOT Reports" tab in the File/New dialog.
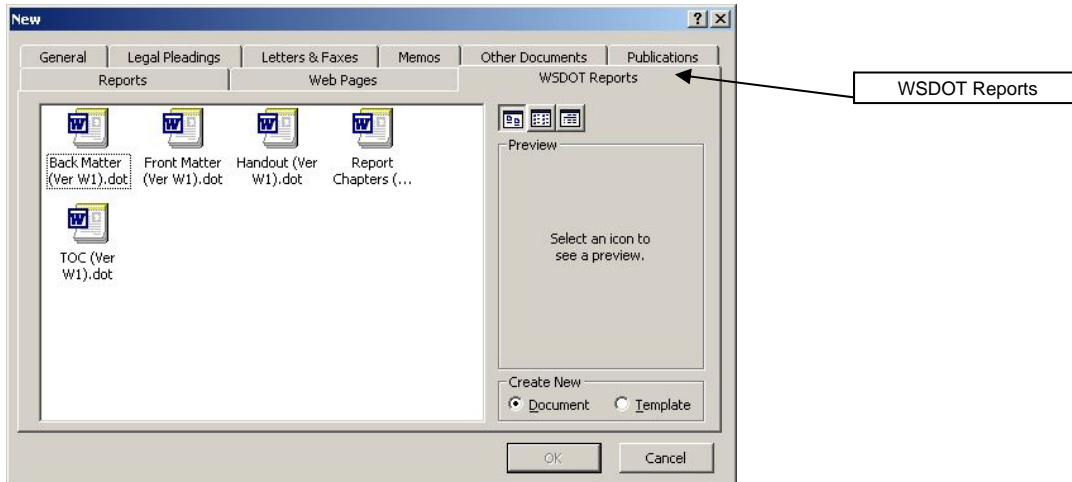
There are five templates located in this folder, four used for creating reports and one for creating handouts. Select the file you want to use. To get a feel for how these files work, select the "Report Chapters" file.

When you first select any of these templates, an opening dialog box will be displayed. Fill in the boxes with the required information.
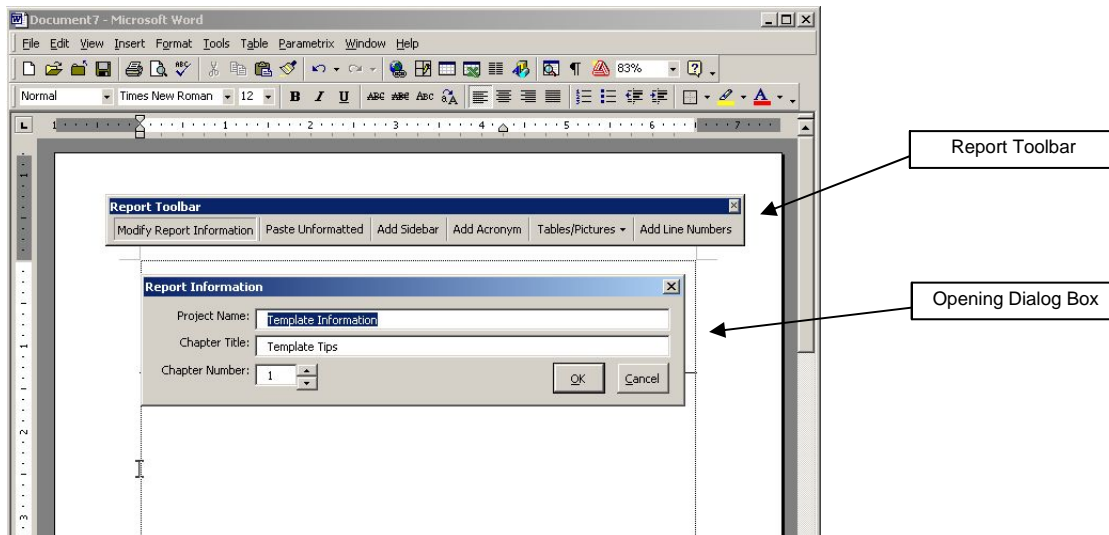
For our demo, use the following information to complete the "Report Information" dialog:

Project Name: **Template Information**
Chapter Title**: Template Tips**
Chapter Number: **1**

Once you fill in the report information and click OK, the text will automatically show up in your document as shown below.
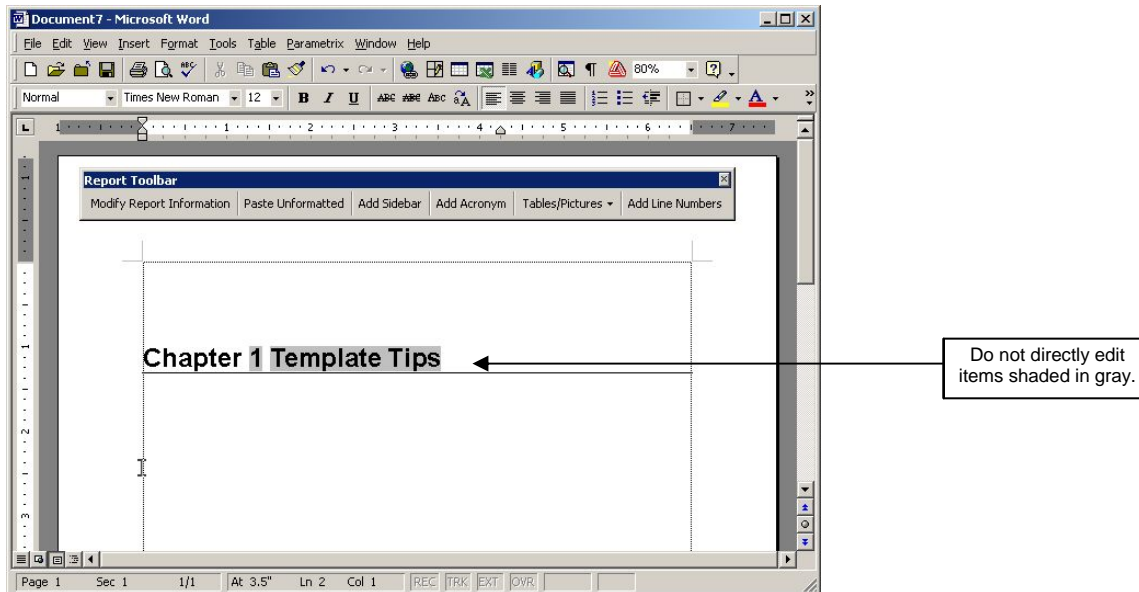
Report Information and Gray Highlighting

Notice that the chapter number and title are highlighted in gray. These elements are only highlighted in gray on your screen; they won't be highlighted when you print the document. The gray highlighting is provided as a reminder to you that you should *not edit this text directly*. If you need to edit elements highlighted in gray, such as the project name, chapter title, or chapter number, click on the "Modify Report Information" button in the report toolbar and edit the information there. This will ensure that the data will be correctly updated throughout the document wherever it is used, including headers and footers.

If you edit the text directly, you risk accidentally changing the programming code that surrounds these elements. The

programming code is what is going to help you automatically generate a table of contents. If this code gets altered or lost, the table of contents will not be generated properly.

What are styles and how do I use them?

In Word, applying a style to a paragraph applies a group of formatting options—such as the font used, spacing, size, and alignment—all in one step. One way to select a style is to choose it from the drop down menu located on the formatting toolbar at the top of your screen.
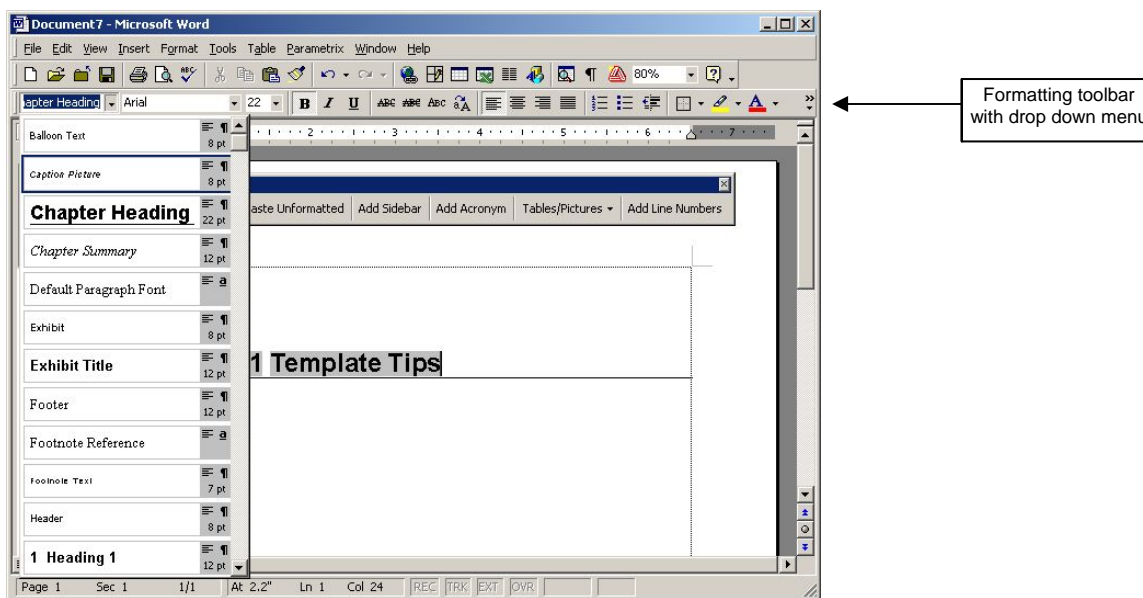
Selecting Styles

A quicker and easier way to select styles is to use the shortcut keys that have been added to the Document Creator templates for your convenience. To see how a shortcut key works, simply hold down the "Alt" key and hit the number "1." This will show you the heading 1 style as shown below:

1   This is Heading 1: to return to normal text, hit "Enter"

This is the normal text style. To apply the normal text style, hold down the "Alt" key and press the letter "n."

- ▪ If you would like to add bullets, hold down the "Alt" key and press the letter "b".

5. If you would prefer to add numbers, hold down the "Alt" key and hit the letters "ln" (this stands for <u>l</u>ist <u>n</u>umber)

Alt+**2** = Heading 2 Style

This is what the Heading 2 looks like

Alt+**3** = Heading 3 Style

This Is What Heading 3 Looks Like

Alt+**mh** – <u>M</u>ajor <u>H</u>eading Style

This is a major heading.

The example below shows a situation where the major heading would be appropriate to use.

Built Environment (Major Heading)

2   How will the project affect air quality? (Heading 1)

Notice that Heading 1 is numbered. In this case, this is the second time Heading 1 has been used. The "Report Chapters" template will automatically number text entered using the Heading 1 style, and these numbers will show up in the table of contents. Heading 1 is numbered so you can easily refer to other sections of your document.

Also note that the "Report Chapters" template provides you with five headings:

- ▪ Chapter Heading

- ▪ Major Heading

- ▪ Heading 1

- ▪ Heading 2

- ▪ Heading 3

If you are using the Document Creator templates, it's important that you plan your document to have no more than the five

heading layers within each chapter. You will need to outline and organize your documents to fit within the heading structure provided. There really isn't any reason why any document, including a complicated document should require more headings than what is provided in the "Report Chapters" template.

A complete list of shortcut keys for the templates is located at the end of this document. Please note that these shortcuts were created for use in the Document Creator templates. They will not work in other Word documents.

How do I restart list numbering?

If you use the List Number style in more than one location in a document, you may need to restart the numbering. To do so, put your cursor in the first incorrect list number item and select Format/Bullets and Numbering from the menu.

Select the "Restart numbering" option and then click OK.
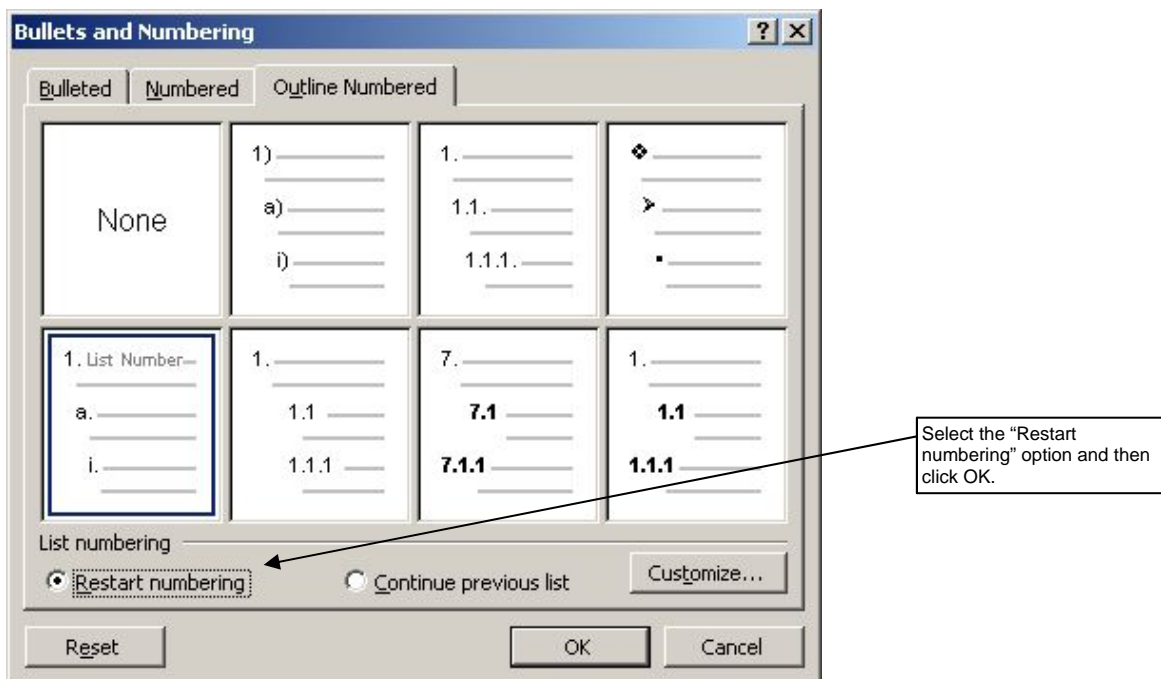
In the "Bullets and Numbering" dialog box, you will see two options for changing your List numbering. Select the "Restart numbering" option to restart your numbering at one. If you should need to continue numbering (which happens sometimes if you are copying and pasting from another document), select the "Continue previous list" option. Then click OK.

How do I create a Sidebar?

To create a sidebar, click the "Add Sidebar" button on the report toolbar. Notice how this feature automatically places a textbox in the margin. You can now type directly into the sidebar. It's okay to move your text box up or down on the page, but don't move it right or left. If you move it to the left, it will interfere with the main text of your document; if you move it to the right your margin will be too small.

You may find it easier to move the sidebar to the correct location if you hold the Alt and Shift keys down while you drag the sidebar with the mouse. This key combination will override Word's "snap to grid" feature if it is turned on.

You can also use Ctrl-Up Arrow or Ctrl-Down Arrow to nudge the Sidebar up or down just a smidgeon at a time.

The "Sidebar Heading" and "Sidebar Text" styles will be applied automatically as you type.

Sidebar

This is an example of a sidebar. The size and placement of the textbox may be adjusted up and down, but the right and left sides must not be changed.

How do I create a table?

You create text tables and insert graphics from the same menu. To add a table to your document, select the "Tables/Pictures" button on the Report Toolbar and scroll to the "Add a Table" item. You have many options in this menu.

Add a Table

TYPE OF TABLE
○ Picture Table   ● Text Table

PLACEMENT OF TABLE
○ Span full width of page
● Restrict to width of text in left column
○ Fit in right margin

If you are unsure of the number of rows you need, you can add additional rows as you type. Each time you hit TAB from the last cell in the table, another row will be added.

Do NOT include exhibit title or footnote rows in your row count.

OPTIONS
☑ Include exhibit title area
☐ Include picture caption area
☐ Allow multiple captions
☐ Include footnote area

SIZE OF TABLE
Number of Columns: 3
Number of Rows: 4
Number of Header Rows: 1

[OK]   [Cancel]

Select the type of table. To add a regular table to your document, select "Text Table."

Use this section to specify options for your table. Only choices appropriate for the type of table you've selected will be available.

Choose where you would like your table to be placed.

Select the number of rows and columns needed. Do not include header rows and exhibit title or footnote rows in the count for "Number of Rows."

First determine the type of table you want, either picture or text. Then you need to determine where you want the table to be placed. The menu gives you three choices:

1. Span full width of page.
2. Restrict to width of text in left column.
3. Fit in right margin.

For purposes of our demo, select "Text Table." If you want to insert a large-sized table that spans both the text area and the space in the right margin, select "Span full width of page." If you want to insert a smaller-sized table that fits within the text margins, select "Restrict to width of text in left column." A very small table can be placed in the right margin.

In the Options section, you can make specific choices about items you wish to include in your table. If you select "Include exhibit title area" your table will be numbered and you will be able to give it a title. If you don't check this box, your table will not be numbered and it won't have a title. If you select "Include footnote area" your table will include an area for you to put footnotes. Notice that some choices are not available to you depending on the type of table you are creating.

Next, you need to fill in the number of columns and rows you need for your table. When you fill in the number of columns and rows you need, do not include "Header Rows"– these rows will automatically be provided.

Once you've filled in this information, click "OK" and your table will automatically be created and formatted. All you need to do now is insert the text/data into your table and adjust the column widths as necessary. If you checked the "Include exhibit title area," option, you will be prompted to add a title. Go ahead and name your table and click "OK".

How do I insert graphics and photos?

The instructions you must follow to insert a graphic are similar to the instructions above for inserting a table. You need to insert your graphics in a table cell in order to properly place them in your document. The template will make this task easy for you.

To add a picture table, select "Tables/Pictures" on the Report Toolbar and scroll to "Add a table."

Select the type of table. To add graphics to your document, select "Picture Table."

Use this section to specify options for your table. Only choices appropriate for the type of table you've selected will be available.

Choose where you would like your table to be placed.

Select the number columns needed, one for a single graphic, more for side-by-side graphics such as 2 side-by-side photos.

This time, select "Picture Table" and determine where you want your picture table to be placed.

Next make your choices from the Options section. If you want to include a caption, select the "Include picture caption area" option. If you are inserting multiple graphics (see next paragraph) and you want separate captions for each one, select the "Allow multiple captions" option.

In the "Size of Table" section, you will only be able to enter the number of columns. Leave the default (1 column) if you are only adding one picture or graphic, or change the number if you are inserting two or three pictures side-by-side as in the sample shown below.

Once you click OK, the table will be inserted as specified. To add your picture, put your cursor in the first empty row and insert your picture either by selecting Insert/Picture/From File

from the menu or by copying and pasting the image from another program. If you have multiple pictures, insert one in each cell in this row. If appropriate, type your caption(s) in the bottom row.

This is an example of side-by-side photos. Each photo has its own caption.

If your picture is larger than the space available, it will be reduced appropriately. If it is smaller, it will be inserted at full size. You can size the picture if necessary using the sizing handles on the corners of the selected image.

Please note, this behavior may be different in some versions of Word. If your picture does not size automatically, you will need to manually adjust its size and the height of the table row.

How do I label and number exhibits?

Under normal circumstances, tables and figures should both be labeled as exhibits in your documents. Exhibit titles will be created automatically and included in the table of contents *unless you uncheck* the "Include exhibit title" option in the "Add a Table" dialog box.

How do I create page numbers in my document?

You don't need to do anything to create page numbers in your document. The page numbering is automatically set up.

What does the "Format a Table" menu choice do?

The "Format a Table" macro will attempt to modify an existing table copied from another document and format it to look the same as the tables created with the "Add a Table" macro. It is limited in its scope, however, so it is recommended that you use it with fairly simple tables only. Even then, you may need to do some formatting manually. In most cases, it is

recommended that you recreate tables from other sources from scratch.

How do I create an Acronym and generate the Acronyms list?

If you follow the instructions in this section, you will be able to automatically generate a list of acronyms used throughout the multiple chapters/files of your report. If you choose not to use this feature, that is okay, but it means you will need to keep track of the acronyms you use and you will need to generate your own acronyms list by hand.

To use the acronyms feature, the first time you use an acronym, type out the full name followed by the acronym in parentheses. For example, Washington State Department of Transportation (WSDOT). Then select the full name and the acronym in parentheses and click the "Add Acronym" button in the report toolbar or use the shortcut key, Alt+A.

When you add the acronym you will see a bunch of code surrounding the acronym. These codes are needed by Word to generate the list in the table of contents. They are formatted as hidden text and will not be printed. Do NOT delete them.

Once your document is completed, you will need to generate the table of contents and the acronyms list. This is a very simple task that is explained in detail later in this document.

What is the front matter and how do I use this template?

The front matter template was created to make it easy to create a cover for your document and other miscellaneous items that are required in NEPA and SEPA documents. The template for the front matter includes:

- A title page.

- Americans with Disabilities Act/Title VI information.

- National Environmental Policy Act (NEPA) signature/cover sheet.

- State Environmental Policy Act (SEPA) fact sheet.

If you are creating a discipline report or a report that doesn't require the NEPA cover sheet and SEPA fact sheet, you can remove them by unchecking the boxes on the opening dialog box (see below). The cover sheet and fact sheet are set up with the outline of what is required per NEPA and SEPA regulations, so all you need to do is fill in the information.

Front Matter – Title Page

If you are not sure you will need the cover sheet and/or fact sheet, *leave them in.* You can remove them later by selecting the "Modify Report Information" button on the Report Toolbar. Once they are gone, however, you cannot add them back in again. You would need to completely recreate the front matter document.

As you add data to the front matter, you will see that some items are highlighted in yellow (see below). These are "click once" fields. One mouse click will select the field and your typing will replace it with the information required. The highlighting will be automatically removed.

Front Matter – Signature/NEPA Cover Sheet
 "Department of Ecology" has been entered to replace "Insert text here" placeholder.
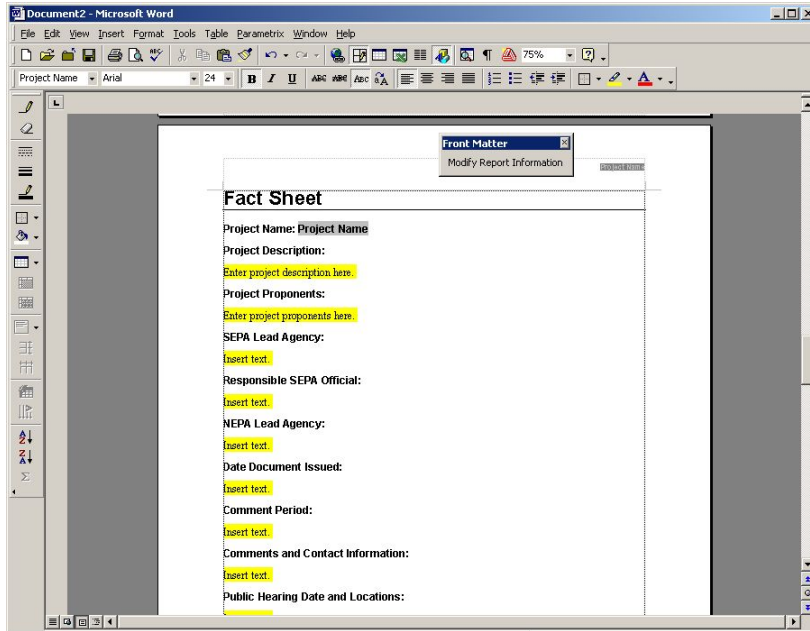
Front Matter – SEPA Fact Sheet

What is the back matter and how do I use this template?

The back matter includes pages for other items often required in NEPA and SEPA documents including the list of appendices, list of preparers, references, distribution list, and index. Each has the formatting already set-up for you.
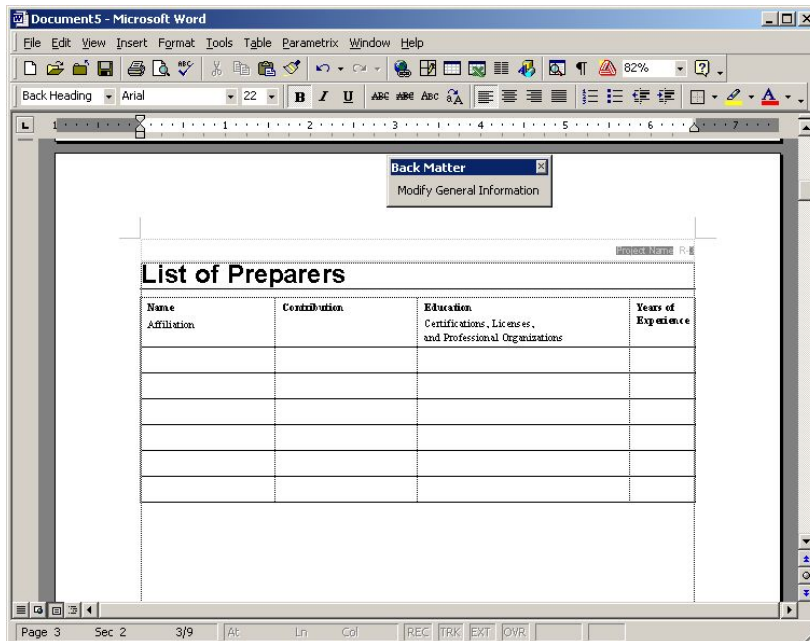
Back Matter – List of Preparers Sheet

How do I generate a Table of Contents and Acronyms List?

Now you know how to use three of the four templates created to help you create an environmental report. The final step is to generate the table of contents and the acronyms list. The TOC template has been programmed to automatically generate a table of contents from a document that is separated into multiple files. For example, if your document includes twelve files: the front matter, ten separate chapters, and back matter – the TOC template will generate a table of contents and acronyms list encompassing all twelve files.

To correctly generate the table of contents using the TOC template, you must follow some simple rules.

1. You must save all the files that make up your document in a single folder. This folder cannot contain other files, such as photos, backup copies, etc.

2. You will need to name your files with a system that sorts them in their proper order.

For example, if your document contains front matter, two chapters, and back matter you need to develop names for your documents so they sort in the order you want them to appear in the table of contents. To have your documents ordered properly, you could name them as follows:

    00Front Matter
    01Chap - Your Title
    02Chap - Your Title

If you name each chapter with a number first (using leading zeros as necessary), followed by its name, the chapters will sort in order. Since the Front Matter needs to come before Chapter 1; it is best to give it a double zero prefix so it sorts in the correct order.

Materials that are located after the last chapter could receive an alphabetical letter followed by a space or hyphen. This will enable the back matter to be ordered properly.

    A - Back Matter

You can use any system you prefer, as long as the documents sort correctly when alphabetized.

Once your files are properly named, you are ready to generate a table of contents and acronyms list. From the File/New menu, select the "WSDOT Reports" tab and then choose the "TOC" template. At the prompt, insert the name of the document and click "OK". Instructions will appear on your screen that tell you what do to.

Until you are familiar with the templates, always read all of the instructions included on the dialog boxes.
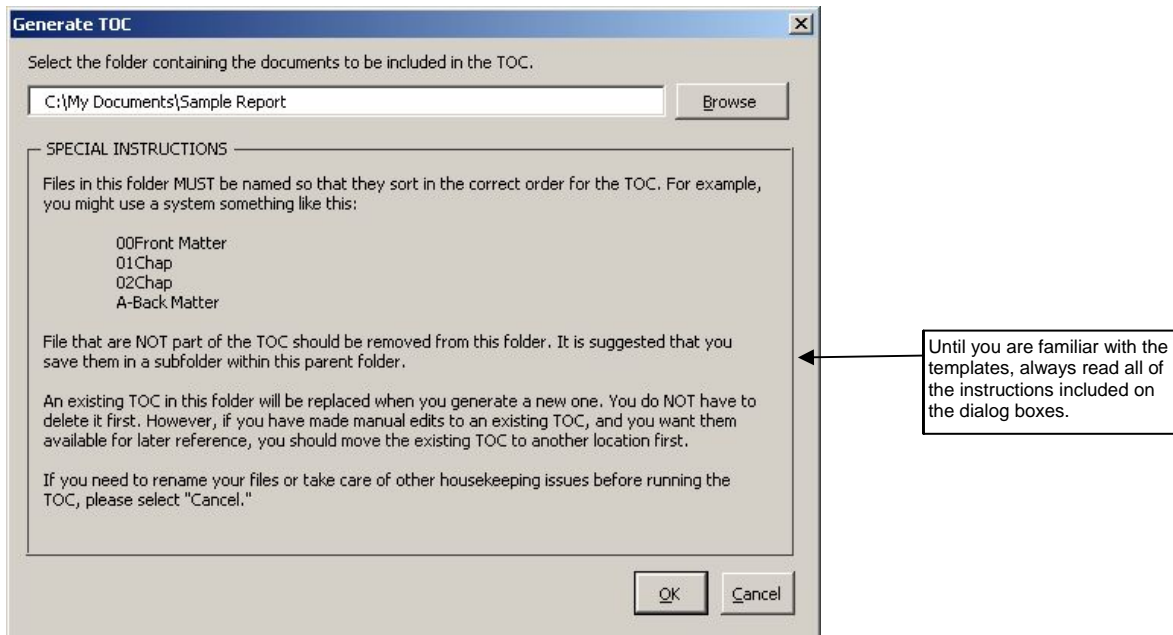
Read the TOC directions carefully until you are accustomed to all the requirements for generating a table of contents.

After you finish reading the instructions and have made sure you named and organized your files properly, browse to the folder where your files are located and click "OK". A table of contents and acronyms list will be generated for your entire document (i.e., it will generate a complete table of contents for all of the files saved in the same folder!).

Once the table of contents and the acronym list is generated, the TOC file will automatically be saved in the same folder as the other components of your document. *Don't rename this file.*

Just let the computer do its magic and there will be nothing more for you to worry about.

If you need to update your table of contents and acronyms list, you will need to repeat the instructions listed above. The original file will automatically be replaced with the new one. If, for some reason, you wish to maintain a copy of the original, you will need to make a back-up copy in another location.

What if I need to split a chapter into multiple files?
The TOC macro can handle multiple files for the same chapter, but you will need to carefully follow several additional steps.

1. First, you will need to name your chapters in such a way that they will still sort sequentially. For example, you could name your files 01 Chap, 02 Chap, 03 Chap, 04A Chap, 04B Chap, 04C Chap, 05 Chap. In this example, Chapter 4 has been split into three sections.

2. Then, in each section after the first, you'll need to turn off Word's "Different First Page" option. Go to File/Page Setup, select the "Layout" tab, and uncheck the box.

Uncheck the "Different first page" option in sections two and following for multiple-file chapters.
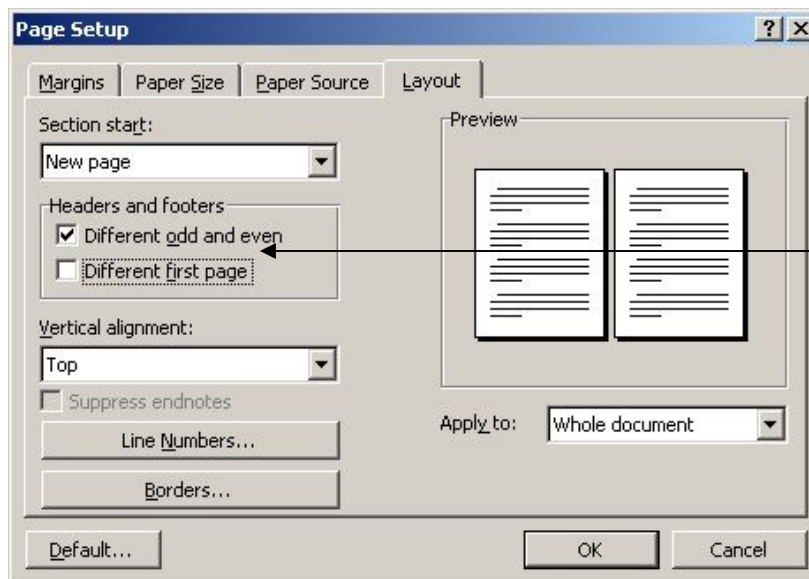
3. Next, you'll need to restart the page numbering to the correct number for each section. For example, if the last page of the first file is page 12, you'll need to change the

starting page in the second file to 13.

To change the starting page number, select Insert/Page Numbers from the menu and click the "Format" button.
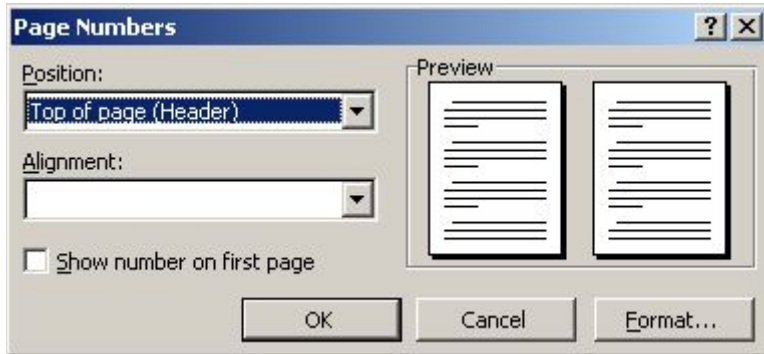
In the dialog box that appears, change the "Start at" page to the correct number based on the ending number of the previous section and click OK. (You will want to do this after all current editing has been finished.)

Do NOT check the "Include chapter number" option. Although page numbering in reports includes chapter numbers, it is done through a different mechanism.

"Start at" option to change starting page number.
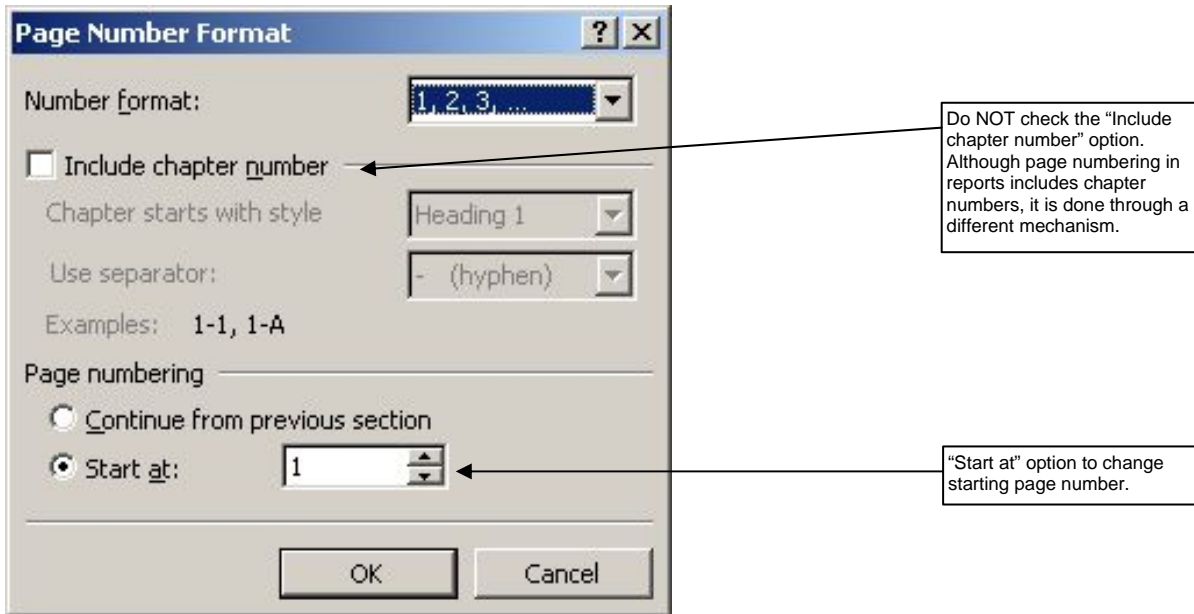
4. You will also need to reset the Heading 1 numbering to the correct number. If the last Heading 1 in the first file was number four, you'll need to set the first heading in the next section to number five.

    With your cursor in the first Heading 1 in the file, select

Format/Bullets and Numbering from the menu. Click the "Customize" button.
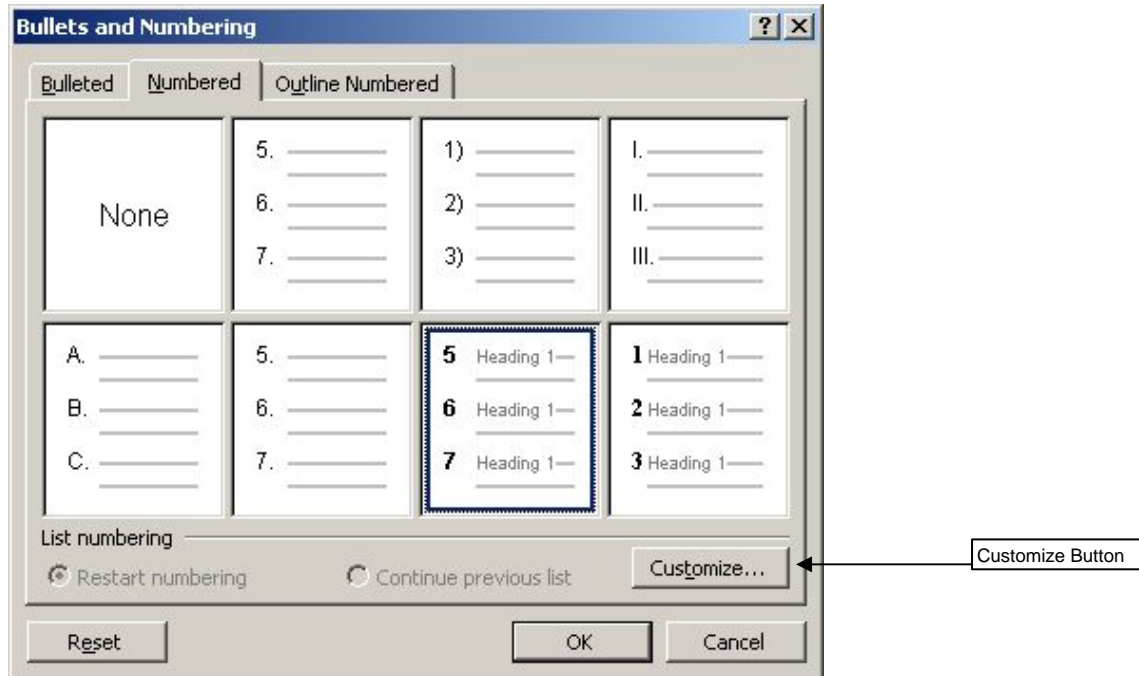
Change the "Start at" number in the "Customize Numbered List" as appropriate based on the last Heading 1 in the previous section (file) and click OK.
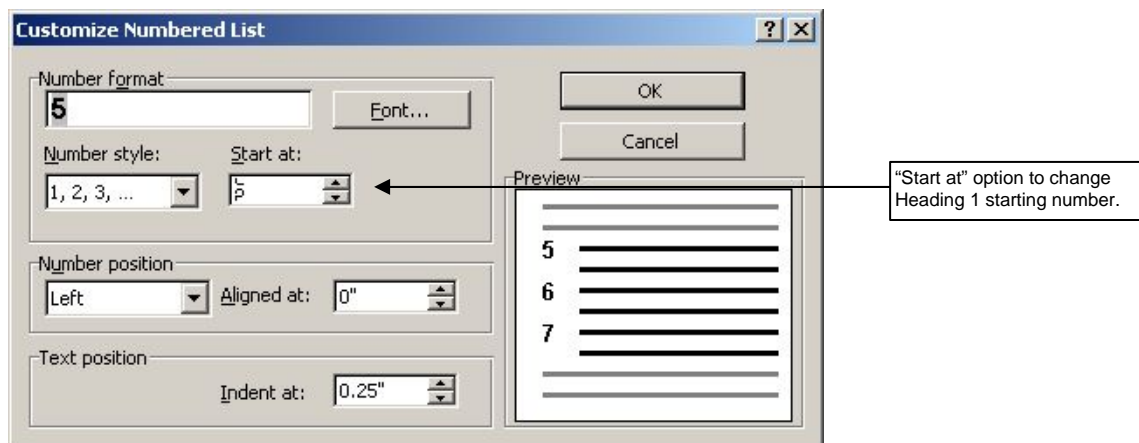
If you make these four changes to each section as appropriate, and modify the settings as necessary when additional edits are made, your TOC will continue to generate correctly.

How do I use the handout template provided?

Congratulations, you now should have a good understanding of how to use the WSDOT report templates, including the templates for Report Chapters, Front Matter, Back Matter, and the TOC. The other remaining template is the WSDOT Handout template.

The WSDOT Handout template works similarly to the WSDOT Report Chapters template. The only difference is that it is designed for short papers that don't require chapters, a table of contents, back matter, and front matter. You select it from the same File/New menu as the other WSDOT templates. It is intended to be a stand-alone document. You use the same shortcut keys for the handout as you do for the other templates (except for those which are not part of the Handout process). The shortcut keys are listed at the back of these instructions.

Other Helpful Tips

How should I copy my document?

The report template and the handout template have been designed to be copied and/or printed as double-sided documents. This means you must copy your document as a double-sided document. The page numbers (in the header) are set up only for double-sided copying.

Avoid file corruption! How must I cut and paste text?

If you are copying and pasting text from another document into the template document, it is highly recommended that you use the "Paste Unformatted" button from the Report Toolbar (see above) to avoid corrupting your file. If you don't cut and paste using this method, your document may become corrupted because the styles from the originating document will mix with the styles in the template. However, if you paste the text using the "Paste Unformatted" button, you can then apply the correct styles/formatting using the shortcut keys.

Report Toolbar						⊠
Modify Report Information	Paste Unformatted	Add Sidebar	Add Acronym	Tables/Pictures ▾	Add Line Numbers	

The "Add Line Numbers" button.

The "Paste Unformatted" button.

Adding line numbers and Pasting Unformatted
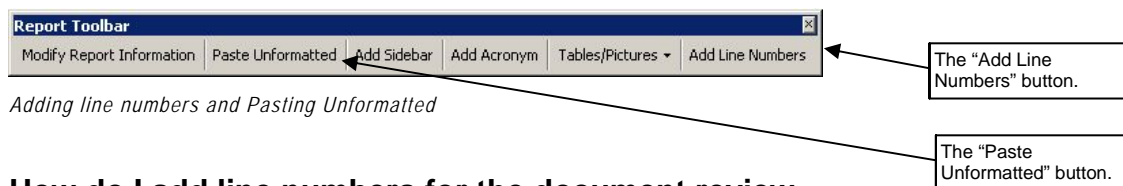
How do I add line numbers for the document review cycle?

When you circulate draft documents to a review team, it is helpful for you and your reviewers to be able to refer a document that has line numbers on it. This helps the review process because it allows reviewers to easily identify the page number and line number they want to make a comment about.

To add line numbers to an entire document, just click the "Add Line Numbers" button from the Report toolbar (see below). To remove them again, click the "Remove Line Numbers" button (which will appear in place of the "Add Line Numbers" button). That's all there is to it.

How do I update Exhibit numbers if I need to move them around?

If you find that you need to move your exhibits within the document, the exhibit numbers will not change until you do one of the following: view the document in print preview mode, print the document, or manually ask Word to update the fields. The shortcut keys to update fields are Ctrl-A to select the entire document and then F9 to update all the fields.

How do I keep a caption on the same page as the image?

If you want to format your images so that the row with the images stays with the caption row, select the rows you want to keep together. From the Format menu, select Paragraph, then click the "Line and Page Breaks" tab. Check both the "Keep Lines Together" and the "Keep with Next" boxes and hit OK until you are back in your document. You can use the same technique to keep an exhibit title with an image that follows. Select the title and apply the "Keep with Next" option. This technique is preferable to adding manual page breaks because it doesn't require additional editing if the text of the document changes later.

How do I undo the actions of a macro?

When you need to undo the actions of a macro selected from the toolbar, you will need to click the down arrow on the Undo button and select all of the items prefaced with "VBA."

Undo all items prefaced "VBA" to undo most toolbar initiated actions.

What version of Word was used to create these templates?

These document templates were created for use in Microsoft Word 2000. If you are using a different version of Word, you may find slight differences in functionality. For example, in Word 2000, most inserted graphics will resize appropriately to the size of the table. In Word 2003, you may need to manually resize both the graphic and the table cell. Also, some menu items may be in slightly different locations or available in multiple locations. In Word 2003, for example, you can restart numbering with a right-click menu choice.

What are some of the limitations for the templates?

Microsoft Word is a powerful program, but it is a word processing program. Its ability to contain both text and graphics with large file sizes (such as large graphics files) is limited compared to a document layout program, which is designed to handle text and complex graphics more easily.

So, it is absolutely necessary that you save each chapter as a separate file. This will help limit the size of the files, which will help Word to operate efficiently and correctly with embedded graphics. As you develop your document, follow the suggestions below to minimize any problems you may have:

- Save each chapter as a separate file.

- When you insert photos and graphics, make sure they are the lowest resolution possible to be able to clearly see the graphic. This will be a balancing act. You want to make sure you can clearly see your graphics when you reproduce them. However, you want the file sizes of your graphics to be as small as feasible so Microsoft Word operates efficiently.

- If you have a chapter with several graphics, you may want to insert the picture tables as placeholders and add the
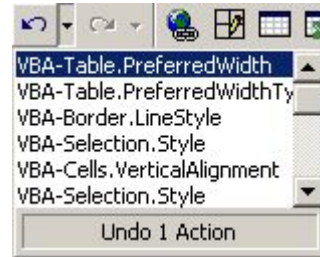
graphics at the end. For review cycles you can give reviewers a packet of graphics and a text version of the document. This tip will make your document easier to work with.

▪ This tip is only provided for advanced users. If reviewers are all accessing the document from the same location, you can choose to link your graphics rather than embed them in the document. Save all of your graphics to a subfolder under your main document folder. Then, when you insert your graphic, always use the Insert/Picture/From File menu method and choose the "Link to File" option.

Select the "Link to File" option to keep your document and your graphics in separate files, thus reducing file size of the Word document.
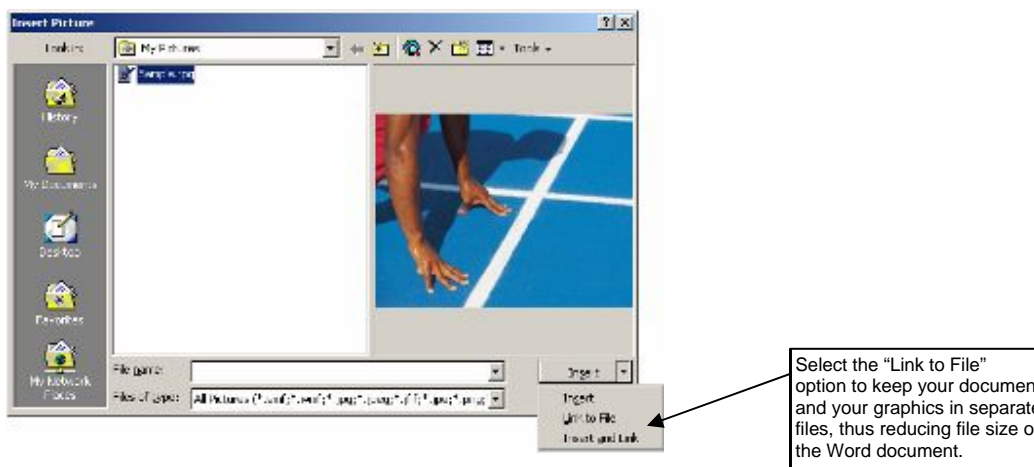
If the document will later be transmitted electronically, however, you will either need go back and embed the graphic files or create a PDF file. The Word document itself will not display the graphics unless they are also transmitted with the document.

Rules you must follow

What are some of the rules we MUST follow for the templates to work properly?

There are a few simple rules you must follow for the templates to work.

1. To use the templates, you must install them on your computer or be working on WSDOT's server. Every time you want to create a new document using the templates, you must open Microsoft Word, and select "File" from the

menu. Scroll to "New", and choose the "WSDOT Reports" tab and click on the template you would like to use. (You can also select "New Office Document" from the Windows Start button and select your template there.)

2. Each chapter of your document must be saved as a separate file.

3. Do not change information highlighted in gray within the template by deleting it or editing it directly. In these templates, gray highlighting indicates programming language embedded around that text. If you accidentally delete the programming language, the template document will not properly generate a table of contents and footers and headers will not work correctly. If you need to make changes, click the "Modify Report Information" button on the report toolbar. If you accidentally delete codes (gray text), immediately select Undo or use the Ctrl-Z shortcut.

4. Graphics and photos within the text must be inserted using the "Picture Table" feature.

5. Do not delete the hidden text that is associated with the Acronyms. (Note to users familiar with Word's hidden text feature: you do NOT need to turn off hidden text before printing. The code in the template will take care of that for you.)

6. Develop an outline for your document and make sure to limit the number of headings so you can use the structure in the Document Creator templates. This means you need to stick to the following heading levels: chapter heading, major heading, heading 1, heading 2, and heading 3. This is plenty of heading levels to create any kind of document.

7. Do NOT have any miscellaneous files in the document folder that contain your document files (front matter, chapters, back matter, table of contents) when generating the table of contents. All files in the completed document materials folder will be included in the table of contents. Support material can be contained in another folder on your

computer. (You may create any number of subfolders
within the document folder without causing the TOC to
fail.)

8. When you use the templates, make sure and copy your
    documents as double-sided documents (it's okay to print
    them single-sided, just make sure and copy them so they
    are double-sided).

**What if my toolbar is missing when I open a
document?**

If you open a document created with the Document Creator,
and you notice that your toolbar is missing, it is most likely
that the document was created on another system, one which
has the templates located in a different folder than on your
system. You will need to tell Word where to find the template
by reattaching it. It is an easy process.

Go to Tools/Templates and Add-Ins and click the Attach
button.

Click the "Attach" button and then navigate to your "WSDOT Reports" template folder to reattach a missing template.
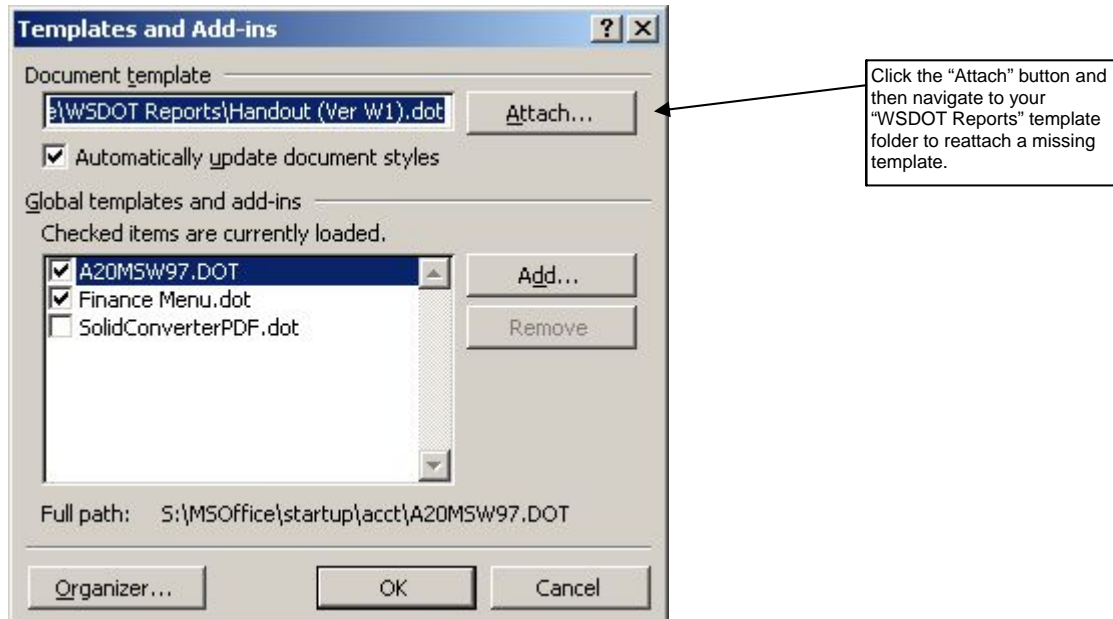
You will need to navigate to your workgroup template folder
(or the location where you have the "WSDOT Reports" folder).
You can find your Workgroup Template folder name under
File/Options/File Locations (see "How do I get started?" on

page 3). Click OK and then OK again, and you should see your toolbar.

Be careful when attaching a template that you select the correct one. The Report and Handout templates are very similar. You will be able to see the template that was used in the original document when you go to the Tools/Templates and Add-ins dialog box.

List of Shortcut Keys for the Document Creator Templates

Alt+1	Heading 1 Style
Alt+2	Heading 2 Style
Alt+3	Heading 3 Style
Alt+A, A	Add an Acronym
Alt+B	List Bullet Style
Alt+C, H	Chapter Heading Style
Alt+C, P	Caption Picture Style
Alt+C, S	Chapter Summary Style
Alt+F, R	Footnote Reference Style
Alt+F, T	Footnote Text Style
Alt+L, N	List Number Style
Alt+M, H	Major Heading Style
Alt+N	Normal Style
Alt+S, B	Sidebar
Alt+S, H	Sidebar Heading Style
Alt+S, T	Sidebar Text Style
Alt+T, F	Table Footnote Style
Alt+T, H	Table Headings Style
Alt+T, T	Table Text Style
Ctrl-A, F9	Update Fields
Alt-Shift	When dragging, will override Word's "Snap to Grid" feature.
Ctrl-Arrow	Will nudge a selected graphic or text box in the direction of the arrow.

Appendix C - Writing Tips

What information is contained in this appendix?

Appendix C contains writing tips that you can use to improve your writing. It also includes a worksheet of poorly written sentences to help you learn to apply the writing tips. Answers to the writing worksheet are included on the sheet located behind the writing worksheet.

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Writing Tips

What is the purpose of this document?

This document provides you with tips to help you write clearly. The first two pages are designed to be a list of tips you can use as a quick reference sheet. The rest of the document explains the tips in greater detail and a writing worksheet is provided so you can practice your writing.

What tips will help me develop reader-friendly documents?

1. Know your audience.

2. Determine how to organize your document and develop an outline.

3. Develop tools for your team.

4. Use question-and-answer headings.

5. Use sidebars.

6. Plan to spend time revising your work.

What tips will help me write clear sentences?

1. Make verbs active.

2. Avoid nominalizations unless they serve a specific purpose.

3. Put doers of actions as the subject of a sentence.

4. Eliminate noun strings.

5. Keep complex information out of the subjects of sentences.

6. Keep subjects and verbs close together.

7. Sometimes it's okay to break the rules.

   - Use personal pronouns.

   - Use contractions in sentences.

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- It can be appropriate to end a sentence with a preposition (in, of, for, etc.).

- Sentences can begin with the word "because."

How can I improve my paragraphs?

1. Write short paragraphs and sections.

2. Put information that is old or familiar to the reader near the beginning of a sentence. Put new or complex information near the end of a sentence.

3. Make technical concepts relevant to your readers.

What tips will help me develop reader-friendly documents?

Know your audience.

Writing is a process, not a one-time event. Before you begin writing, you must spend time thinking about your audience. If you don't consider the needs of your audience before you begin writing, it will be difficult for you to create a document that clearly communicates your message. Consider the following questions as you set out to create your document:

- Who will be reading your document?

- What do they need or want to know?

- How will they use your document?

Once you've identified your audience, you can launch into the next step in the writing process and develop an outline to organize the document.

Determine how to organize the document and develop an outline.

There are many different ways to organize environmental documents. The goal is to organize the document to meet the needs of your audience. If you are writing an environmental impact statement (EIS) or an environmental assessment (EA), there are several required components to your document, but National Environmental Policy Act (NEPA) and Washington State Environmental Policy Act (SEPA) regulations grant agencies flexibility in how they organize the document. Don't take this task lightly. Think hard, brainstorm, and be creative and pragmatic.

Develop an outline for both text and graphics. Many writers focus only on the text when they outline, and graphics end up being an afterthought. Graphics are a very important part of your document, and they take planning, time, and money to create. You may not know all of the graphics you will want or need, but you can at least get a good head start on it by including them in your outline.

Practice makes perfect.

If you want to practice using the writing tips outlined in this handout, there is a Writing Worksheet included at the end of this document.

Make sure your outline is for both text and graphics.

Graphics are an important part of your document, so don't leave them out of your outline. If you create an outline for both text and graphics, it will help you organize your writing and save time and money. For example, if you know up front that you want a picture of a wetland in the project are, you can ask a team member to snap a photo while they make a site visit. This is more efficient than having to send someone to the site for a second visit.

In addition to the information you know about your audience, consider the following questions as you develop your outline:

- What regulations and/or agency guidance must be followed? Is there flexibility in the way the document is organized?

- What information can be left out of the main document? Can technical information (such as discipline reports or large tables) be included as appendices? How will the document guide readers to information contained in appendices?

- How will graphics be incorporated into the document? Who will develop graphics, and what software will be used?

Once you've developed your outline, expand it by writing a brief description of what information you plan to discuss in each sentence. Include a description of the graphics you will include. This kind of an outline is called an annotated outline. This is a helpful way to begin writing. An annotated outline helps you provide guidance to your writers about the kind of information they should cover in each section. Or if you are a writer, annotating the outline will help you collect your thoughts and ideas.

Develop tools for your team.
If you have more than one author for your project, it's important to develop and provide tools for your team. Helpful tools include a simple list of project terms, document and map templates, guidance for graphics, and a list of appendices. Tools guide your team members and set your team up for success. These tools also help when it is time to edit and produce your documents because they ensure that multiple reports have a similar look, style, and feel. Consider the following tools.

Project terms list/writing style guide – This should identify project-specific terms and provide writing guidance for authors so your team uses the same terminology, abbreviations, and acronyms. For example, should the team use "sub-basin" or

"subbasin"? Should authors spell out street names (First Avenue South) or abbreviate (1st Avenue S)? Develop a writing style guide before authors begin writing and share it with the team. One person should be responsible for updating the style guide as the project progresses. Update it often and make sure team members know where to find the latest version. Appendix I contains a style guide example that you can use to develop your own project-specific list of terms.

Font Styles/Document Creator - If you are creating your document using Microsoft Word, you should use the font styles or the Document Creator described in Appendix B.

Map template – Develop a project area map that authors can use as a base map for their graphics. Talk with your team members to develop a map (or series of maps) at the appropriate scale for their work.

Guidance for graphics – Tips for developing good graphics are included in Appendix D of this tool kit. Share this with your team members, and add project-specific guidance as appropriate.

List of appendices – Develop an expected list of appendices or technical reports, name them, and stick to it. The list of appendices should be developed as early as possible (before the discipline reports and EIS or EA are written). This will help the discipline report and EIS or EA authors reference other reports appropriately and will minimize the number of changes needed as part of technical editing.

Use question-and-answer headings.

Use question-and-answer headings for your document. Ask the questions you expect your readers will want answered. The question-and-answer headings help engage the reader, direct readers to the information they are interested in, and process the text they are reading. It also helps writers focus their writing.

The table below shows how the question-and-answer format can help make a document more interesting and informative.

Where can I find an example of a project terms list?

Appendix I of WSDOT's *Reader-Friendly Document Tool Kit* contains an example of a writing style guide.

Tool Alert!

Appendix B contains information about the fonts you should use to create your documents using Microsoft Word.

Where can I find tips for developing good graphics?

Appendix D of WSDOT's *Reader-Friendly Document Tool Kit* contains graphic design tips.

Exhibit 1
Question-and-Answer Format

Traditional EIS Outline Using Typical Headings	Reader-Friendly EIS Outline Using Question-and-Answer Format
Purpose and need	Why do we need the project?
Project termini and why they are logical	Where is the project located?
Socioeconomic impacts	How would the alternative affect businesses, neighborhoods, and community organizations?
Cumulative effects	What are cumulative effects, and why do we study them?

Use sidebars.

Sidebars are useful tools for both readers and writers, and they have many uses in reader-friendly documents. You can use them to define unfamiliar terms, highlight key pieces of information, or direct readers to appendices or additional information. Sidebars are simple and effective tools to use. Determine how you will use sidebars early in project planning, and give your team members guidance on how to use them.

Plan to spend time revising your work.

If you want to be a good writer, you must spend time revising your work. You may find this fact to be discouraging, but it is just the simple truth. Writing is a process, and good revising habits are essential to good writing.

To write clearly, you must think clearly. Often the process of writing helps you think more clearly about the subject you are writing about. Don't think of revising as a bad thing or a sign of failure; instead, recognize that revising is a tool to help you think through your writing and the subject you are writing about.

In many cases, the first draft of a document you write will be discovery-driven. This means you are writing to figure out what you have to say about the topic. In this type of writing, the connections between ideas are not fully spelled out. You (the writer) will be able to easily understand the ideas and the main point of the document, but your readers may not easily understand these ideas. Revising is the step that transforms

What is a sidebar?

This is an example of a sidebar. They are used throughout this document to define terms, direct readers to additional resources, and highlight important pieces of information.

The process of writing and revising

The first step in the writing process is to develop a game plan to guide your work—that's the outline. Then you need to get your thoughts written down. The rest of your time should be spent revising your work. Get feedback from others as you revise your work. Edit in phases—this will help you focus on one issue at a time. Typical phases include: (1) make sure the document is organized in a way that makes sense to the reader, (2) look for and revise poorly written sentences, (3) check for grammar, spelling, etc. (4) verify references, exhibit numbers, etc.

your document from being writer-friendly to being reader-friendly.

Time constraints and busy schedules often do not lend themselves to the leisurely art of revising, so it's important to set priorities and develop a revising strategy. Here are ideas you can use to help make your revising efforts efficient.

Revise with a purpose – Identify one focus for your review instead of trying to revise for all things at once. It's too difficult and time-consuming to check grammar and spelling, verify references, consider document flow and organization, and revise poorly written sentences all at the same time. Instead, pick one and then come back and pick another focus.

Set priorities – Identify the most important sections of the document and spend more time revising these sections.

Get feedback from others – Be sure to have other people review your work and provide suggestions—every document needs a fresh set of eyes.

Start slowly – Don't feel like you need to use all of the tips presented in this document at once. Instead, take a handful of the tips from this guide and use them to help guide your revisions.

What tips will help me write clear sentences?

Make verbs active.

Writing becomes clearer, more interesting, and more specific when we write using active verbs like jump, run, list, etc. Passive verbs are easy to find because they typically have a form of the verb "to be" in them. "To be" verbs include is, are, was, were, be, being, been, and am. Compare the two sentences below:

Example, passive verb – The table below *is intended* to identify existing noise levels in the project area.

Example, active verb – The table below *identifies* existing noise levels in the project area.

What other resources can help me improve my writing?

It takes practice to write clearly. Some helpful resources include:

1. Joseph Williams' book *Style: 10 Lessons in Clarity and Grace*.

2. WSDOT's communications tool kit on the WSDOT intranet at http://wwi.wsdot.wa.gov/communications/toolkit.

3. The Plain Language Action Network's website at http://www.plainlanguage.gov.

4. Natalie Macris' book *Planning in Plain English.* This book is available through the American Planning Association at http://www.planning.org.

In the first sentence, the verb "is intended" is passive; the verb "identifies" in the second sentence is active. Write sentences using active verbs where possible.

Avoid nominalizations unless they serve a specific purpose.

Nominalizations are verbs or adjectives that have been turned into nouns.[1] These words often end in -tion, -ing, or -ment. We saturate our environmental documents with nominalized words and phrases that are typically pretty easy to fix.

Exhibit 2
Table of Common Nominalizations

Instead of:	Try:
requirement	Require
consideration	Consider
determination	Determine
approval	Approve
recommendation	recommend
application	apply
action	act

> **Example, nominalization** – The Hearing Examiner *has issued a determination* that the project is not eligible for a shoreline permit variance.

> **Example, nominalization removed** – The Hearing Examiner *determined* that the project is not eligible for a shoreline permit variance.

In the second sentence, the phrase "has issued a determination" is transformed to a much simpler, active verb—the word "determined."

Put doers of actions as the subject.

Sentences are clearer to readers if their subjects are characters performing the action in the sentence. Most of us have been

What is a nominalization?

A nominalization is a verb or adjective that has been turned into a noun. For example, the nominalized form of the verb "act" is "action." Writing is clearer when you change nominalized nouns into active verbs.

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[1] Macris, Natalie. *Planning in Plain English.* American Planning Association.

trained to write sentences with vague or implied actors, as in the example below:

> **Example, subject is not an actor** – The *analysis* of the roadway indicates that it is unsafe.

The subject in this sentence is "the analysis." This isn't a very exciting or engaging topic for most readers. Revise the sentence by replacing "the analysis" with an actor—ask the question, "who completed the analysis?"

> **Example, subject (actor) completes the action** – *Engineers* determined that the roadway is unsafe.

It's a lot more interesting for readers to read a sentence about what the engineers did compared to a sentence about "the analysis." When you write sentences, engage your readers by identifying an actor.

How do I put it all together?

Your writing will greatly improve if you focus on the three items discussed above. If you use active verbs, limit nominalizations, and identify an actor, your sentences will be in active voice. Your writing becomes instantly more interesting, direct, and clear when you use the active voice. Conversely, your sentences will seem dull, cumbersome, and ambiguous if they are written using the passive voice. If you want to improve your writing, it's important to understand how to identify and revise sentences written in the passive voice. Consider the example below:

> **Example, passive voice** – Mitigation measures for projects are developed during project planning, often through the NEPA/SEPA process for assessment and avoidance of adverse environmental impacts and the subsequent steps for obtaining legally required federal, state, and local permits for project construction.

It's hard to figure out what the writer is trying to say in the example above. If you had to read the sentence more than once, that is a sign that the sentence needs to be revised. The best way to revise a sentence is to find the subject and verb.

How can I begin to improve my writing?

It takes time and practice to improve your writing skills, and it's difficult to focus on implementing too many tips at once. Don't get overwhelmed—you can greatly improve your writing and revising by focusing on the first three tips presented in this document.

Subject	Verb
Mitigation measures	are developed

The subject is "mitigation measures," which is not an actor. You can identify an actor for this sentence by answering the question, "Who is developing the mitigation measures?" This sentence came from a WSDOT document, so the actor is WSDOT. Next, look at the verb "are developed"—it's a passive verb. Change it to an active verb, "develop." Next, figure out what the rest of the sentence says—it describes when mitigation measures are developed. Now you are ready to rewrite the sentence using the active voice.

> **Example, active voice** – WSDOT develops mitigation measures for project impacts during project planning processes such as NEPA/SEPA and permitting.

The rewritten sentence is much easier to understand. If your document is unclear and dull, you can substantially improve it by transforming passive sentences into active sentences.

Sometimes passive voice is okay.
Most of the time it's preferable to write in the active voice, but there are cases when it may be best to use the passive voice.

▪ Use passive voice when you can't identify an actor or when you want to maintain ambiguity.

> **Passive**:   The report was turned in after the deadline.

> **Active**:   Joe missed the deadline and turned the report in late.

Sometimes you may not be able to identify an actor, or you may not want to. In the above examples, the passive sentence allows the person who missed the deadline to remain anonymous.

▪ Use passive voice when you want to maintain continuity between sentences.

Sometimes a passive sentence does a better job linking ideas together in a paragraph. Consider the example below.

Example 1: This document focuses on analyzing the environmental impacts for significant issues, but not on economic impacts related to any proposed rule changes. active Separately, in a document required by the Regulatory Fairness Act, the forest practices division will address economic impacts. active The division office will make the document available to the public. active[2]

All of the sentences in the paragraph above use the active voice, but the sentences don't flow well. The paragraph below uses passive sentences to connect similar ideas, which improves the continuity of the paragraph.

Example 2: This document focuses on analyzing the environmental impacts for significant issues, but not on economic impacts related to any proposed rule changes. active Economic impacts will be addressed separately by the forest practices division in a document required by the Regulatory Fairness Act. passive This document will be available from the division's office. passive[2]

Eliminate noun strings.

Noun strings are two or more nouns that together describe one thing.[3] It is difficult for your readers to understand the point of a sentence if they must wade through several nouns clustered together to get to the verb. You can eliminate noun strings by breaking them up with connecting prepositions (in, of, for, etc.).

Example, noun string – We are proposing several *transportation demand management strategies* to reduce the number of single-occupant vehicles on I-5.

Example, transformed noun string – We are proposing several *strategies to manage transportation demand* and reduce the number of single-occupant vehicles on I-5.

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[2] Rideout, Chris. 2003. *Writing Environmental Impacts Statements: A Guide to Clarity, Cohesion, and Readability.* June 2003.

[3] Macris, Natalie. *Planning in Plain English.* American Planning Association

Many readers don't know what "transportation demand management strategies" are, but they can understand the concept if they are described as "strategies to manage transportation demand."

Keep complex information out of the subjects of sentences.

Sometimes we can make sentences easier to read by simply shifting the order of the words. Don't start a sentence with a long list of items like the sentence below. It will be easier for readers if you put the list at the end of the sentence.

> **Example, items as the subject** – *Metals, polycyclic aromatic hydrocarbons, and phthalates* were detected within the sediments.

> **Example, items as the object of the verb** – The sediments contained *metals, polycyclic aromatic hydrocarbons, and phthalates*.

Notice how the sentence changed from passive voice to active voice. The verb "were detected" was changed to "contained" once the list was moved to the end of the sentence.

Keep subjects and verbs close together.

It is difficult for readers to figure out the point of a sentence if the subject and verb are not close together.

> **Example, verb far away from the subject** – No *habitats* associated with listed threatened and endangered species possibly occurring in the project area *would be affected* by the proposed project.

The subject of the sentence is "habitats" and the verb is "would be affected." The reader had to read a string of words before being able to determine the point of the sentence. Let's try putting the nouns and verbs closer together by changing the subject of the sentence.

> **Example, verb closer to the subject** – *The proposed project would not affect* the habitats of threatened and endangered species that may live in the project area.

Sometimes it's okay to break the rules!

Strict rules from past English teachers often haunt people as they write. Sometimes, it's really okay to break the rules. Take a look at rules you can break as you work to write reader-friendly documents.

Myth 1: Don't use personal pronouns.
At some point, you've probably been told not to use personal pronouns when you write professional documents. You must break this rule if you want to speak directly to your readers. More than any other single technique, using you, we, he, she, etc. pulls readers into your document and makes it relevant to them. Even though your document may affect a thousand or a million people, you are speaking to the one person who is reading it.[4]

Personal pronouns offer an additional benefit. It is easier to write sentences in the active voice if you use personal pronouns. It's acceptable to use "we" to refer to WSDOT in your documents because it will make your sentences shorter and it will make your document more inviting and accessible to readers.

Myth 2: Don't use contractions.
It's okay to use contractions in sentences, but they must be used with discretion. Contractions can help people read faster and they can soften the tone of a document. Use contractions when it's appropriate for your audience. If you would speak formally to your audience, then it is probably best to write more formally and not use contractions. Conversely, when your audience is more informal (such as a public audience), it's fine to use contractions. You can use contractions in environmental documents and discipline reports.

Myth 3: Never end a sentence with a preposition.
Sometimes it's perfectly acceptable to end a sentence with a preposition. Consider the sentence below.

Did you know?

On June 1, 1998, President Clinton signed an executive memorandum requiring agencies to use plain language principles for most of their written communications. The Plain Language Action and Information Network was created to respond to the executive memorandum and provide writers with useful tips on how to write more clearly. For more information, visit the website at http://www.plainlanguage.gov.

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[4] Plain Language Action and Information Network. Accessed October 2004. Website http://www.plainlanguage.gov.

Example, ending a sentence with a preposition – Clear thinking and writing isn't something that comes quick and easy, and it's not something that authors of environmental documents are particularly famous for.

Example, sentence doesn't end with a preposition – Clear thinking and writing isn't something that comes quick and easy and it's not something for which authors of environmental documents are particularly famous.

You could revise the sentence to remove the preposition at the end, but it makes the sentence awkward for readers. Instead, break with tradition and simply end the sentence with a preposition.

Myth 4: Don't begin a sentence with the word "because." Early in your elementary school career, you probably had a teacher tell you not to begin your sentences with the word because. This advice has probably stuck with you throughout much of your adult life. There are times when it is appropriate and acceptable to begin a sentence with because:

Example – Because the steep hills were difficult to build on, citizens of the growing community had to find inventive ways to make space for homes, businesses, and roads.

How can I improve my paragraphs?

Write short paragraphs and sections.
Short sections break up material into easily understood segments and allow you to introduce white space. Short sections look easier to read and understand compared with long sections. If you notice a section or paragraph that is getting too long, examine it closely and break it into smaller sections as long as it preserves the flow of the text.[4]

Keep similar ideas close together.
Your paragraphs will make more sense to your readers if you try to keep similar ideas close together. Put information that is old or familiar to the reader near the beginning of a sentence, and put new or complex information near the end of a sentence.

Consider the example below:

> **Example 1** – Two of the most common water quality parameters measured and monitored for sediment are *suspended sediment and turbidity*. Delivery and transport in hydrologic systems are related to *both*.[5]

When you begin reading the second sentence, you are expecting to read something about suspended sediment and turbidity. Instead, the second sentence opens with a discussion of sediment delivery and transport. You could improve the link between these two sentences by presenting old information at the beginning of the second sentence, and then introduce the new concept toward the end.

> **Example 2** – Two of the most common water quality parameters measured and monitored for sediment are *suspended sediment and turbidity*. Both are related to delivery and transport in hydrologic systems.[5]

Make technical concepts relevant to your readers.
Environmental documents contain detailed information about a wide range of complicated subjects that are difficult to explain to a general audience. Your challenge is to present these complex ideas in a way that readers can understand. To meet our reader's needs, you must understand the subject well enough to clearly explain it. Sometimes this means you may need to provide simple comparisons or additional information so your readers can understand how the text is relevant to them.

> **Example 1** – Intersections that are projected to operate with especially long delays during the PM peak hour are identified as "congested intersections." These intersections are those that operate under LOS F conditions (average vehicle delay of greater than 80 seconds). Congested intersections are further identified as "highly congested" if they exceed 110 seconds of average vehicle delay.

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[5] Rideout, Chris. 2003. *Writing Environmental Impacts Statements: A Guide to Clarity, Cohesion, and Readability.* June 2003.

This paragraph talks about two technical concepts: level of service and the PM peak. These concepts are meaningless to most readers. Consider providing some context for your readers so they can better understand these foreign concepts. A more reader-friendly discussion could look like the example below:

> **Example 2** – What are congested and highly congested intersections?
>
> Congested intersections are intersections that cause drivers considerable delay, particularly during the late afternoon commuting hours of 4:00 to 5:00 p.m. A driver might wait between one and two minutes to get through a traffic signal at a congested intersection. At a highly congested intersection, a driver might wait up to two minutes or more to get through the traffic signal.

The paragraph above provides some context to readers so they can easily identify how congested and highly congested intersections will affect them.

Writing Worksheet

Put your learning into action. Revise the sentences below using the tips provided in Appendix B, Writing Tips.

Turn the passive verb into an active verb.

1. It has been determined that 15 businesses must be relocated.

Identify the nominalizations and turn them into verbs.

2. This alternative will result in a 35 percent reduction in available parking.

3. The recommendation of a preferred alternative is a top priority of the city council.

4. The Aerial and Tunnel Alternatives will result in widening Mercer Street and constructing a Thomas Street bridge over SR 99.

5. This alternative will benefit neighborhoods by improving connectivity with adjacent neighborhoods.

6. Each of the alternatives will involve the removal of the two existing ramps.

7. The Surface Alterative provides greatly increased connectivity with local streets and between neighborhoods compared to any of the other Build Alternatives.

Put doers of actions into subjects.

8. Early engineering studies demonstrated that a tunnel could not be built because soils in the project area are poor.

9. The biological assessment must be submitted before the Final EIS is approved.

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Put the three together—put actions into verbs, avoid nominalizations, and put doers as subjects.

10. Evaluation of the alternatives will be completed using a screenline level of evaluation.

11. Early in 2003, traffic operations analyses were conducted for the Main Street Corridor Study to determine traffic conditions in the year 2003 and 2030 under "Build" and "No Build" conditions and to identify locations operating at overcapacity conditions.

Don't make complex or lengthy lists of information the subject of the sentence— instead, put this information at the end of a sentence.

12. Past dredging and filling, construction of breakwaters and other structures, and industrial activities have substantially altered the chemical character of constituent waters.

13. Metals, polycyclic aromatic hydrocarbons, and phthalates were detected within the sediments.

Identify and revise the noun strings.

14. We are proposing several transportation demand management strategies to reduce the number of single-occupant vehicles on I-5.

15. The purpose of the project is to evaluate potential contaminated sediment remediation technologies.

16. The Build Alternatives will have an effect on project study area neighborhoods.

17. These changes could change the long-term cohesion of project area neighborhoods.

18. The County does not have a current travel forecast model that is calibrated to the a.m. peak hour existing conditions.

19. Because of the high number of roadway network alternatives, no post processing was performed on the travel forecast model output.

Answers to Writing Worksheet

Turn the passive verb into an active verb.

1. The project team determined that 15 businesses must be relocated.

Identify the nominalizations and turn them into verbs.

2. This alternative will reduce parking by 35 percent.

3. The city council's top priority is to recommend a preferred alternative.

4. The Aerial and Tunnel Alternatives will widen Mercer Street and build a bridge over SR 99 at Thomas Street.

5. This alternative will improve access between neighborhoods A, B, and C.

6. Each of the alternatives will remove the two existing ramps.

7. The Surface Alternative increases local street connections between neighborhoods more than the other Build Alternatives.

Put doers of actions into subjects.

8. Engineers determined that a tunnel could not be built because soils in the project area are poor.

9. You must submit a biological assessment before FHWA will approve the Final EIS.

Put the three together—put actions into verbs, avoid nominalizations, and put doers as subjects.

10. The alternatives will be evaluated using information obtained from traffic screenlines.

    OR

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The project team will evaluate the alternatives using information obtained from traffic screenlines.

11. In early 2003, the project team analyzed traffic operations for the Main Street Corridor Study to (1) determine existing (2003) and future (2030) traffic conditions for the Build and No Build Alternatives and (2) identify locations where traffic conditions exceed available roadway capacity.

Don't make complex or lengthy lists of information the subject of the sentence—instead, put this information at the end of a sentence.

12. Over time, water quality in the project area has been degraded by dredging and filling projects, construction of breakwaters and other in-water structures, and industrial activities.

13. The sediments contain metals, polycyclic aromatic hydrocarbons, and phthalates.

Identify and revise the noun strings.

14. We are proposing several strategies to manage transportation demand and reduce the number of single-occupant vehicles on I-5.

15. The purpose of the project is to evaluate technologies that remediate contaminated sediments.

16. The Build Alternatives will affect neighborhoods in the project study area.

17. These changes could affect neighborhood cohesion in the project area.

18. The county does not currently have a travel forecasting model calibrated to existing conditions during the a.m. peak hour.

19. The project team did not post process the output from the travel forcasting model because there are many proposed alternatives.

Appendix D - Graphics Tips

What information is contained in this appendix?

Appendix D contains tips that will help you identify what makes a graphic good or bad. It also gives you tools to incorporate positive elements into your graphic designs.

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Graphics Tips

What tips will help me create graphics for reader-friendly documents?

1. Know your budget, timeline, and available software.

2. Identify your key message.

3. Designing graphics is a process.

4. Words and graphics belong together.

5. If you use color, use it wisely.

6. Don't forget to use tables, especially if your budget is small.

7. Use pie charts sparingly.

8. Minimize clutter—show the data.

What tips will help me create graphics for reader-friendly documents?

Introduction

Most people can recognize a good graphic when they see it, but few people can articulate why they like one graphic more than another. It's difficult to create effective graphics if you don't know what makes them good or bad.

This document will help you identify what makes a graphic good or bad, and it will give you tools to incorporate positive elements into your graphic designs.

Many of these tips come from the work of Edward Tufte, who writes, designs, and self-publishes books on information design. This brief handout only presents a few ideas related to graphic design. For additional details and examples of his work, visit his website at http://www.edwardtufte.com/tufte/ and read his books.

Know your budget, timeline, and available software.

Before you begin developing graphics, you need answer a few questions. What is your budget and schedule—do you have the ability to hire the services of a graphic designer? Will you print your document in color or black and white? What type of printing will you use?

Also consider the type of software you have available. If you have access to a graphic designer, you will have more choices. If not, you may need to rely on programs such as Excel and PowerPoint. Also, remember to contact internal WSDOT staff for help and find out if you need to include their staff time in your budget. WSDOT has staff that specialize in graphic design and GIS map development. To learn more about resources available through WSDOT, contact WSDOT's graphic design program manager, Connie Rus, or WSDOT's GIS manager, Elizabeth Lanzer.

Where can I learn more about graphic design?

For more graphic design techniques and examples, visit http://www.edwardtufte.com/tufte/ or review his books: *The Visual Display of Quantitative Information, Visual Explanations,* or *Envisioning Information.* Another good resource is the book *Show Me the Numbers: Designing Tables and Graphs to Enlighten*, by Stephen Few.

Where can I learn more about WSDOT's internal graphics resources?

For help with graphic design, contact Connie Rus at (360) 705-7423 or rusconn@wsdot.wa.gov.

For help with GIS maps and information, contact Elizabeth Lanzer at (360) 705-7476 or email her at lanzere@wsdot.wa.gov.

Identify your key message.

To develop good graphics, you must determine what message you want to get across. Are you simply trying to convey basic information (such as the project area, or wetlands located in the project area) or are you trying to show comparisons, key findings, or other important information? Once you've determined the point you want to make with your graphic, you can move on to thinking about the best way to convey that information.

Designing graphics is a process.

Designing graphics is a process similar to writing—it requires planning and revision. You should create an outline for text and graphics before you begin writing your document. This will help you plan out your graphics and the time it will take to create them.

When you develop graphics, take time to experiment with ideas. Sometimes your first idea may not work, or it may not convey the right message. Once you come up with some ideas, ask yourself the following questions:

- What is the point of the graphic (table, chart, or illustration)?

- Is it conveying information that is useful?

Sometimes you may develop an initial idea and find that it isn't useful or helpful to your viewers. In this case, you may need to try a new approach and think about ways your graphic can help reveal the important information.

For example, the table below is perfectly acceptable, but it isn't very useful.

Exhibit 1
Congested Intersections by Sub-Area

Street		2030 Existing Facility	Surface
South	*Moderately Congested*	0	2
	Highly Congested	2	0
	Congested Intersections	**2**	**2**
Central	*Moderately Congested*	5	7
	Highly Congested	3	7
	Congested Intersections	**8**	**14**
North Waterfront	*Moderately Congested*	0	0
	Highly Congested	0	0
	Congested Intersections	**0**	**0**
North	*Moderately Congested*	5	6
	Highly Congested	0	1
	Congested Intersections	**5**	**7**
Total	*Moderately Congested*	10	15
	Highly Congested	5	8
	Congested Intersections	**15**	**23**

The point of the table is to compare the number of congested intersections located under expected year 2030 conditions for the existing facility and for another alternative (the Surface Alternative). The table shows that the number of congested intersections will increase if the Surface Alternative is built, but it only gives people a vague idea about where the increases will take place.

This is a case where the display needs to be changed in order to be useful and to get the point across. The table was replaced with the maps shown on the next page. These maps do a much better job comparing differences between alternatives and showing people where congested intersections will be located.

Exhibit 2
Surface Alternative Congested Intersections
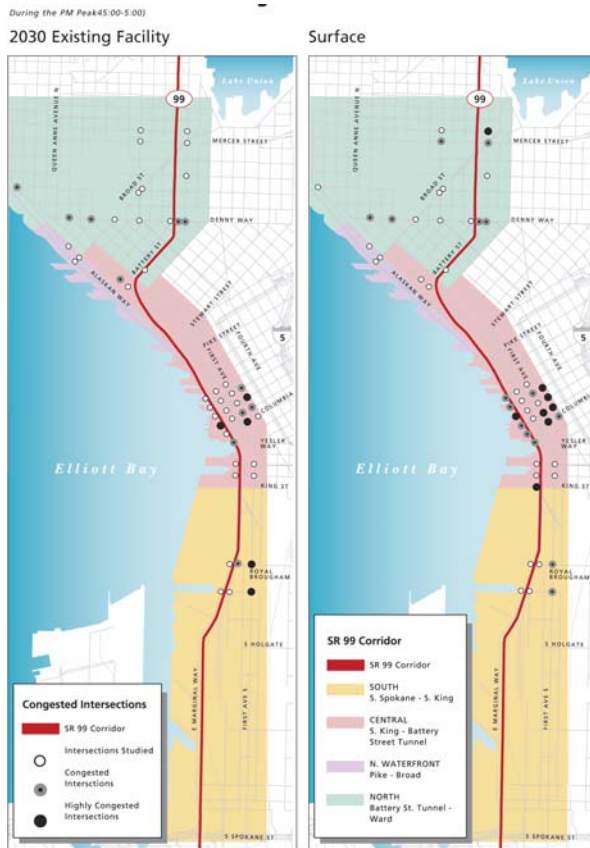
Words and graphics belong together.

All too often, document authors separate pictures and figures from text by inserting them on the next page—or worse, at the very end of a document. Authors produce documents this way because it is easier and cheaper. Documents become instantly more reader-friendly when graphics and text are presented together.

The best way to integrate text and graphics is to lay out your document using a document layout program. Unfortunately, this is an expensive and time-consuming process. For some projects (such as the Alaskan Way Viaduct and Seawall Replacement Project Draft EIS), the payoff is worth the extra effort.

For smaller projects, a document layout program is too expensive to use, but there is a solution. Word processing programs (such as Microsoft Word) have a limited ability to create documents that merge both text and graphics. A tool called the Document Creator has been developed to help make it easy for you to create WSDOT environmental documents that have text and graphics presented together using Microsoft Word. Additional information about the Document Creator is provided in Appendix B of the Reader-Friendly Document Tool Kit.

Where can I learn more about how to use the Document Creator?

Additional information about the Document Creator is provided in Appendix B of the *Reader-Friendly Document Tool Kit*.

Use color wisely.

There are a couple of factors to keep in mind as you determine how or if you will use color throughout your document. First, think about your graphic and the information you are trying to display. Could you use color to help convey an important message, or is it simply decorative? Using color for the sake of decoration doesn't make a lot of sense. It is costly and it distracts the reader. Don't underestimate the ability of black, white, and shades of gray to convey differences in data and highlight important messages.

Another important factor is cost. Not every project will have the ability to produce an entire document in color. If budget is a factor, then limit the use of color graphics throughout the document.

When you choose colors for a graphic, choose them wisely. The color you select should be based on other colors used in your document and the reason why you want to use color. In general, it's best to stick with colors found in nature, such as blue, yellow, green, etc., unless you are trying to make a particular point with a strong color such as red. Also, if you have more than one color in a graphic, make sure the colors you select are not too strong—excessive use of bold color can overwhelm your viewers.

Don't forget to use tables—especially if your budget is small.

Tables are an effective way to display information—particularly if your budget is limited and you are displaying small data sets. When you develop your tables, arrange them to facilitate comparisons. Don't assume that alphabetical order is the best order of data; consider the best way to make your point and organize your data accordingly.

For example, if you have the following data:

Group A   12%

Group B   56%

Group C   34%

Your message may come across better if you organize from highest percentage to lowest, or vice versa as shown below. Consider the context of your message when you develop your table.

Group B   56%

Group C   34%

Group A   12%

Use pie charts sparingly.

Pie charts are the most commonly used chart to show parts of a whole. The exhibit below is an example of an occasion when it is appropriate to display information in a pie chart.

Exhibit 3
Sources of Carbon Dioxide Emissions

1980

Commercial
5%

Residential
4%

Industry
24%

Electricity
13%

Transportation
54%
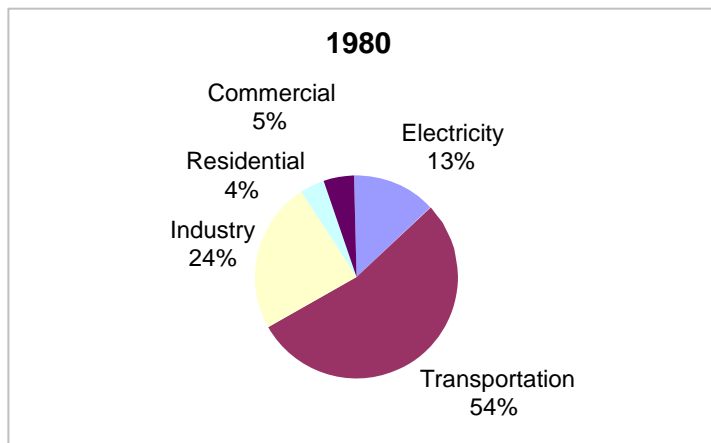
Don't display more than six values in a pie chart[1]. When you have more than six values, the pie chart becomes cluttered and it fails to give a clear picture of the distribution. This problem is demonstrated in the exhibit below.

Exhibit 4
Additional Sources of Carbon Dioxide Emissions – Pie Chart

1980

- ■ Electricity
- ■ Transportation
- ■ Industry
- ■ Residential
- ■ Commercial
- ■ Misc 1
- ■ Misc 2
- ■ Misc 3

This pie chart is not effective because it displays too many categories, making it difficult for people to easily compare them.

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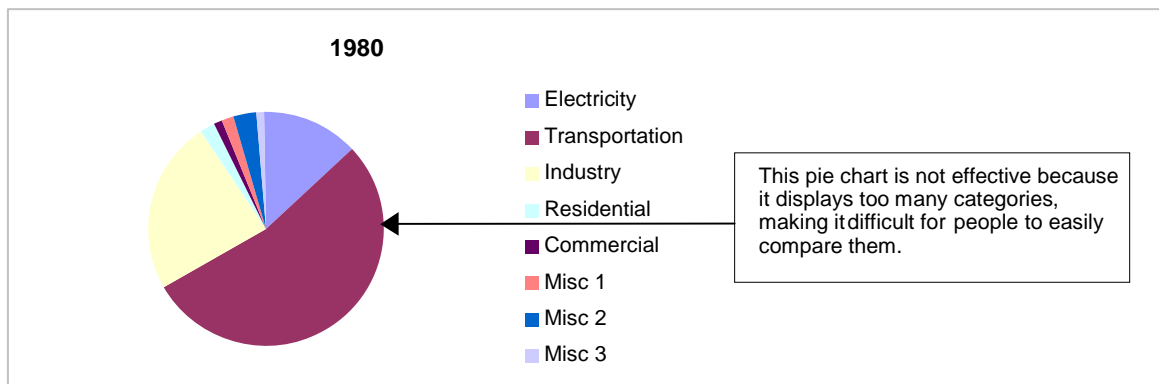
[1] Statistics Canada Website. Accessed November 10, 2004.

http://www.statcan.ca/english/edu/power/ch9/piecharts/pie.htm

Instead of displaying the data above in a pie chart, consider using another type of graphic (such as a bar chart) to display the information.

Pie charts should not be used to show comparisons between two or more sets of information (see the side-by-side pie charts below). When you use two or more pie charts together, it is difficult for viewers to compare the information and distinguish differences. Instead of using three pie charts side-by-side as shown below, it would be better to display the information in a bar chart or other display.

Exhibit 5
Carbon Dioxide Emissions in Washington State by Source, 1980–2000

Don't use side-by-side pie charts to compare data sets. Notice how difficult it is to see differences in the pie sizes
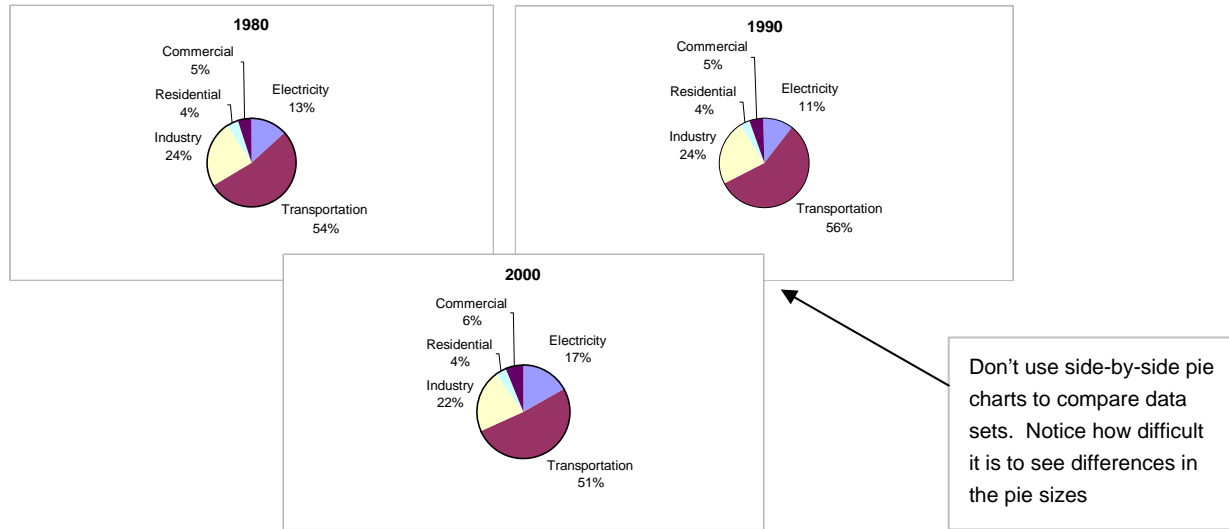
Minimize clutter—show the data.

Environmental documents contain vast amounts of data. Above all else, data graphics should show the data. Data graphics should draw the viewer's attention to the substance of the data, not to something else.

This means that good data graphic designs should:

- Minimize clutter

- Minimize the amount of ink used that does not show data

The best way to understand these two concepts is to look at some examples. The same data is displayed in the exhibits on

the next few pages. Notice that many different graphics can be produced from the same data, some good and some bad. As you look at these examples, think about ways to minimize clutter and maximize the amount of ink that shows data.

Exhibit 6
Three-Dimensional Excel Chart

Southbound Travel Times

This 3-D display distorts the data and adds clutter. It's difficult to compare the alternatives, particularly the light blue bar in the back.

Viewers must look back and forth between the legend and the graph to understand it.

Minutes

25
20
15
10
5
0

□ Aurora Bridge - Spokane Street
■ Ballard Bridge - SR 519 (Stadium Area)
□ Aurora Bridge - Seattle Downtown
□ Seattle Downtown - Spokane Street

Exhibit 4 is a poorly designed graphic—it has way too much clutter. The 3-D effect distorts the data and makes it difficult to determine the precise differences between each of the alternatives. This graphic was created using Microsoft Excel. Excel allows people to create several different chart and graph types, including the 3-D chart shown above. Unfortunately, not all of the graphs you can create in Excel will be helpful to readers. As a general rule, it is good to not use the 3-D feature in Excel, because it adds visual clutter and distracts (or even distorts) the data.

Exhibit 7
Excel Chart Using Hatching Patterns

Southbound Travel Times
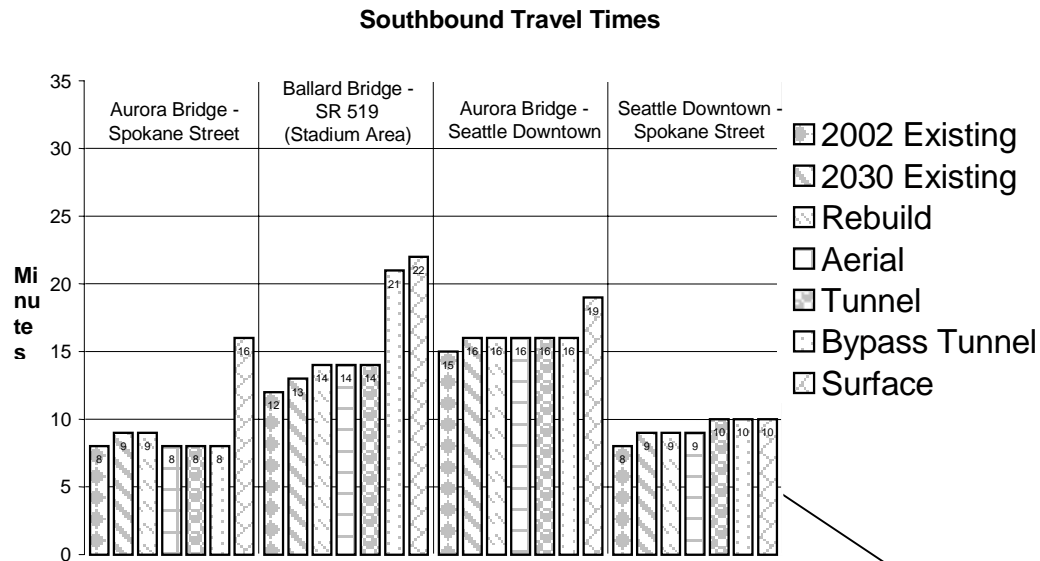
This chart uses seven different patterns to distinguish data, which is distracting to viewers. Also, notice the heavy gridlines—they add extra ink and clutter that doesn't add information to the display.

The exhibit above shows the same travel time data in a very different way than the previous exhibit. The 3-D effect is gone, and the data points are labeled at the top of each bar, allowing viewers to make direct comparisons between data points. This exhibit still has too much clutter, and too much ink is dedicated to decoration instead of data.

Let's start with the obvious flaws. There are seven different hatching patterns used to distinguish the alternatives. These patterns distract the viewer. In addition, the viewer still must look between the bar chart and the legend to determine what the hatching means. Finally, look at the thick gridlines behind the graphic—this extra ink really doesn't help provide any information that is helpful to the viewer. In the next version, we'll erase this extra ink and see what happens.

Exhibit 8
Excel Bar Chart, Brought Into PowerPoint

Southbound Travel Times
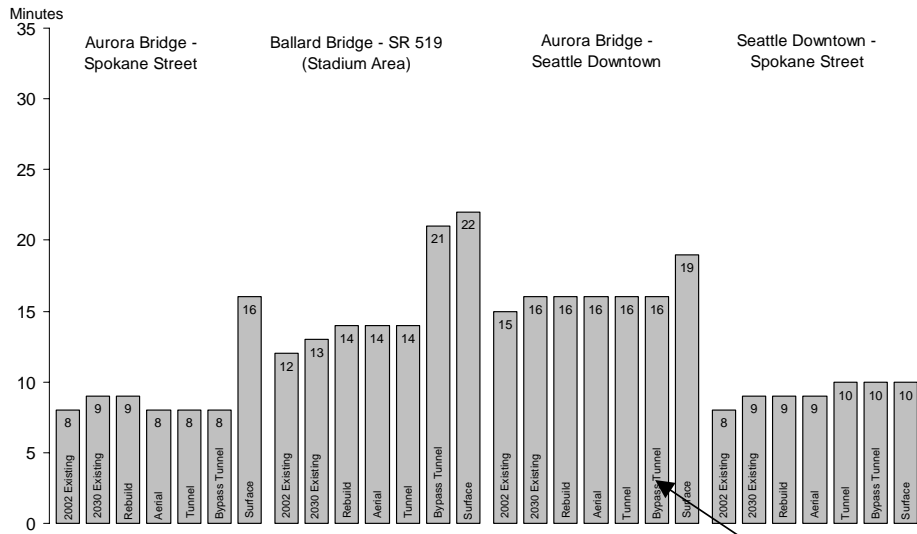
Labels have been added to each of the bars. This one change serves two important purposes. It allows the hatching patterns to be replaced with simple gray shading, and the legend is no longer needed.

Now this chart is really beginning to take shape. The hatching patterns are gone, which is much easier on the eyes. The legend is also gone. Instead, the data labels (the alternatives) have been placed on the bar that shows the data (travel time). The gridlines have also been removed. The y axis (vertical axis) has been simplified to provide tick lines for 5-minute intervals. The y axis "Minutes" label is smaller, and it runs horizontally instead of vertically, which is better for viewers because people read from right to left and not up and down.

Exhibit 9
Bar Chart Created Using Graphic Design Software

Southbound Travel Times

Minutes

Aurora Bridge -
S. Spokane Street
(through trips)

Downtown -
S. Spokane Street
(trips destined for Downtown)

Aurora Bridge -
Downtown
(trips destined for Downtown)

Ballard Bridge -
SR 519 Stadium Area
(Ballard/Interbay trips)

Y-axis labels have been added to the right side, providing an additional guide for viewers.

Faint, white lines have been added to the bars, giving viewers a visual cue, similar to a grid. This helps viewers compare bar heights.

This bar chart was created using graphic design software called Illustrator. This chart makes two notable improvements over the previous exhibit. Faint, white lines were added to the bars at 5-minute intervals to give viewers the sense of a grid without actually having a grid in place. This serves as a visual cue to viewers, helping them to connect the bar heights to the y axis on the right and left sides of the exhibit. The y axis labels have been added to the right side of the chart, which also helps viewers compare the bar heights to the x axis labels.

Some final tips to keep in mind

As you develop your graphics, keep the following tips from Tufte in mind:[2]

- Use words, numbers, and the drawing all together.

- Reflect a balance, a proportion, a sense of relevant scale.

- Have a story to tell about the data (narrative quality).

- Avoid excessive clutter.

- Show cause-and-effect relationships.

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[2] Tufte, Edward. 2001. *Visual Display of Quantitative Information.*

▪   Provide references as appropriate.

Also, recognize that it is possible to create useful graphics with a limited budget using widely accessible tools such as Excel and PowerPoint. To highlight this, there are two graphics attached to the back of this handout. The first is a timeline created using graphic design software. The second example (which looks practically identical) was created using Excel. The point of these two displays is to show you that it really is possible to create excellent graphics using tools that are readily available.

Alternatives Construction Chart
Timeline Assumes Full Project Funding

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14

STAGE ONE | **STAGE TWO** | **STAGE THREE** | **STAGE FOUR** | **STAGE FIVE** | **ESTIMATED DURATIONS**

All alternatives have similar activities but different durations — *Includes Stages Two - Five*

Rebuild

18 months

Preliminary Construction
Similar activities for all alternatives

The activities in this stage are not included in the total duration times in the last column.

- Establish construction staging areas
- Remove parking underneath the existing Viaduct and construct a temporary roadway for traffic detours.
- Relocate utilities as needed and set up temporary services
- Remove Whatcom Railroad Yard
- Construct alternate ferry holding
- Construct access road between Pier 48 and Colman Dock Ferry Terminal
- Remove the Waterfront Street Car and track
- Relocate Seattle Fire Station

Rebuild - 24 months
- Rebuild Seawall
- Construct at-grade SR 99 from S. Holgate to S. King
- Construct west half of ramps to SR 519
- Start rebuilding Viaduct

Rebuild - 54 months
- Complete rebuilding the Viaduct and ramps from S. King to the Battery Street Tunnel
- Demolish the Viaduct from S. Holgate to S. King
- Construct east half of SR 519 interchange

8 mos.
- Complete relocation of utilities
- Restore Alaskan Way surface street
- Route traffic to final configurations

7. 5 years

Aerial

Aerial - 36 months
- Construct aerial structure from S. Stacy to S. Royal Brougham
- Rebuild Seawall
- Construct temporary Viaduct along waterfront
- Establish Broad St. Detour and construct temporary trestles
- Widen Mercer Underpass

Aerial - 30 months
- Remove southbound aerial structure (Pike to Battery Street Tunnel)
- Construct new southbound aerial structure (Pike to Battery Street Tunnel)
- Improve southbound Battery Street Tunnel

Aerial - 48 months
- Remove Viaduct (S. Holgate to Battery Street Tunnel)
- Construct new Viaduct from S. Royal Brougham to Pike
- Construct new northbound aerial structure (Pike to Battery Street Tunnel)
- Improve northbound Battery Street Tunnel

15 months
- Complete relocation of utilities
- Restore Alaskan Way surface street
- Route traffic to final configurations
- Remove temporary structure

11 years

Tunnel

Tunnel - 24 months
- Rebuild Seawall in areas where tunnel does not fix Seawall
- Establish Broad Street Detour and construct temporary trestles
- Build southbound tunnel with ramps from Union to Virginia
- Widen Mercer Underpass
- Start southbound tunnel construction from S. King to Union
- Start building west half of ramps to SR 519

Tunnel - 36 months
- Remove southbound aerial structure (Pike to Battery Street Tunnel)
- Construct new southbound aerial structure (Pike to Battery Street Tunnel)
- Improve southbound Battery Street Tunnel
- Complete southbound tunnel (S. King to Virginia)
- Complete west half of ramps to SR 519

Tunnel - 36 months
- Remove northbound aerial structure (Pike to Battery Street Tunnel)
- Construct new northbound aerial structure (Pike to Battery Street Tunnel)
- Improve northbound Battery Street Tunnel
- Remove existing Alaskan Way Viaduct from S. Holgate to Pike
- Construct northbound Tunnel
- Construct east half of ramps to SR 519

13 months
- Complete relocation of utilities
- Restore Alaskan Way surface street
- Route traffic to final configurations

9 years

Bypass Tunnel

Bypass Tunnel - 24 months
- Rebuild Seawall in areas where tunnel does not fix Seawall
- Establish Broad Street Detour and construct temporary trestles
- Widen Mercer Underpass
- Start Bypass Tunnel construction
- Start building the west half of ramps to SR 519

Bypass Tunnel - 30 months
- Remove southbound aerial structure (Pike to Battery Street Tunnel)
- Construct new southbound aerial structure (Pike to Battery Street Tunnel)
- Improve southbound Battery Street Tunnel
- Complete Bypass Tunnel construction
- Complete west half of ramps to SR 519

Bypass Tunnel - 30 months
- Remove northbound aerial structure (Pike to Battery Street Tunnel)
- Construct new northbound aerial structure (Pike to Battery Street Tunnel)
- Improve northbound Battery Street Tunnel
- Construct east half of ramps to SR 519

18 months
- Complete relocation of utilities
- Restore Alaskan Way surface street
- Route traffic to final configurations

8.5 years

Surface

Surface - 30 months
- Rebuild Seawall
- Establish Broad Street Detour and construct temporary trestles
- Widen Mercer Underpass
- Start building west half of ramps to SR 519
- Build temporary southbound SR 99 at-grade roadway for traffic detour above Seawall

Surface - 30 months
- Remove southbound aerial structure (Pike to Battery Street Tunnel)
- Construct new southbound aerial structure (Pike to Battery Street Tunnel)
- Improve southbound Battery Street Tunnel
- Complete west half of ramps to SR 519

Surface - 30 months
- Remove the existing Viaduct
- Construct new northbound aerial structure (Pike to Battery Street Tunnel)
- Construct northbound Battery Street Tunnel Improvements
- Construct SR 99 at-grade roadway from S. Holgate to Pike
- Construct east half of ramps to SR 519

8 mos.
- Complete relocation of utilities
- Restore Alaskan Way
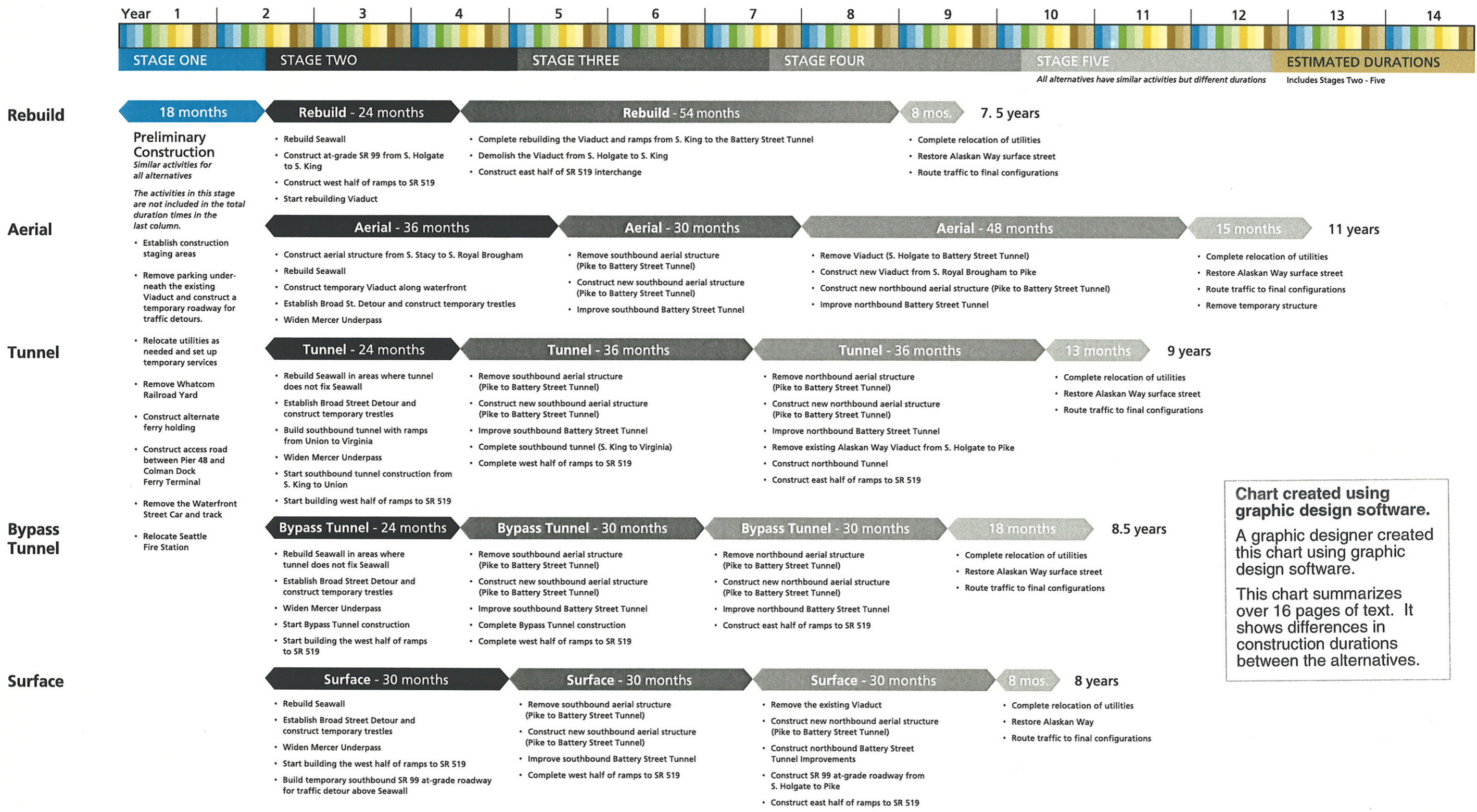- Route traffic to final configurations

8 years

Chart created using graphic design software.

A graphic designer created this chart using graphic design software.

This chart summarizes over 16 pages of text. It shows differences in construction durations between the alternatives.

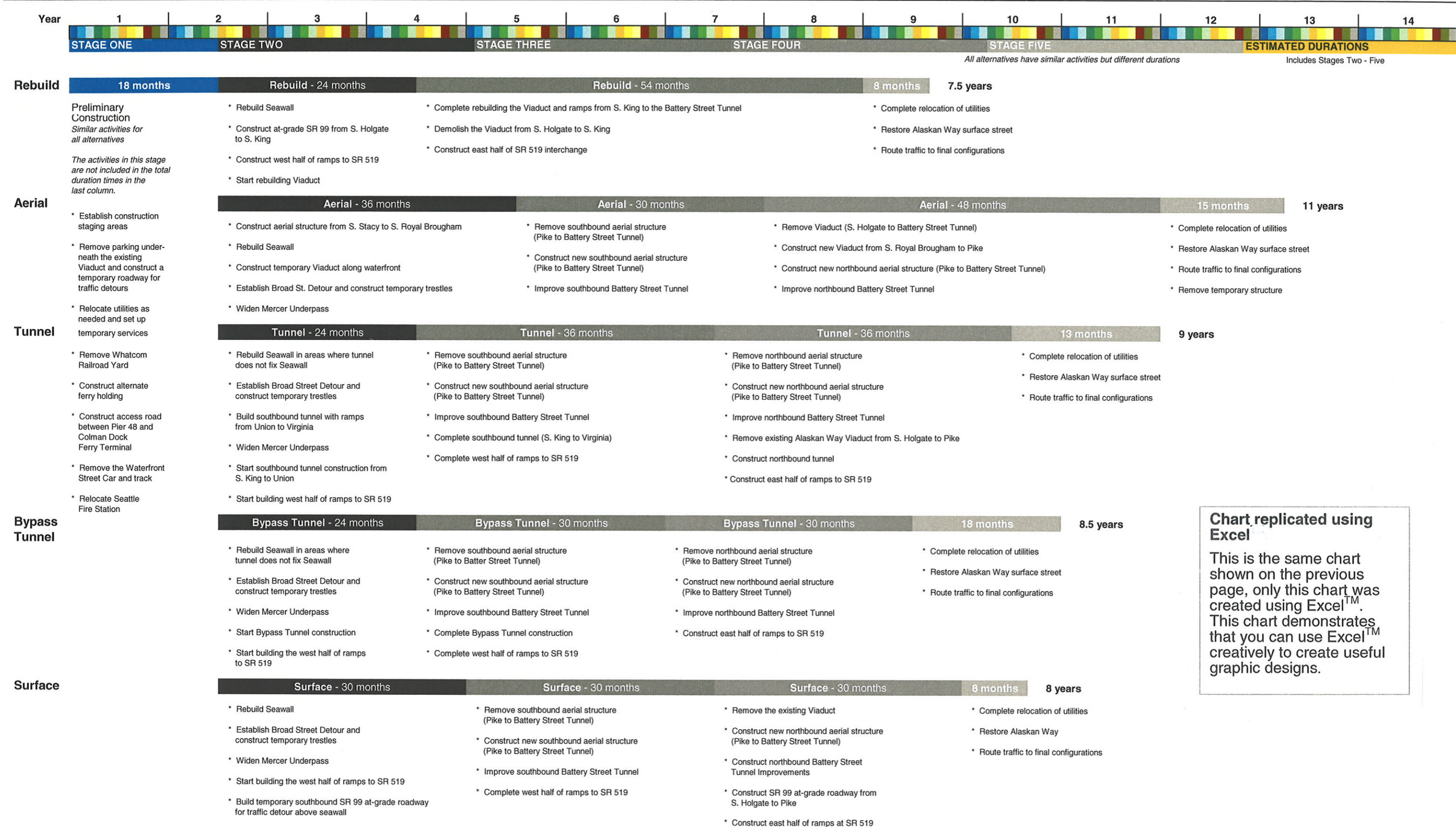# Alternatives Construction Chart

Timeline Assumes Full Project Funding

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14

STAGE ONE	STAGE TWO	STAGE THREE	STAGE FOUR	STAGE FIVE	ESTIMATED DURATIONS
			All alternatives have similar activities but different durations		Includes Stages Two - Five

Rebuild

| 18 months | Rebuild - 24 months | Rebuild - 54 months | 8 months | 7.5 years |

Preliminary Construction
Similar activities for all alternatives

The activities in this stage are not included in the total duration times in the last column.

* Rebuild Seawall
* Construct at-grade SR 99 from S. Holgate to S. King
* Construct west half of ramps to SR 519
* Start rebuilding Viaduct

* Complete rebuilding the Viaduct and ramps from S. King to the Battery Street Tunnel
* Demolish the Viaduct from S. Holgate to S. King
* Construct east half of SR 519 interchange

* Complete relocation of utilities
* Restore Alaskan Way surface street
* Route traffic to final configurations

Aerial

| Aerial - 36 months | Aerial - 30 months | Aerial - 48 months | 15 months | 11 years |

* Establish construction staging areas
* Remove parking underneath the existing Viaduct and construct a temporary roadway for traffic detours
* Relocate utilities as needed and set up temporary services
* Remove Whatcom Railroad Yard
* Construct alternate ferry holding
* Construct access road between Pier 48 and Colman Dock Ferry Terminal
* Remove the Waterfront Street Car and track
* Relocate Seattle Fire Station

* Construct aerial structure from S. Stacy to S. Royal Brougham
* Rebuild Seawall
* Construct temporary Viaduct along waterfront
* Establish Broad St. Detour and construct temporary trestles
* Widen Mercer Underpass

* Remove southbound aerial structure (Pike to Battery Street Tunnel)
* Construct new southbound aerial structure (Pike to Battery Street Tunnel)
* Improve southbound Battery Street Tunnel

* Remove Viaduct (S. Holgate to Battery Street Tunnel)
* Construct new Viaduct from S. Royal Brougham to Pike
* Construct new northbound aerial structure (Pike to Battery Street Tunnel)
* Improve northbound Battery Street Tunnel

* Complete relocation of utilities
* Restore Alaskan Way surface street
* Route traffic to final configurations
* Remove temporary structure

Tunnel

| Tunnel - 24 months | Tunnel - 36 months | Tunnel - 36 months | 13 months | 9 years |

* Rebuild Seawall in areas where tunnel does not fix Seawall
* Establish Broad Street Detour and construct temporary trestles
* Build southbound tunnel with ramps from Union to Virginia
* Widen Mercer Underpass
* Start southbound tunnel construction from S. King to Union
* Start building west half of ramps to SR 519

* Remove southbound aerial structure (Pike to Battery Street Tunnel)
* Construct new southbound aerial structure (Pike to Battery Street Tunnel)
* Improve southbound Battery Street Tunnel
* Complete southbound tunnel (S. King to Virginia)
* Complete west half of ramps to SR 519

* Remove northbound aerial structure (Pike to Battery Street Tunnel)
* Construct new northbound aerial structure (Pike to Battery Street Tunnel)
* Improve northbound Battery Street Tunnel
* Remove existing Alaskan Way Viaduct from S. Holgate to Pike
* Construct northbound tunnel
* Construct east half of ramps to SR 519

* Complete relocation of utilities
* Restore Alaskan Way surface street
* Route traffic to final configurations

Bypass Tunnel

| Bypass Tunnel - 24 months | Bypass Tunnel - 30 months | Bypass Tunnel - 30 months | 18 months | 8.5 years |

* Rebuild Seawall in areas where tunnel does not fix Seawall
* Establish Broad Street Detour and construct temporary trestles
* Widen Mercer Underpass
* Start Bypass Tunnel construction
* Start building the west half of ramps to SR 519

* Remove southbound aerial structure (Pike to Batter Street Tunnel)
* Construct new southbound aerial structure (Pike to Battery Street Tunnel)
* Improve southbound Battery Street Tunnel
* Complete Bypass Tunnel construction
* Complete west half of ramps to SR 519

* Remove northbound aerial structure (Pike to Battery Street Tunnel)
* Construct new northbound aerial structure (Pike to Battery Street Tunnel)
* Improve northbound Battery Street Tunnel
* Construct east half of ramps to SR 519

* Complete relocation of utilities
* Restore Alaskan Way surface street
* Route traffic to final configurations

Chart replicated using Excel

This is the same chart shown on the previous page, only this chart was created using Excel™. This chart demonstrates that you can use Excel™ creatively to create useful graphic designs.

Surface

| Surface - 30 months | Surface - 30 months | Surface - 30 months | 8 months | 8 years |

* Rebuild Seawall
* Establish Broad Street Detour and construct temporary trestles
* Widen Mercer Underpass
* Start building the west half of ramps to SR 519
* Build temporary southbound SR 99 at-grade roadway for traffic detour above seawall

* Remove southbound aerial structure (Pike to Battery Street Tunnel)
* Construct new southbound aerial structure (Pike to Battery Street Tunnel)
* Improve southbound Battery Street Tunnel
* Complete west half of ramps to SR 519

* Remove the existing Viaduct
* Construct new northbound aerial structure (Pike to Battery Street Tunnel)
* Construct northbound Battery Street Tunnel Improvements
* Construct SR 99 at-grade roadway from S. Holgate to Pike
* Construct east half of ramps at SR 519

* Complete relocation of utilities
* Restore Alaskan Way
* Route traffic to final configurations

Appendix E - Create a Bar Chart

What information is contained in this appendix?

Appendix E provides you with step-by-step instructions that teach you how to create a simple, effective bar chart using Microsoft Excel and PowerPoint.

Washington State
Department of Transportation

How to Develop an Excel Chart

How do I create a bar chart using Excel?

Follow these step-by-step instructions to learn how to create a simple, effective bar chart using Microsoft Excel and PowerPoint. For this exercise we are going to take the data from the table below and create the bar chart shown below.

2030 Corridor Travel Times Data

Southbound	2002 Existing	2030 Existing Facility	2030 Rebuild	2030 Aerial	2030 Tunnel	2030 Bypass Tunnel	2030 Surface
Aurora Bridge - Spokane Street	8	9	9	8	8	8	16
Ballard Bridge - SR 519 (Stadium Area)	12	13	14	14	14	21	22
Aurora Bridge - Seattle Downtown	15	16	16	16	16	16	19
Seattle Downtown - Spokane Street	8	9	9	9	10	10	10

2030 Corridor Travel Times Bar Chart
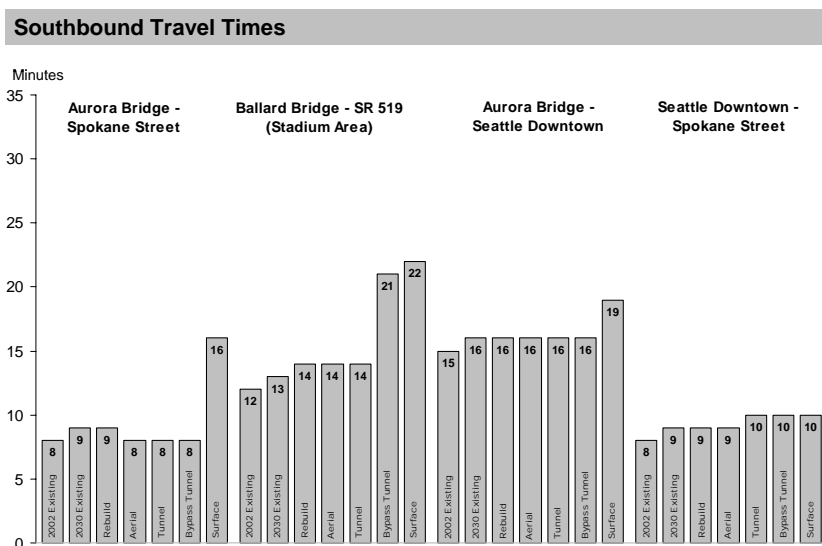
Step 1: Input data

- **Option A**: Manually input data into an Excel spreadsheet.

- **Option B**: Copy an existing table from Microsoft Word or Excel.

    Note: The example used in this guide was copied from an existing Microsoft Word file.

Step 2: Creating a table

- To create a similar table in Excel, begin by placing the title of the spreadsheet (2030 Corridor Travel Times) -in cell A1.

> Choose Format from the standard toolbar, Alignment, and check the Merge cells box.
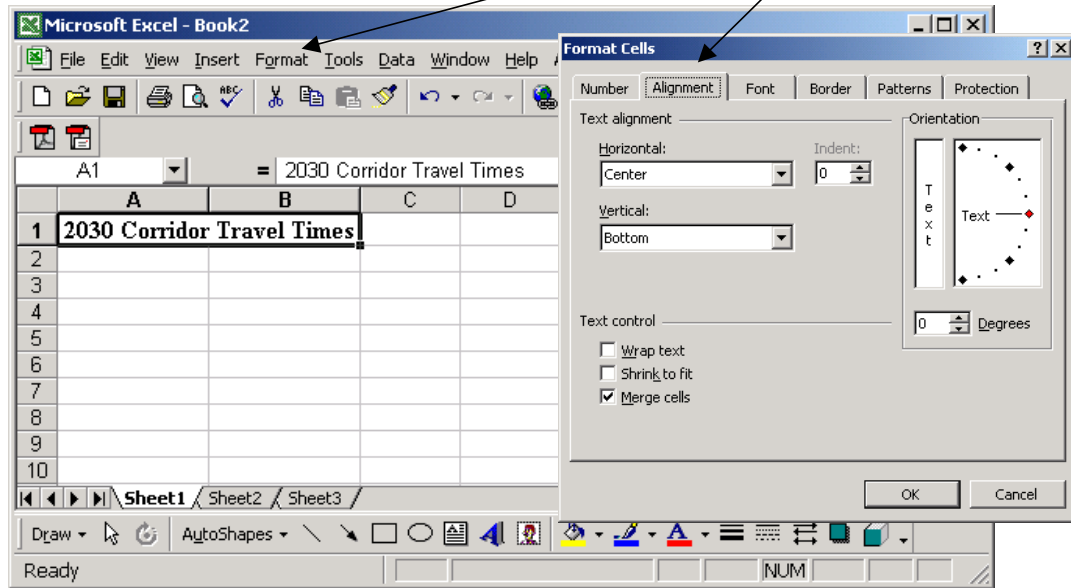
- For this exercise, we are putting the title of our chart (Southbound Travel Times) in cell A2.
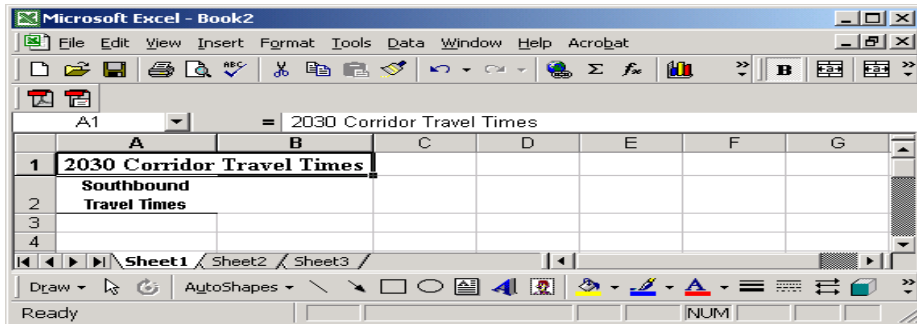
▪ In cell B2, enter the first alternative title (2002 Existing) and press Tab to move to the next cell to the right. Continue inputting the names of the alternatives.
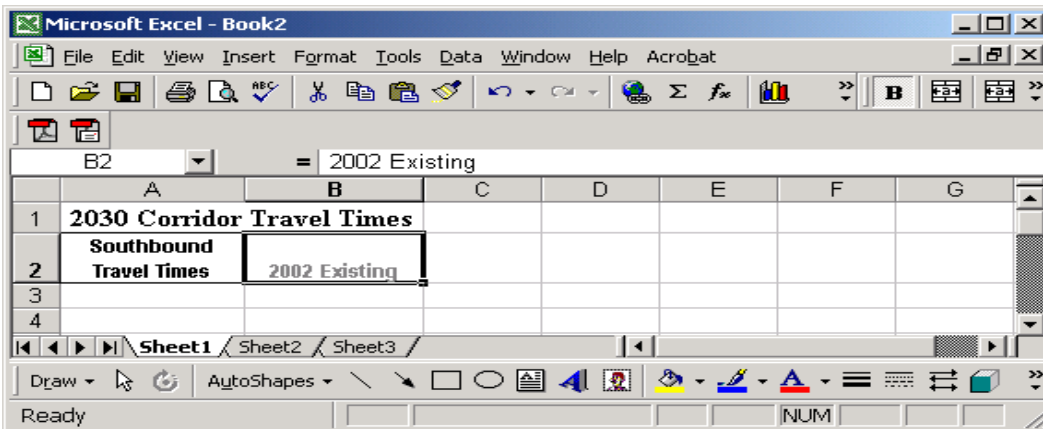
▪ Then click in cell A3 and input your first destination name (Aurora Bridge-Spokane Street) and press the Arrow Down key or Enter to move to cell A4. Once you have input all of your destinations, you can begin to enter the data to be charted.

▪ To add borders to your cell, click the Format button on your standard toolbar. Then choose the Border tab and select the style you would like to use.
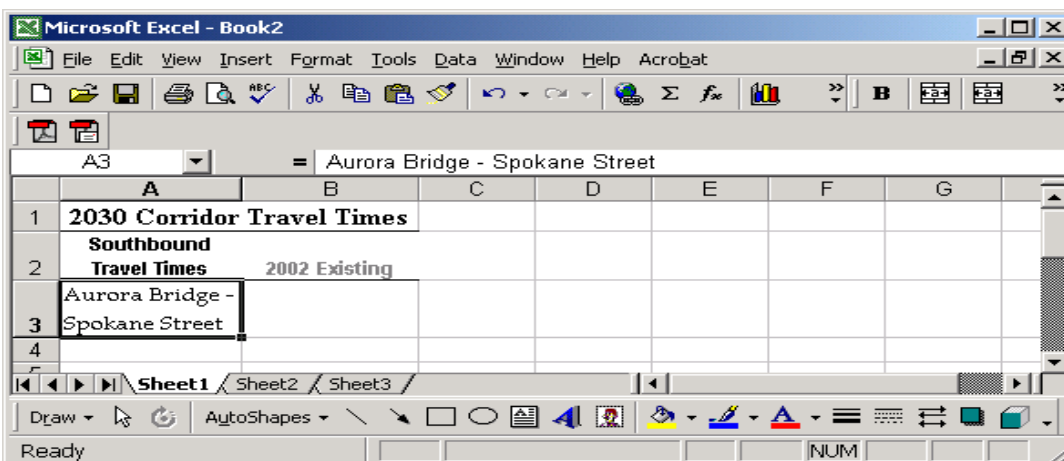
Tip: To frame (outline) your data, simply select all your cells containing the information you entered and go back into Format, Border, and Select Outline.

▪ Confirm that all of the necessary data is contained in the spreadsheet, including labels for rows and columns.
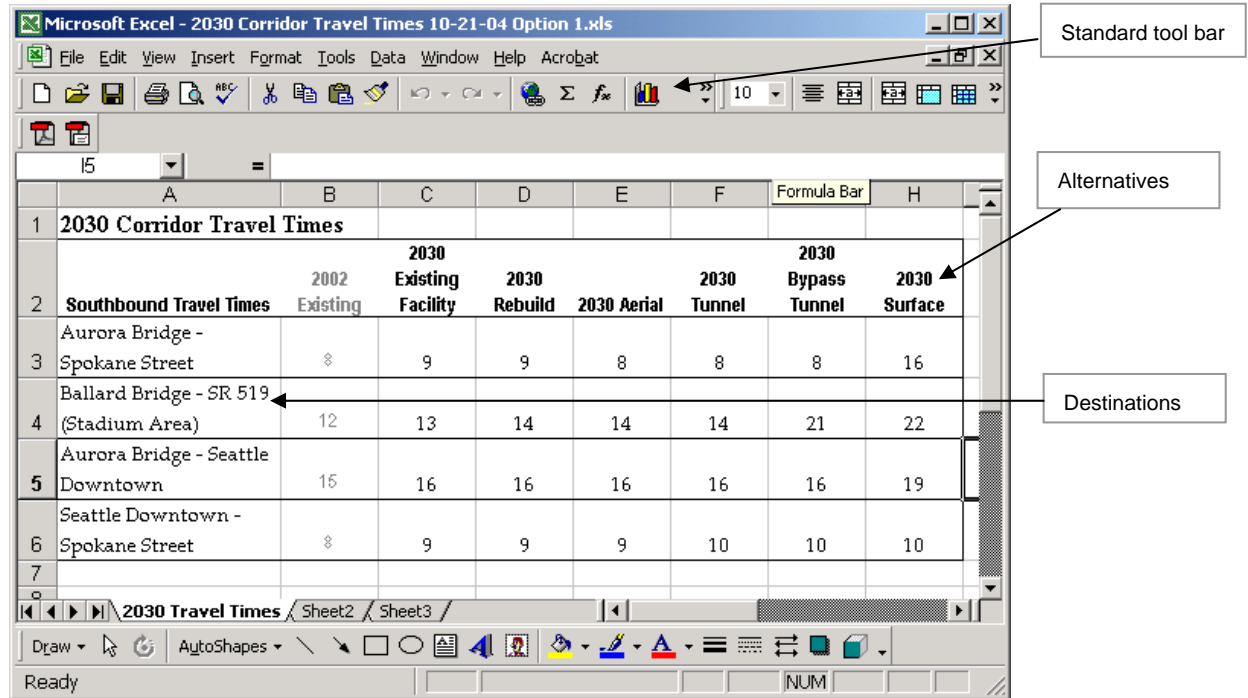
Step 3: Create a column chart using the Chart Wizard

▪ Select the data you want to chart by highlighting the rows and columns.
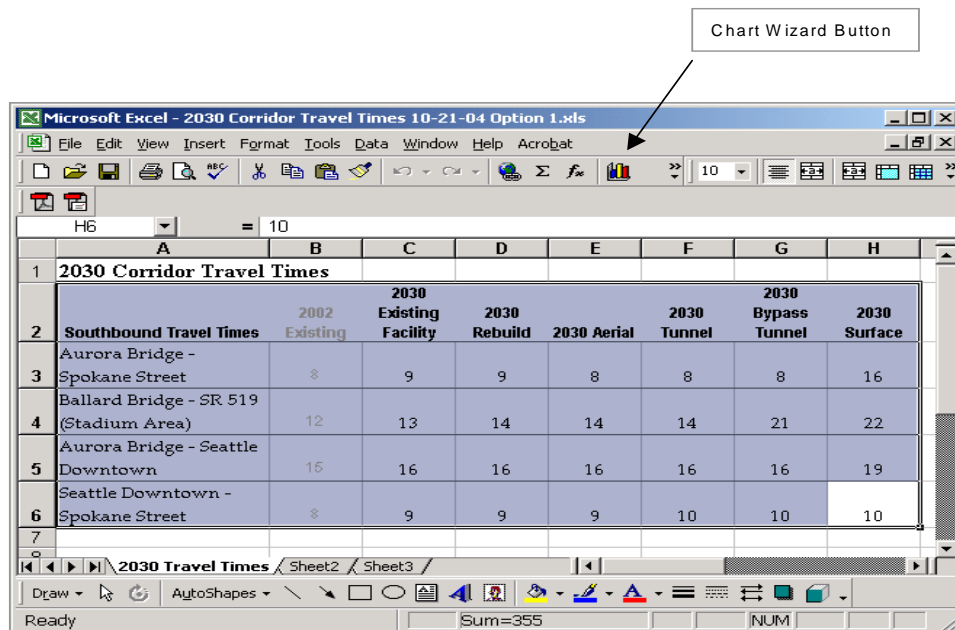
- Click the Chart Wizard button on the Standard toolbar.

- Follow the series of steps in the Chart Wizard dialog boxes.

Step 4: Chart Wizard—choosing a chart type

- Choose the least complicated chart that best communicates your data. In this case, choose the column chart highlighted in black on the display below.
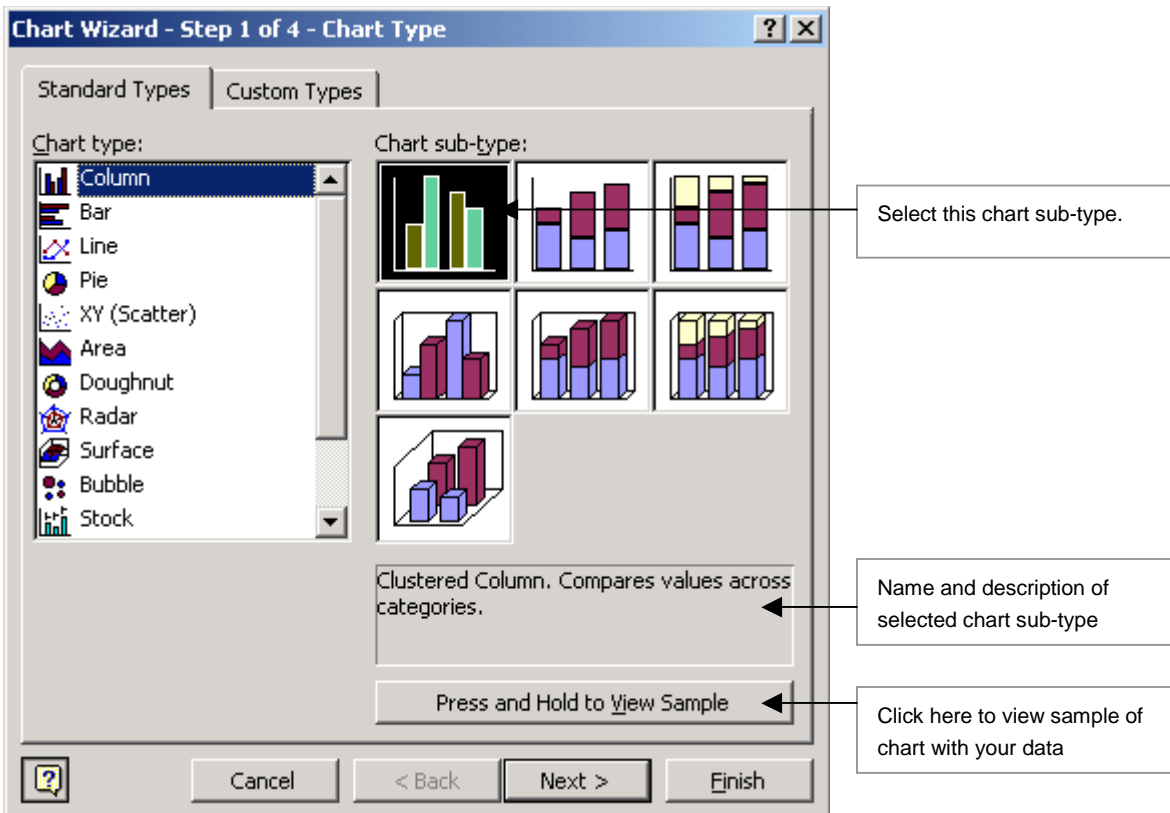
- Once you've selected your chart sub-type, click the Next button.

Step 5: Chart Wizard—selecting chart source data

▪   This step shows you what your chart is beginning to look like. By clicking on Rows or Columns, you can quickly determine which data belongs on which axis.

▪   Again, once you've made your selection, click the Next button.

Step 6: Chart Wizard—Chart Options

The Chart Options dialog box allows you to tailor the chart to your needs. You can also get to the Chart Options box after you've completed the Chart Wizard by right-clicking on your chart and selecting Chart Options. For example, you can:

- Add a title and label the axes.

- Add or remove gridlines.

- Place or remove the legend.

- Add data labels to the plot area.

Remove the X axis labels by selecting this tab and un-checking the "Category X axis" box.

Remove the legend by selecting this tab and removing the check mark for "show legend".

Add the values to each bar by selecting this tab and checking the "show value" box.

For this example, do not enter a chart title or axis labels. We will be doing that in PowerPoint.

Step 7: Chart Wizard – Chart Location

▪   You have the choice of placing the chart in the worksheet
     as an embedded chart or placing it in its own chart sheet
     within the workbook. For this example, save the chart
     within the same Excel worksheet as your data spreadsheet.
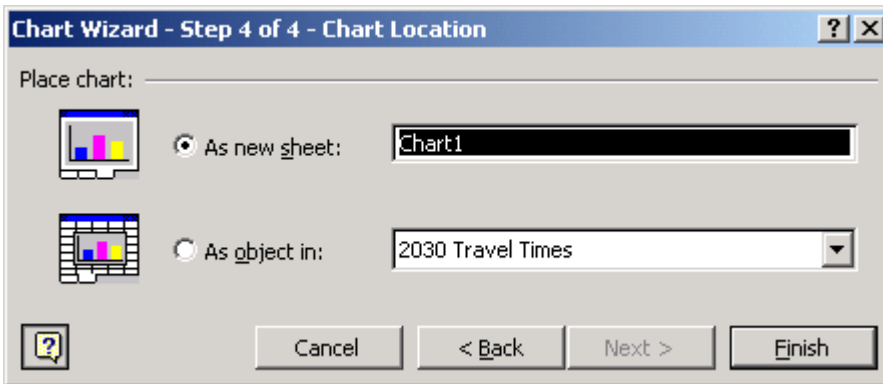
▪   Click Finish to complete your chart. At this point, your
     chart should look like the example below.
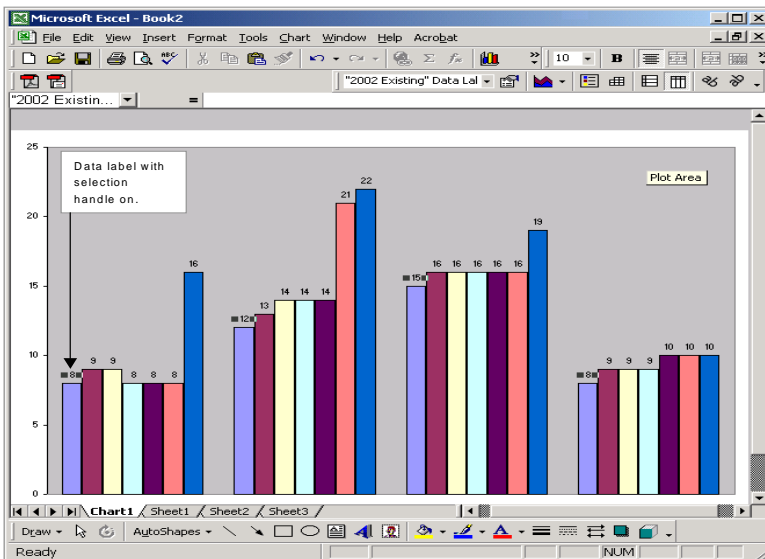
▪   To move the data labels within the bars, click on the
     number so that you see the selection handles. Then click
     on the number and drag it into the bar with your mouse.
     Each number of the same color bar will move at the same
     time.

Step 8: Customize your chart

Once you have the basic chart in place, there are many ways to customize and simplify the look of the chart. For this example, you will customize the chart in the following ways:

▪ Format the bars. Right-click on a bar and choose Format Data Series. Then click the Patterns tab and under Area, select the gray color box. To repeat this task and make all of the bars gray, press Ctrl+Y. From this same dialog box, you can select Options and change the overlap and gap width of the bars.

Choose gray for the bar color.
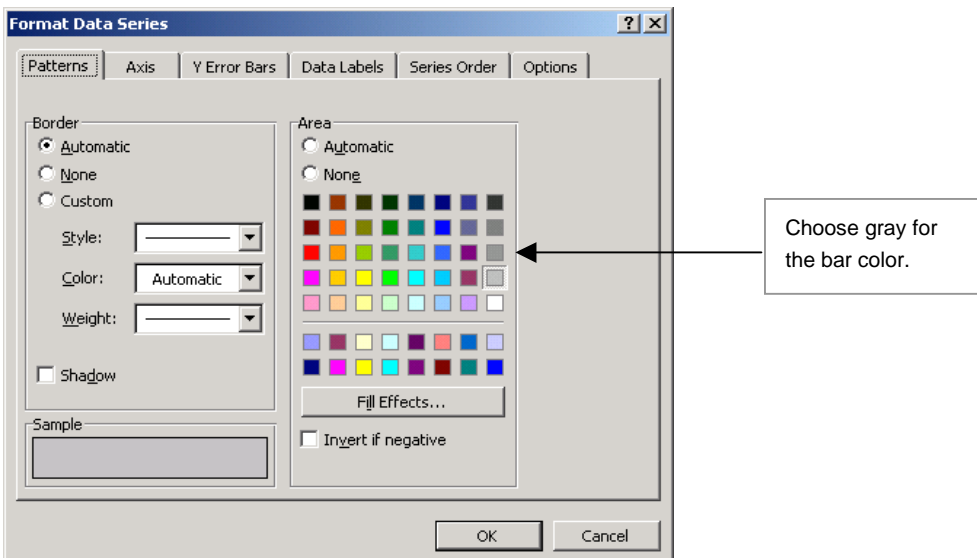
▪ To remove the border, right-click anywhere within the chart and select Format Plot Area. Under Border, choose none.
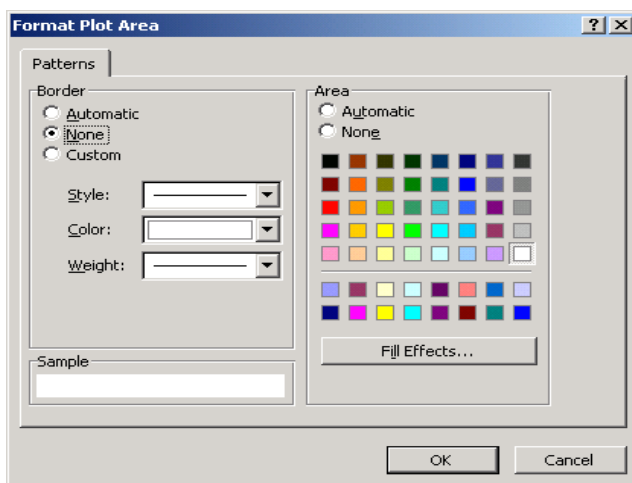
- Remove the gridlines by right-clicking within your chart and choosing Chart Options. Select the gridlines tab and uncheck any checked boxes.
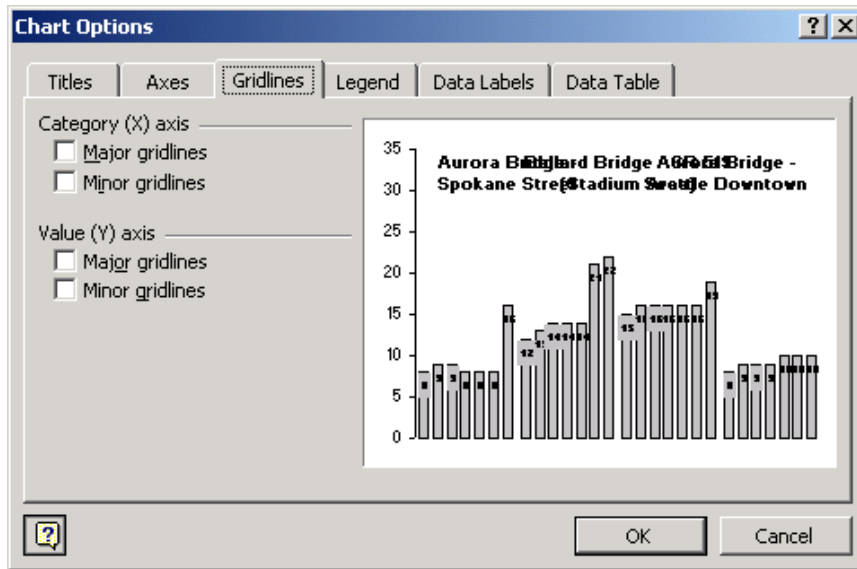
- Insert text boxes to show the destination names within the plot area.

To insert text boxes, select the Textbox button on the Drawing Toolbar, then click within the Plot area where you want the box. You can add text and change the shape, font size, position of the box, and shading by right clicking within the box.
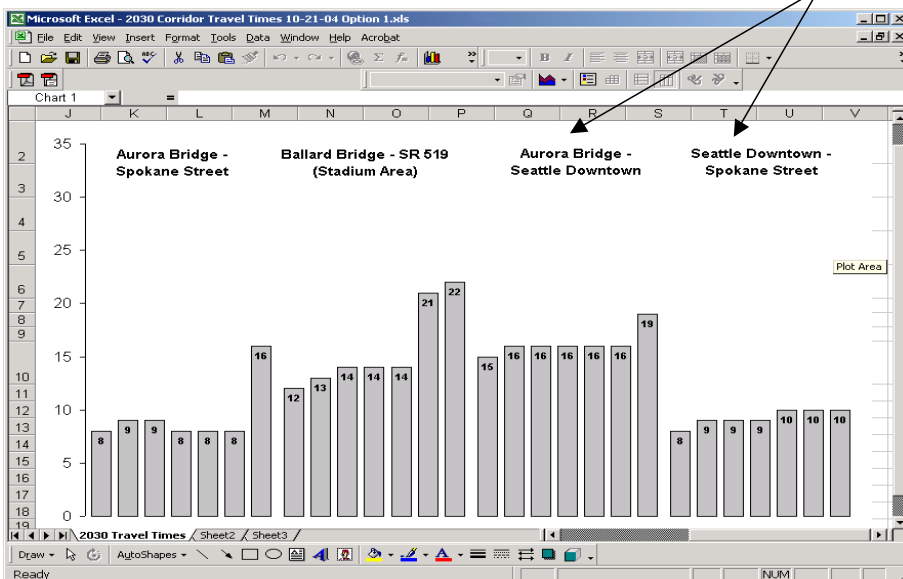
Step 9: Finalizing your chart

▪ Using PowerPoint, you can add finishing touches to your chart. These finishing touches make all the difference in communicating the data effectively. Before you complete Step 9, please contact WSDOT's graphics department at (360) 705-7423.

▪ Select the chart as shown and click Edit, Copy.
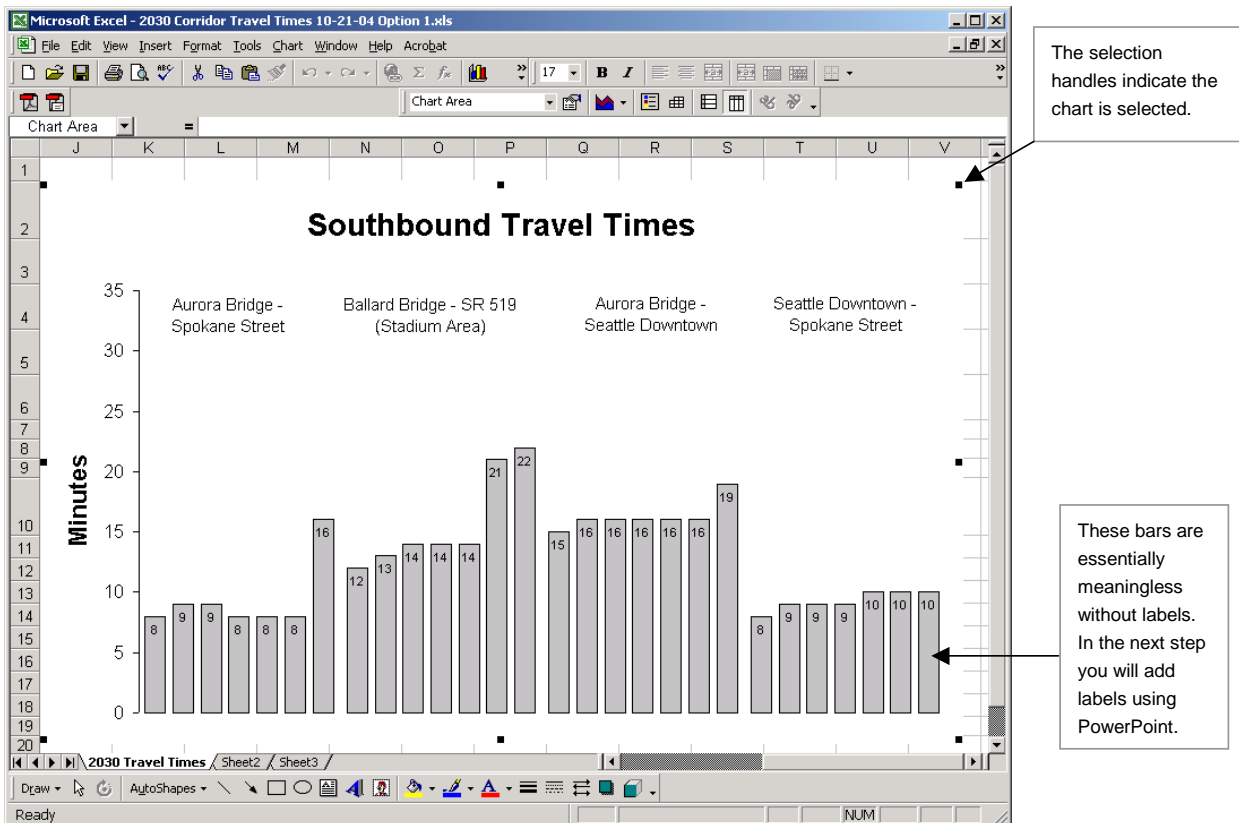
- Open PowerPoint, choose a blank template, then click OK. Right-click within the page and click Paste.

Blank template
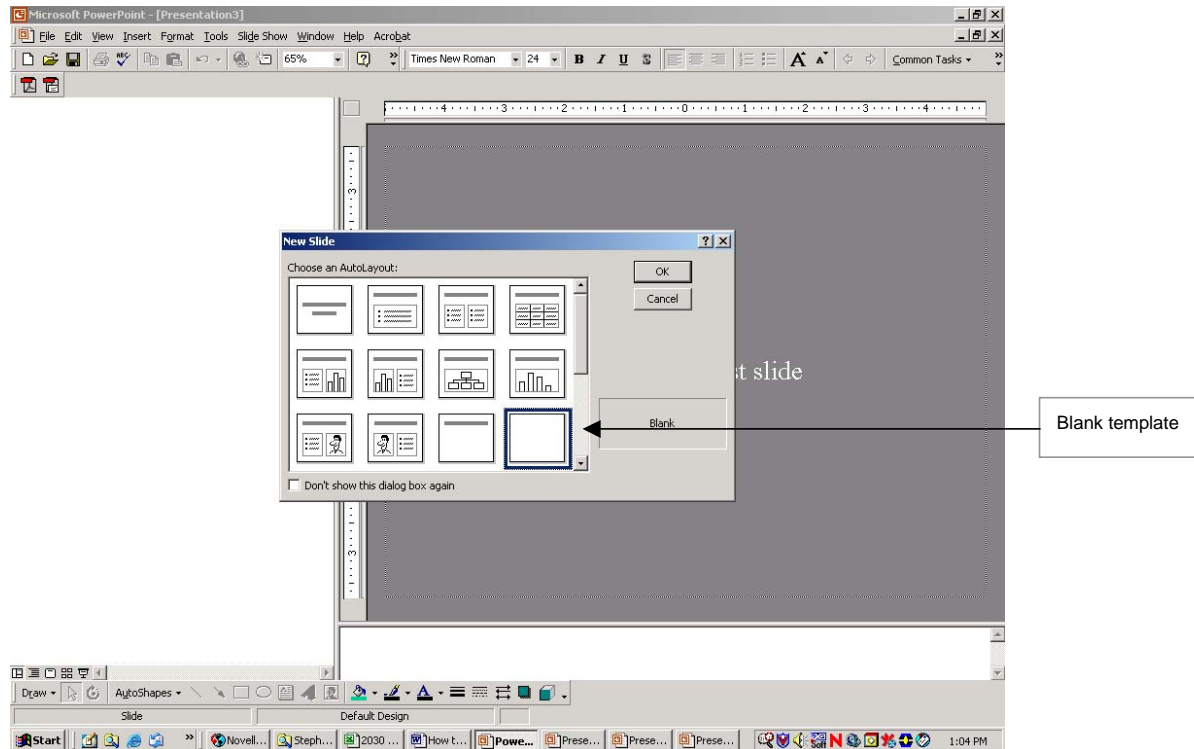
Step 10: Add title and axis labels

Once you have pasted your chart into PowerPoint, you can begin to add finishing touches.

- First, add a shaded title bar by clicking the Text Box button and placing the box at the top of the page. Type in your title and highlight it to change the font size. Then right-click within the box and choose Format Box, Colors and Lines. Choose gray for your shading.

- Grab any corner and drag with the mouse to change the size of the box, as shown on the next page.

- To label the axis with "Minutes," place another text box at the top of the axis line as shown and type in "Minutes". We have made this a smaller font.

Place a text box above the chart, shade it and add your title.

Rotate button

Text Box button

Step 11: Add labels to each bar

▪   To add labels to each bar, use the Drawing toolbar, add text boxes, rotate them 90 degrees, and position them within the bars.

▪   Hints:

> To position text boxes, lines, etc. exactly where you want them, hold the Alt key down while you are moving the object. This allows you to move in small increments.

> To keep lines you draw straight, hold the Shift key down while drawing the line.

> These tools can also be used together so that your line stays straight and you can move it just where you want it.
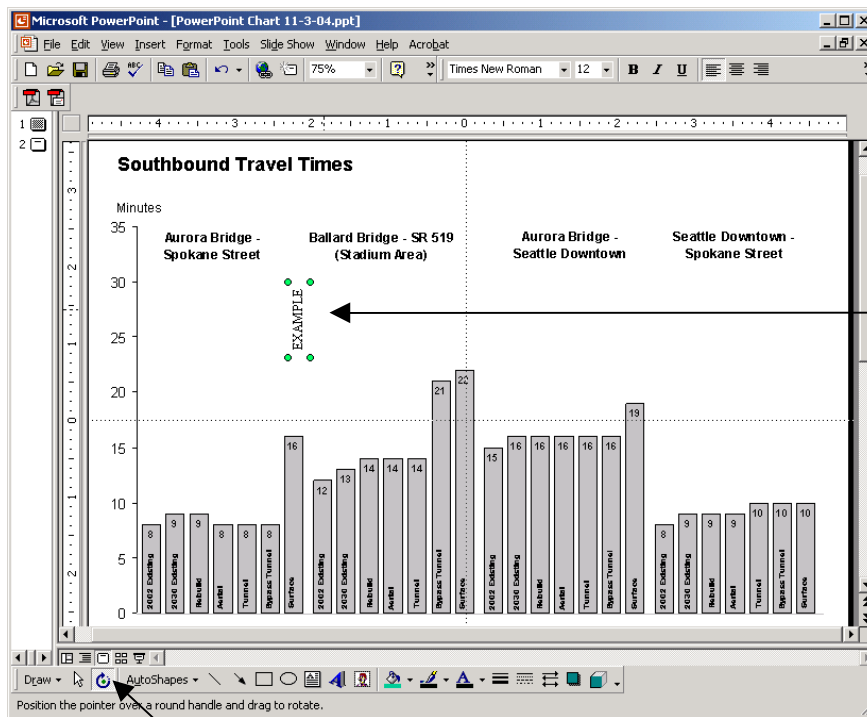
1) Click the Text Box button, then click on your page.

3) Your text box will have green dots at each corner. Grab a dot with your mouse and rotate 90 degrees while holding down the Alt and Shift keys

2) Be sure the text box is selected, then click the rotate button.

Conclusion: The final product

The chart now has all of the pertinent information in an easy to
understand format.

Southbound Travel Times

Minutes

**Aurora Bridge -
Spokane Street**

Label	Value
2002 Existing	8
2030 Existing	9
Rebuild	9
Aerial	8
Tunnel	8
Bypass Tunnel	8
Surface	16

**Ballard Bridge - SR 519
(Stadium Area)**

Label	Value
2002 Existing	12
2030 Existing	13
Rebuild	14
Aerial	14
Tunnel	14
Bypass Tunnel	21
Surface	22

**Aurora Bridge -
Seattle Downtown**

Label	Value
2002 Existing	15
2030 Existing	16
Rebuild	16
Aerial	16
Tunnel	16
Bypass Tunnel	16
Surface	19

**Seattle Downtown -
Spokane Street**

Label	Value
2002 Existing	8
2030 Existing	9
Rebuild	9
Aerial	9
Tunnel	10
Bypass Tunnel	10
Surface	10

Appendix F - Definitions

What information is contained in this appendix?

The definitions contained in Appendix F define terms or phrases that we often use in environmental documents that may not be understood by the public. The definitions provided in this appendix have been used as sidebars in a number of our environmental documents. You can use these definitions in your own documents, or you can modify them as needed.

The WSDOT Environmental Procedures Manual Appendix B Glossary also contains terms and phrases used in environmental documents. The EPM Appendix B can be found at:

http://www.wsdot.wa.gov/Publications/Manuals/M31-11.htm

Washington State
Department of Transportation

Definitions

What is the "year 2030 existing facility" and why is it evaluated?

The year 2030 existing facility shows how much traffic is projected to use the existing facility in the year 2030. It takes into account future population growth and other funded transportation projects. It assumes that the facility would remain in the year 2030 in its existing condition. This information provides a baseline that can be compared with traffic conditions for the proposed alternatives.

What are congested and highly congested intersections?

Congested intersections are intersections that cause drivers considerable delay. A driver might wait between one and two minutes to get through a traffic signal at a congested intersection. At a highly congested intersection, a driver might wait two minutes or more to get through the traffic signal.

What is the PM peak hour and why is traffic data analyzed for the PM peak?

The PM peak hour is the time period when traffic is heaviest during the late afternoon commute. For X facility, the PM peak hour occurs from X:00 to X:00 p.m.

What are High Accident Locations?

High Accident Locations are defined as locations less than a mile long that have experienced a higher than average rate of accidents during the previous 2 years.

What are Pedestrian Accident Locations?

Pedestrian Accident Locations are defined as a section of highway with four or more pedestrian/vehicle collisions over a 6-year period.

What is dBA?

dBA stands for an A-weighted decibel. A-weighted decibels measure sounds at frequencies that people can hear.

What is VdB?

VdB is a measure of the average vibration level.

Washington State Department of Transportation

What is environmental justice?

Good outreach means that all people potentially affected by a project have the opportunity to participate by receiving information, attending meetings, or providing input into public decisions. Environmental justice is a federal requirement that says in addition to good outreach, projects should provide equitable benefits to minorities or low-income populations and that any adverse effects are not disproportionate to these traditionally underserved groups.

What are anadromous fish?

Anadromous fish live most of their adult lives in salt water, and they migrate to freshwater rivers, lakes, and streams to reproduce.[1]

What are combined sewer overflows (CSOs)?

Combined sewers carry sewage in the same pipe as stormwater. During normal storm events, combined sewers convey sewage and stormwater to wastewater treatment plants where the water is treated and discharged. During heavy rainfall, the combination of sewage and stormwater sometimes exceeds the capacity of the pipe and the wastewater treatment plant. When this occurs, the combined sewer will overflow and discharge into a nearby lake or stream without being treated.

What is the 303(d) list?

The federal Clean Water Act[2] requires Ecology to prepare a list of impaired water bodies found in Washington State. This list is called the 303(d) list. The list identifies water bodies in which beneficial uses, such as salmon habitat and recreational activities, have been impaired due to poor water quality. Ecology then uses the 303(d) list to develop plans to improve water quality.

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[1] NOAA Fisheries, 2004. Website:
http://www.nmfs.noaa.gov/nabitat/habitatprotection/anadromousfish.htm.

[2] 33 U.S.C. §1313(d)

What is the Ecology 305(b) report?

Ecology prepares a Section 305(b) report to inform the U.S. Congress and the public about the current conditions of the state's waters. The 305(b) report describes the water quality status of all waters in the state, while the 303(d) list reports only on the status of impaired water bodies.

What are impervious surfaces and how does increasing impervious surface area affect surface water resources?

Impervious surfaces, such as rooftops, sidewalks, roads, parking lots, and compacted urban soils, prevent rain from infiltrating soils as it would naturally. These barriers shift more water into lakes, rivers, and streams and can increase the transport of pollutants from land to adjoining surface waters.

How do state agencies regulate an increase in impervious surface area?

Current state regulations require new and redeveloping construction projects to treat stormwater and sometimes control the flow of stormwater from existing and new impervious surfaces.

What are pollutant-generating impervious surfaces?

Pollutant-generating impervious surfaces are impervious surfaces that are a source of pollutants in stormwater runoff. Project area pollutant-generating impervious surfaces include roadways that receive direct rainfall or run-on or blow-in rainfall.

What are BMPs?

Best management practices (BMPs) are actions or structures that reduce or prevent pollutants from entering stormwater and degrading water quality. There are many different types of BMPs—some are treatment technologies, such as stormwater treatment ponds. Others are typical measures that can be implemented as part of a project, such as sweeping streets of debris. Some BMPs are permanent features of a project, while others can be temporary measures used during construction.

What is pH?

pH is a measurement of the acidity or alkalinity in a substance. A pH level of 7 is considered normal. If runoff becomes too basic (too alkaline) or too acidic, it can harm aquatic life when discharged.

What are polycyclic aromatic hydrocarbons (PAHs)?

PAHs are a group of cancer-causing chemicals formed when organic substances do not completely burn. Typical substances that can form PAHs include coal, oil, gas, wood, garbage, tobacco, and meat.

What are fecal coliforms?

Fecal coliforms are bacteria present in human and animal feces that can indicate the presence of harmful bacteria and viruses.

What is turbidity?

Turbidity occurs when sediment is stirred up or suspended, causing water to be cloudy.

What is a floodplain?

Land adjacent to waterbodies that can regularly be inundated by floodwater is called a floodplain. The Federal Emergency Management Agency (FEMA) regulates flood hazards within a 100-year floodplain.

What is liquefaction?

Liquefaction is what can happen to loose soils when shaking motion from an earthquake causes the soil to develop a consistency like quicksand. This can cause foundations to fail.

What is a sole source aquifer?

A sole source aquifer is defined as an aquifer that supplies "at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas can have no alternative drinking water source(s), which can physically, legally, and economically supply all those who depend upon the aquifer for drinking water."[3]

---

[3] USEPA 2004. Sole Source Aquifer Designations for Region 10 Web page. http://www.epa.gov.watertrain/cwa

What is a Critical Aquifer Recharge Area (CARA)?

A CARA is defined as a geographic area that has a critical recharging effect on aquifer(s) used for drinking water supply.[4]

What is a Group A public water supply well?

Group A public water supply wells provide drinking water to 15 or more connections (such as a house).

What is a Group B public water supply well?

Group B public water supply wells provide drinking water to 14 or less connections.

What is a girder?

A girder is a beam often used as a main horizontal support in bridge construction.

What is an auger?

An auger is a construction tool used to drill holes in the ground.

What are cumulative effects?

Cumulative effects are the combined effects of all actions on a given resource, regardless of who has taken the action.

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[4] RCW 36.70A.040(5)

Appendix G - Document Outlines

What information is contained in this appendix?

Appendix G provides examples of three document outlines for WSDOT environmental documents. The first outline is the Draft EIS outline for the Alaskan Way Viaduct and Seawall Replacement Project. The second outline is the EA outline for the I-405 Kirkland Nickel Project. The third outline is an example of an outline created for an energy technical report. The technical report outline was developed using a similar format as a discipline report checklist from WSDOT's *Environmental Procedures Manual*. The outline was created in this format to help make it easier for WSDOT reviewers.

Washington State
Department of Transportation

SR 99: ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROJECT

Draft EIS Outline

Washington State
Department of Transportation

City of
Seattle

U.S. Department of Transportation
**Federal Highway
Administration**

October 2003

SR 99: Alaskan Way Viaduct & Seawall Replacement Project

Cover Sheet

Fact Sheet (includes requried permits and licenses)

Cover Sheet as required by NEPA, 40 CFR 1502.25

Fact Sheet as required by SEPA, WAC 197-11-430

TABLE OF CONTENTS (NEPA/SEPA REQUIREMENT)

LIST OF APPENDICES

LIST OF EXHIBITS

ACRONYMS

DRAFT

Chapter 1 INTRODUCTION TO THE PROJECT

1. Why was the Alaskan Way Viaduct and Seawall Replacement Project initiated?

2. Why do we need the Project?

3. Who is leading the Project?

4. Who will decide what will replace the Viaduct and Seawall and how can I be involved?

> **Purpose and Need** will briefly be stated here, the entire purpose and need statement will be included in the appendix. Purpose and need is required by NEPA 40 CFR 1502.13.

Chapter 2 SUMMARY: COMPARISON OF ALTERNATIVES

Please note an outline of this section will be developed once more of the document and story begins to take shape. However, this will contain a comparison of project effects for the alternatives for both operations (the future condition) and construction conditions.

Summary This is the summary chapter required by NEPA (40 CFR 1502.10) and SEPA (WAC 197-11-430). It has been put at the end of the EIS instead of the beginning because it fits better with the document's flow and organization.

DRAFT

Chapter 3 THE PROJECT AREA NOW AND THEN

1. What are the project boundaries and why were they selected?

2. What elements of Seattle's history have shaped the project area?

    USE A TIMELINE TO SHOW KEY EVENTS!!

    Geologic History and the Seattle Fault

    Tribal Settlement History

    Early Seattle Development – The filling and regrading begins….

3. What elements of Seattle's history have shaped the development of the Seawall?

4. What is the Seawall's condition today?

5. What elements of Seattle's history have shaped the development of the Viaduct?

6. What is the Viaduct's condition today?

7. How much traffic travels on the Viaduct daily?

8. Where are the people using the Viaduct coming from and going to?

9. What are typical travel times and traffic flow?

    On the Viaduct and SR 99?

    On the Alaskan Way surface street?

    On local streets?

    On other large roadways such as I-5?

10. What are the existing conditions for various users?

    Automobile?

    Freight travel?

    Transit Trips?

Affected Environment discussion as required by NEPA (40 CFR 1502.15) and SEPA (WAC 197-11-430) will be in Chapter2.

Question 1 will explain logical termini (23 CFR 771.111(f)).

Geology, **Archaeologic** and **Historic** resources described.

Transportation conditions discussed.

Bicyclists?

Pedestrians?

Boats and Ferries?

11. What are some of the safety concerns with the existing Viaduct?

Land Use discussed.

12. What is the character and land use in the project area?

13. How has the Viaduct shaped land use in the project area?

Visual conditions discussed.

14. What visual features are located in the project area?

15. What are some of the positive and negative visual conditions created by the Viaduct?

16. What is the current visual experience in the project area?

In the south section?

Along the waterfront/in the central section?

In the north waterfront section?

In the north section?

From the Viaduct?

From Elliott Bay?

Noise and Vibration discussed.

17. How noisy is it in the project area?

18. Do neighboring buildings feel vibration from traffic traveling on the Viaduct?

Air Quality discussed.

19. Is air quality a concern?

Parks and Recreation discussed.

20. What parks and recreational facilities are located in the project area?

21. What neighborhoods are found in the project area?

Social Resources and **Environmental Justice** discussed.

22. What community and social services serve these neighborhoods?

23. What people live in the project area, and what characteristics shape the neighborhood?

24. What are current trends for population, housing, and employment?

25. What are the existing conditions for the local and regional economy?

Economic resources discussed.

26. What business districts and business sectors are in or near the project area?

27. What public services (such as police and fire) serve the area?

Public Services and **Utilities** discussed.

28. What utilities are located in the project area?

29. What fish and wildlife species (including those threatened and endangered) are in the project area and what is their habitat like?

Fish and **Wildlife** discussed.

30. What are the existing water quality conditions in the Duwamish River, Elliott Bay, and Lake Union?

Water Quality discussed.

31. How is stormwater from the Viaduct and Alaskan Way surface street currently managed?

32. What are the groundwater conditions in the project area?

33. Are there any existing sources of hazardous or contaminated materials?

Hazardous Materials discussed.

Chapter 4 DEVELOPING THE ALTERNATIVES

Alternatives Considered - Chapter 4 describes the alternatives considered, the alternatives rejected, and those selected for further study per 40 CFR 1502.14 and 23 CFR 771.111 (f)(2). Including the No Build (Do Nothing), and Build Alternatives (and options).

Additional information about the public involvement process is contained in the appendix.

1. How were Alternatives developed?

2. How were the public and other interested agencies involved in developing the alternatives and the Project?

3. How did information from the public shape the alternatives?

4. What Alternatives were considered but are not analyzed in the EIS?

5. What Alternatives are being studied in this EIS?

6. What is the difference between Alternatives and Options?

7. What is the Do Nothing Alternative?

Chapter 5 REBUILD ALTERNATIVE

1. What is the Rebuild Alternative?

Envision a map with pointers showing key features of the Rebuild Alternative. Supporting text would be provided.

How does it replace SR 99 and the Viaduct?

How would it fix the Seawall?

2. How would this Alternative be built?

3. How is this Alternative different than what we have today?

How would it change access in the south?

How would it change access into and out of downtown?

How would it change the Alaskan Way surface street?

How would it change other nearby streets and connections?

4. How would this Alternative affect travel times and traffic flow?

In the AWV Corridor?

On the Alaskan Way surface street?

On local streets?

On other large roadways such as I-5?

5. How would this Alternative affect trips made by various users?

Automobiles?

Freight?

Transit?

Bicyclists?

Pedestrians?

Ferries and Boats?

6. How would this Alternative improve roadway safety?

> **Operational Impacts** and **Mitigation** are described by Alternative in Chapters 4-8. The alternatives will be compared in the summary chapter - Chapter 11.
>
> **Construction Impacts** and **Mitigation** are discussed in Chapter 9.
>
> The impacts information is required per 40 CFR 1502.14 and 16 and WAC 197-11-430).

> **Transportation** impacts would be discussed here. This would include a description of project benefits, avoidance measures taken, project effects, and proposed mitigation

Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilities or archaeology), will only be described in the construction chapter.

Land Use discussed.

7. How would this alternative change the character and land use in the project area?

8. Is this Alternative consistent with existing land use plans for the area?

Visual resources discussed.

9. If this Alternative were built, what would it look like?

Noise and Vibration discussed.

10. How would noise or vibration levels change?

Air Quality discussed.

11. Would this Alternative change air quality?

Relocations discussed.

12. What residences and/or businesses would need to be permanently moved?

Parks and Recreation discussed.

13. How would this Alternative affect parks and recreational facilities?

Social Resources and **Environmental Justice** discussed.

14. How would this Alternative change neighborhoods surrounding the project area?

15. Would the Alternative affect minority or low-income communities?

16. Would this Alternative change regional or community growth over the long-term?

Economics discussed.

17. How would this Alternative affect the local and regional economy after it is built?

18. How would this Alternative affect business districts and business sectors in and near the project area?

Public Services discussed.

19. How would this Alternative affect public services (such as police and fire)?

> Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilities or archaeology), will only be described in the construction chapter.

20. How would this Alternative affect historic resources?

Historic resources discussed.

21. Would this Alternative affect 4f properties?

22. How would this Alternative affect fish and wildlife species (including those threatened and endangered) and their habitat?

Fish and **Wildlife** discussed.

23. Would this Alternative change water quality?

Water Quality discussed.

24. Would the project increase stormwater runoff?

25. Where would stormwater go and how would it be treated?

26. Would this Alternative change groundwater flows or quality?

27. How would this Alternative change soils once the Project is completed?

Geology discussed.

28. Would the completed project create any new sources of hazardous material?

Hazardous Materials discussed.

Chapter 6 AERIAL ALTERNATIVE

1. What is the Aerial Alternative?

Envision a map with pointers showing key features of the Rebuild Alternative. Supporting text would be provided.

How does it replace SR 99 and the Viaduct?

How would it fix the Seawall?

2. How would this Alternative be built?

3. How is this Alternative different than what we have today?

How would it change access in the south?

How would it change access into and out of downtown?

How would it change the Alaskan Way surface street?

How would it change other nearby streets and connections?

4. How would this Alternative affect travel times and traffic flow?

In the AWV Corridor?

On the Alaskan Way surface street?

On local streets?

On other large roadways such as I-5?

> **Transportation** impacts would be discussed here. This would include a description of project benefits, avoidance measures taken, project effects, and proposed mitigation

5. How would this Alternative affect trips made by various users?

Automobiles?

Freight?

Transit?

Bicyclists?

Pedestrians?

Ferries and Boats?

6. How would this Alternative improve roadway safety?

Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilities or archaeology), will only be described in the construction chapter.

Land Use discussed.	7. How would this alternative change the character and land use in the project area?
	8. Is this Alternative consistent with existing land use plans for the area?
Visual resources discussed.	9. If this Alternative were built, what would it look like?
Noise and Vibration discussed.	10. How would noise or vibration levels change?
Air Quality discussed.	11. Would this Alternative change air quality?
Relocations discussed.	12. What residences and/or businesses would need to be permanently moved?
Parks and Recreation discussed.	13. How would this Alternative affect parks and recreational facilities?
Social Resources and **Environmental Justice** discussed.	14. How would this Alternative change neighborhoods surrounding the project area?
	15. Would the Alternative affect minority or low-income communities?
	16. Would this Alternative change regional or community growth over the long-term?
Economics discussed.	17. How would this Alternative affect the local and regional economy after it is built?
	18. How would this Alternative affect business districts and business sectors in and near the project area?
Public Services discussed.	19. How would this Alternative affect public services (such as police and fire)?

Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilities or archaeology), will only be described in the construction chapter.

20. How would this Alternative affect historic resources?

Historic resources discussed.

21. Would this Alternative affect 4f properties?

22. How would this Alternative affect fish and wildlife species (including those threatened and endangered) and their habitat?

Fish and **Wildlife** discussed.

23. Would this Alternative change water quality?

Water Quality discussed.

24. Would the project increase stormwater runoff?

25. Where would stormwater go and how would it be treated?

26. Would this Alternative change groundwater flows or quality?

27. How would this Alternative change soils once the Project is completed?

Geology discussed.

28. Would the completed project create any new sources of hazardous material?

Hazardous Materials discussed.

Chapter 7 TUNNEL ALTERNATIVE

1. What is the Tunnel Alternative?

Envision a map with pointers showing key features of the Rebuild Alternative. Supporting text would be provided.

How does it replace SR 99 and the Viaduct?

How would it fix the Seawall?

2. How would this Alternative be built?

3. How is this Alternative different than what we have today?

How would it change access in the south?

How would it change access into and out of downtown?

How would it change the Alaskan Way surface street?

How would it change other nearby streets and connections?

4. How would this Alternative affect travel times and traffic flow?

In the AWV Corridor?

On the Alaskan Way surface street?

On local streets?

On other large roadways such as I-5?

> **Transportation** impacts would be discussed here. This would include a description of project benefits, avoidance measures taken, project effects, and proposed mitigation

5. How would this Alternative affect trips made by various users?

Automobiles?

Freight?

Transit?

Bicyclists?

Pedestrians?

Ferries and Boats?

6. How would this Alternative improve roadway safety?

> Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilitie s or archaeology), will only be described in the construction chapter.

Land Use discussed.

7. How would this alternative change the character and land use in the project area?

8. Is this Alternative consistent with existing land use plans for the area?

Visual resources discussed.

9. If this Alternative were built, what would it look like?

Noise and Vibration discussed.

10. How would noise or vibration levels change?

Air Quality discussed.

11. Would this Alternative change air quality?

Relocations discussed.

12. What residences and/or businesses would need to be permanently moved?

Parks and Recreation discussed.

13. How would this Alternative affect parks and recreational facilities?

Social Resources and **Environmental Justice** discussed.

14. How would this Alternative change neighborhoods surrounding the project area?

15. Would the Alternative affect minority or low-income communities?

16. Would this Alternative change regional or community growth over the long-term?

Economics discussed.

17. How would this Alternative affect the local and regional economy after it is built?

18. How would this Alternative affect business districts and business sectors in and near the project area?

Public Services discussed.

19. How would this Alternative affect public services (such as police and fire)?

> Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilities or archaeology), will only be described in the construction chapter.

20. How would this Alternative affect historic resources?

Historic resources discussed.

21. Would this Alternative affect 4f properties?

22. How would this Alternative affect fish and wildlife species (including those threatened and endangered) and their habitat?

Fish and **Wildlife** discussed.

23. Would this Alternative change water quality?

Water Quality discussed.

24. Would the project increase stormwater runoff?

25. Where would stormwater go and how would it be treated?

26. Would this Alternative change groundwater flows or quality?

27. How would this Alternative change soils once the Project is completed?

Geology discussed.

28. Would the completed project create any new sources of hazardous material?

Hazardous Materials discussed.

Chapter 8 BYPASS TUNNEL ALTERNATIVE

1. What is the Bypass Tunnel Alternative?

Envision a map with pointers showing key features of the Rebuild Alternative. Supporting text would be provided.

How does it replace SR 99 and the Viaduct?

How would it fix the Seawall?

2. How would this Alternative be built?

3. How is this Alternative different than what we have today?

How would it change access in the south?

How would it change access into and out of downtown?

How would it change the Alaskan Way surface street?

How would it change other nearby streets and connections?

4. How would this Alternative affect travel times and traffic flow?

In the AWV Corridor?

On the Alaskan Way surface street?

On local streets?

On other large roadways such as I-5?

> **Transportation** impacts would be discussed here. This would include a description of project benefits, avoidance measures taken, project effects, and proposed mitigation

5. How would this Alternative affect trips made by various users?

Automobiles?

Freight?

Transit?

Bicyclists?

Pedestrians?

Ferries and Boats?

6. How would this Alternative improve roadway safety?

Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilities or archaeology), will only be described in the construction chapter.

Land Use discussed.

7. How would this alternative change the character and land use in the project area?

8. Is this Alternative consistent with existing land use plans for the area?

Visual resources discussed.

9. If this Alternative were built, what would it look like?

Noise and Vibration discussed.

10. How would noise or vibration levels change?

Air Quality discussed.

11. Would this Alternative change air quality?

Relocations discussed.

12. What residences and/or businesses would need to be permanently moved?

Parks and Recreation discussed.

13. How would this Alternative affect parks and recreational facilities?

Social Resources and **Environmental Justice** discussed.

14. How would this Alternative change neighborhoods surrounding the project area?

15. Would the Alternative affect minority or low-income communities?

16. Would this Alternative change regional or community growth over the long-term?

Economics discussed.

17. How would this Alternative affect the local and regional economy after it is built?

18. How would this Alternative affect business districts and business sectors in and near the project area?

Public Services discussed.

19. How would this Alternative affect public services (such as police and fire)?

> Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilities or archaeology), will only be described in the construction chapter.

20. How would this Alternative affect historic resources?

Historic resources discussed.

21. Would this Alternative affect 4f properties?

22. How would this Alternative affect fish and wildlife species (including those threatened and endangered) and their habitat?

Fish and **Wildlife** discussed.

23. Would this Alternative change water quality?

Water Quality discussed.

24. Would the project increase stormwater runoff?

25. Where would stormwater go and how would it be treated?

26. Would this Alternative change groundwater flows or quality?

27. How would this Alternative change soils once the Project is completed?

Geology discussed.

28. Would the completed project create any new sources of hazardous material?

Hazardous Materials discussed.

Chapter 9 SURFACE ALTERNATIVE

1. What is the Surface Alternative?

Envision a map with pointers showing key features of the Rebuild Alternative. Supporting text would be provided.

How does it replace SR 99 and the Viaduct?

How would it fix the Seawall?

2. How would this Alternative be built?

3. How is this Alternative different than what we have today?

How would it change access in the south?

How would it change access into and out of downtown?

How would it change the Alaskan Way surface street?

How would it change other nearby streets and connections?

4. How would this Alternative affect travel times and traffic flow?

In the AWV Corridor?

On the Alaskan Way surface street?

On local streets?

On other large roadways such as I-5?

Transportation impacts would be discussed here. This would include a description of project benefits, avoidance measures taken, project effects, and proposed mitigation

5. How would this Alternative affect trips made by various users?

Automobiles?

Freight?

Transit?

Bicyclists?

Pedestrians?

Ferries and Boats?

6. How would this Alternative improve roadway safety?

> Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilities or archaeology), will only be described in the construction chapter.

Land Use discussed.	7. How would this alternative change the character and land use in the project area? 8. Is this Alternative consistent with existing land use plans for the area?
Visual resources discussed.	9. If this Alternative were built, what would it look like?
Noise and Vibration discussed.	10. How would noise or vibration levels change?
Air Quality discussed.	11. Would this Alternative change air quality?
Relocations discussed.	12. What residences and/or businesses would need to be permanently moved?
Parks and Recreation discussed.	13. How would this Alternative affect parks and recreational facilities?
Social Resources and **Environmental Justice** discussed.	14. How would this Alternative change neighborhoods surrounding the project area? 15. Would the Alternative affect minority or low-income communities? 16. Would this Alternative change regional or community growth over the long-term?
Economics discussed.	17. How would this Alternative affect the local and regional economy after it is built? 18. How would this Alternative affect business districts and business sectors in and near the project area?
Public Services discussed.	19. How would this Alternative affect public services (such as police and fire)?

> Each element of the environment will include a discussion of **project benefits**, **avoidance measures** taken, **project effects**, and **proposed mitigation**. Resources that will only be affected during construction (such as utilities or archaeology), will only be described in the construction chapter.

20. How would this Alternative affect historic resources?

<div style="float:right; border:1px solid; padding:4px">**Historic** resources discussed.</div>

21. Would this Alternative affect 4f properties?

22. How would this Alternative affect fish and wildlife species (including those threatened and endangered) and their habitat?

<div style="float:right; border:1px solid; padding:4px">**Fish** and **Wildlife** discussed.</div>

23. Would this Alternative change water quality?

<div style="float:right; border:1px solid; padding:4px">**Water Quality** discussed.</div>

24. Would the project increase stormwater runoff?

25. Where would stormwater go and how would it be treated?

26. Would this Alternative change groundwater flows or quality?

27. How would this Alternative change soils once the Project is completed?

<div style="float:right; border:1px solid; padding:4px">**Geology** discussed.</div>

28. Would the completed project create any new sources of hazardous material?

<div style="float:right; border:1px solid; padding:4px">**Hazardous Materials** discussed.</div>

Chapter 10 CONSTRUCTION IMPACTS AND MITIGATION

1. In general, how would the project be built?

Provide an overview of the alternatives and how long construction would take. Make sure and state that the existing assumptions anticipate that the project would be fully funded and explain how the construction schedule would change if the project weren't fully funded.

Construction Impacts and mitigation for all of the alternatives are contained in this chapter as required by 40 CFR 1502.16 and WAC 197-11-430).

2. What construction impacts are anticipated for each of the Alternatives and how would they be mitigated?

Rebuild Alternative

Describe overall construction methods anticipated and their construction impacts. Proposed mitigation for affected elements of the environment would be discussed here.

Question 2 – This question will discuss the elements of the environment that will be affected by construction of the alternatives and proposed mitigation.

Aerial Alternative

Tunnel Alternative

Bypass Tunnel Alternative

Surface Alternative

3. What Construction Activities are Planned for Phase One?

Rebuild Alternative

A detailed break out of construction activities by phase would be discussed.

Aerial Alternative

Tunnel Alternative

Bypass Tunnel Alternative

Surface Alternative

4. What Construction Activities are Planned for Phase Two?

Rebuild Alternative

Aerial Alternative

Tunnel Alternative

Bypass Tunnel Alternative

Surface Alternative

5. What Construction Activities are Planned for Phase Three?

Rebuild Alternative

Aerial Alternative

Tunnel Alternative

Bypass Tunnel Alternative

Surface Alternative

6. What Construction Activities are Planned for Phase Four?

Rebuild Alternative

Aerial Alternative

Tunnel Alternative

Bypass Tunnel Alternative

Surface Alternative

Chapter 11 OTHER THINGS TO CONSIDER

1. **What is a cumulative effect and why do we study them?**

2. **What cumulative effects might result from this Project?**

3. **What other projects are underway or planned in Seattle?**

    What other major projects are planned in downtown Seattle?

    What other construction projects are planned in downtown Seattle?

4. **When will these other planned projects be constructed and how does that relate to the construction schedule for this Project?**

5. **What is a secondary effect?**

6. **What secondary effects might result from this project?**

7. **What are the tradeoffs between short-term losses of environmental resources and long-term gains from the Project?**

8. **What irreversible and irretrievable resources would be commited to building the Project?**

> **"Other items"** required by NEPA, such as Secondary and Cumulative impacts are discussed in this Chapter as required by NEPA in Section 102 (2) [42 USC 4332]. (40 CFR 1508.8 and 23 CFR 771).

Chapter 12 REFERENCES

Chapter 13 INDEX

Index is a NEPA requirement in 40 CFR 1502.10.

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Appendices

Supporting Documentation (Some in separate volume/s and included as a CD in the EIS)

A. Agency and Public Coordination

- A NEPA Federal Register Notices/Scoping Notices
- B SEPA Register Notice/Scoping Notices
- C Scoping Comments
- D Purpose and Need Statement
- E List of Agencies, Organizations, and Persons to Whom Copies of EIS were Sent
- F Agency Correspondence

B. Alternatives Description and Construction Methods Technical Memorandum

C. Transportation Discipline Report

D. Land Use and Shorelines Technical Memorandum

E. Visual Quality Technical Memorandum

F. Noise and Vibration Discipline Report

G. Air Quality Discipline Report

H. Relocations Technical Memorandum

I. Parks and Recreation Technical Memorandum

J. Social Resources Technical Memorandum

K. Environmental Justice Technical Memorandum

L. Economic Technical Memorandum

M. Public Services and Utilities Technical Memorandum

N. Historic Resources Technical Memorandum

O. Archaeological Resources Technical Memorandum

P. Section 4(f) Evaluation

Q. Fisheries, Wildlife, and Habitat Discipline Report

- Include copies of Threatened and Endangered Species Lists

R. Water Resources Discipline Report

S. Geology and Soils Technical Memorandum

T. Hazardous Materials Discipline Report

U. Energy Technical Memorandum

> Information as required by NEPA and SEPA
>
> **List of Preparers** (40 CFR 1502.10)
>
> **List of copies** sent to Agencies, etc. (40 CFR 1502.10)

DRAFT

V. Alternatives and Options Drawings

W. Urban Design Drawings

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314   **List of Sidebars**

315   **To be prepared**

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Acronym or Abbreviation	Meaning
AASHTO	American Association of State Highway and Transportation Officials
ACM	asbestos-containing materials
BMPs	best management practices
BNSF	Burlington Northern Santa Fe
BRT	bus rapid transit
CFR	Code of Federal Regulations
CSS	Context Sensitive Solutions
dB	decibels
dBA	A-weighted decibels
EA	environmental assessment
Ecology	Washington State Department of Ecology
EIS	environmental impact statement
EPA	US Environmental Protection Agency
FHWA	Federal Highway Administration
HABS	Historic American Building Survey
HAER	Historic American Engineering Records
HOV	high-occupant vehicle
HPA	Hydraulic Project Approval
HRM	Highway Runoff Manual
LBP	lead-based paint
MP	milepost
MTCA	Model Toxics Control Act
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
OAHP	Office of Archaeological and Historic Preservation
OSHA	Occupational Safety and Health Administration

Acronym or Abbreviation	Meaning
ROD	Record of Decision
RTID	Regional Transportation Investment District
SEPA	State Environmental Policy Act
SOV	single-occupant vehicle
SPCC	spill prevention control and countermeasure plan
SPUI	single point urban interchange
SR	State Route
SSP	site stormwater plan
SWPPP	stormwater pollution prevention plan
TDA	threshold discharge area
TESC	temporary erosion and sediment control
UDP	unanticipated discovery plan
UGA	urban growth area
USDOT	US Department of Transportation
USFWS	US Department of Fish and Wildlife Service
UST	underground storage tank
VMT	vehicle miles traveled
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WRHP	Washington Register of Historic Places
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

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Appendix H - Agency Review Tools

What information is contained in this appendix?

Appendix H contains two tools you can incorporate into your EIS or EA to help guide agency reviewers and attorneys through your document.

Item 1 – NEPA/SEPA Index

The first item is a special NEPA/SEPA index that was created for the Alaskan Way Viaduct and Seawall Replacement Project Draft EIS. The index is organized using traditional NEPA and SEPA outlines and subjects required by those regulations. Subjects required by NEPA and SEPA, such as purpose and need, logical project termini, irreversible decisions and irretrievable resources, etc., are provided in the left column. Page numbers are located across from these subjects to direct agency reviewers to the information they need to look at to make sure the document complies with NEPA and SEPA regulations.

Item 2 – EIS/EA Outline Annotated with Legal References

The second item shows you a page of an outline annotated with legal references. This outline was developed for the Alaskan Way Viaduct and Seawall Replacement Project Draft EIS. The legal references help to link federal, state, and local EIS requirements with the information contained in the Draft EIS. This annotated legal outline is a useful tool for legal and technical agency reviewers—it makes it easy for them to make sure the document complies with federal, state, and local regulations. It also identifies the regulations the document must comply with.

Washington State Department of Transportation

Subject	Chapter 1 Introduction	Chapter 2 Summary	Chapter 3 Affected Environment	Chapter 4 Developing Alternatives	Chapter 5 Rebuild	Chapter 6 Aerial	Chapter 7 Tunnel	Chapter 8 Bypass Tunnel	Chapter 9 Surface	Chapter 10 Construction	Chapter 11 Other Issues
Purpose and Need	2	3									
Unavoidable Adverse Effects		28									
Areas of Controversy		27									
Issues to be Resolved		28									
Logical Termini			31								
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Alternatives Development				54-58							
Alternatives Not Considered in Detail				56-58							
No Build Alternative		6		58-59							
Alternatives Description		3-7		58	61	73	87	103	119		
Cumulative and Indirect Effects											155-156
Irreversible Decisions & Irretrievable Resources											156-157
Short-Term Resource Uses & Long-Term Gains of Project											157
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Economics		24	47		69	83-84	98-99	114-115	130-131	149-150	
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Environmental Justice		20, 25	46-47	56	68	82	97	113	129	148	
Fish and Wildlife		17-19, 26	48		69-70	84	99	115	131	150	
Geology and Soils		26-27	31-36		70	85	100	116	132	151-152	
Groundwater		21, 26-27	51-52		70	85	100	116	132	151	
Hazardous Materials		18, 26	51-52		70	85	100	117	132	151-152	
Historic Resources		21	31-36, 43-44		68-69	82-83	97-98	113-114	129-130	148-149	
Land Use		12, 14, 23-24	46		67	81-82	96	112	128	145	
Noise		16-17, 24	45		67	81	95-96	111-112	127-128	146-147	
Parks and Recreation		15-16, 25	46		67-68	82	96-97	112-113	128-129	147-148	
Public Services and Utilities		25-26	47		69	83	98	114	130	149	
Relocations		20			68	82	97	113	129	145	
Social Resources (neighborhoods)		20, 25	46-47		68	82	97	113	129	148	
Transportation		8-13, 21-23	38-43		61-66	74-80	88-94	103-110	119-126	141-145	
Access		7, 22-23	38-39		61-62	74-76	88-90	103-106	119-122	141-142	
Ferries			42		62	75	88-89	104	120	144	
Bicycles		15, 25	42		62	76	89-90	105	121	147-148	
Pedestrians		15, 25	42-43		62-63	76	90	105-106	121-122	147-148	
Freight			40-41		65-66	79	93	109	125		
Transit		22, 28	41		66	79	93	109	125	144-145	
Safety		11	36-38, 43		66	80	94	109-110	126		
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Water Quality and Sediments		18-20, 26-27	49-51		70	85	99-100	116	132	151	

Chapter 4   DEVELOPING THE ALTERNATIVES

1. How were the alternatives developed?

A description of the alternatives is required by NEPA, 40 CFR 1502.14); SEPA, WAC 197-11-440(5); and SMC, 25.05.440(D).

2. How have the public and other interested agencies been involved in developing the alternatives?

Scoping and public involvement is required by NEPA, 40 CFR 1501.7 and 40 CFR 1506.6; SEPA, WAC 197-11-408(2)(a); and SMC, 25.05.408. Additional details about project scoping are contained in Appendix A.

3. How did ideas from the public and interested agencies shape the alternatives?

Scoping and public involvement is required by NEPA, 40 CFR 1501.7 and 40 CFR 1506.6; SEPA, WAC 197-11-408(2)(a); and SMC, 25.05.408. Additional details about project scoping are contained in Appendix A.

Alternatives Considered
Chapter 4 describes the alternatives considered, the a lternatives rejected, and those selected for further study as required. It includes the No Build (Do Nothing), and Build Alternatives (and options).

4. What ideas were considered but are not analyzed in the Draft EIS?

A discussion about alternatives considered, but rejected is required by NEPA, 40 CFR 1502.14; SEPA, WAC 197-11-440(5); and SMC, 25.05.440(D).

5. What alternatives are being studied in this Draft EIS?

A description of the alternatives considered is required by NEPA, 40 CFR 1502.14; SEPA, WAC 197-11-440(5); and SMC, 25.05.440(D).

6. What is the difference between alternatives and options?

7. What is the No Build Alternative?

A description and summary of the No Action Alternative is contained in this section as required by NEPA, 40 CFR 1502.14(d), and SEPA, WAC 197-11-440 (5)(ii); and SMC 25.05.440(D)(b). In this EIS, the No Action Alternative has been called the No Build Alternative.

Appendix I - Writing Style Guide

What information is contained in this appendix?

Appendix I contains a sample writing style guide used for the Alaskan Way Viaduct and Seawall Replacement Project. This style guide is a useful tool that you should create and keep up to date for your project team. A style guide will help your team create documents that are consistent. If you don't provide a style guide to your team, your technical editor will have a difficult job and it will be very difficult to create documents that are consistent and convey similar messages.

You can use a style guide to direct your team members; for example, do you want your team to spell out street names or abbreviate them (First Avenue South or 1st Ave. S.)? When they discuss the project, should they discuss the project area from north to south, south to north, or east to west? Most likely, the project terms list you create for your project will evolve as your project changes. For this reason, it is important to have one person on your team in charge of updating the writing style guide. This person should be responsible for distributing the style guide to other members of your project team.

You don't have to create a writing style guide that looks exactly like the one provided in this appendix; however, this is provided as an example that you can use as you see fit.

Washington State
Department of Transportation

ALASKAN WAY VIADUCT and SEAWALL REPLACEMENT PROJECT
PROJECT TERMS (updated 12/5/03)

ABC
Aerial Alternative
Alaskan Way Seawall (can also refer to it as the Seawall)
Alaskan Way surface street
Alaskan Way Viaduct (can also refer to it as the Viaduct)
Alaskan Way Viaduct Corridor (AWV Corridor)
Alaskan Way Viaduct and Seawall Replacement Project
alternatives (lower case unless specifically named)
a.m. (lower case w/ periods)
at-grade (use hyphen)
Battery Street Tunnel (BST)
BNSF SIG Rail Yard
Broad Street Underpass
Bypass Tunnel Alternative
city (as a place) vs. City (referring to the governmental entity)
citywide (no hyphen)
central waterfront (no caps)
Colman Dock Ferry Terminal (not Coleman)
cross section (2 words)
cut-and-cover

DEFGHIJKLM
design-build
Do Nothing Alternative
double-level (not two-level or double-deck)
downtown (no caps)
Draft EIS (*not* DEIS)
Elliott Bay, Elliott Avenue (note spelling)
exceedance
federal (lower case)
Final EIS (*not* FEIS)
fulfill, fulfills, fulfilled, fulfilling
grade-separated
groundwater (1 word)
in-stream, in-water (hyphenate)
jet grout (two words)
King County Metro
Metro buses

NO
nearshore (one word, no hyphen)
NOAA Fisheries (not NMFS)
nonmotorized (no hyphen)
off-ramp, on-ramp (hyphenate)
offshore (one word, no hyphen)
Olympic Sculpture Park
one-way (use hyphen)
option (lower case unless specifically named)
overpass (one word)

PQR
p.m. (lower case w/ periods)
Potlatch Trail
precast (one word, no hyphen)
Preferred Alternative
Pile-Supported Gravity Seawall (initial caps)
Rebuild Alternative (not retrofit, one word, no hyphen)
relieving platform
right-of-way, rights-of-way (hyphenate, do not abbreviate)
riprap (1 word, no hyphen)
runoff (no hyphen)

S
Safeco Field
Seahawks Stadium
Seattle Monorail Project (Initial Caps)
Seawall (capitalized if referring to the Alaskan Way Seawall)
Seawall Frame Option
Seawall Rebuild
sheet pile (two words)
single-level (not one-level)
SR 519 Interchange
state (lower case)
stormwater (one word)
sub-basin (with a hyphen), capitalize if referring to a specific basin (University Sub-basin)
Surface Alternative (not At-Grade Alternative)

TUVWXYZ
tail track (2 words) refers to BNSF Tail Track
tie-up areas
travel, traveled, traveling
tribes/tribal (lower case unless specifically named)
Tunnel Alternative
two-way (use hyphen)
Type A Seawall, Type B Seawall
underpass (one word)
Viaduct (capitalized if referring to the Alaskan Way Viaduct)
Washington State Department of Ecology (first time it is used spell out, then use Ecology)
Washington State Ferries (do not abbreviate)
Washington Street Boat Landing
waterfront (one word)
Widened Mercer Underpass (not overpass)
Whatcom Rail Yard

NUMBERS
Spell out and capitalize **First** through **Ninth** when used as a street name.
Write dates in month/day/year format (e.g., April 5, 2003).
Do not follow numerals used with dates by st, nd, rd, or th.
Units of measure can be abbreviated, just spell them out and define the abbreviation in parenthesis - e.g. millimeters (mm). DO NOT abbreviate inch, foot/feet, square foot/feet, years, or mile.
Use numerals with units of measure (e.g., 8 feet, 2 years).
Write out percent in text (% ok in tables).

IMPORTANT TERMS AND ABBREVIATIONS
street names spelled out (e.g., Avenue, Street)
directionals abbreviated with periods (e.g., E. Marginal Way)
ordinals in superscript (e.g., 15th Avenue N.W.)
Identify State Highway Routes with no punctuation (SR 99, SR 519, etc.)
Identify Interstate Highway Routes with a hyphen (I-5, I-405)
racial and ethnic categories have Initial Caps

Acronyms - Please limit acronym usage to those a reader can recognize quickly; below are common acronyms that can be used.

Alaskan Way Viaduct (AWV, can also use Viaduct, if referring only to the Viaduct structure)
Best Management Practice/s (BMP/s)
Burlington Northern Santa Fe Railway Company (BNSF not BNRR)
City of Seattle (City)
Cost Estimate Validation Process (CEVP)
Department of Natural Resources (DNR)
Elliott Bay Interceptor (EBI)
Environmental Impact Statement (EIS) – Final EIS and Draft EIS (not FEIS and DEIS)
Environmental Protection Agency (EPA)
Federal Highway Administration (FHWA)
NOAA Fisheries (not NMFS)
State Route 99 (SR 99)
United States Fish and Wildlife Service (USFWS)
Washington Department of Fish and Wildlife (WDFW)
Washington State Department of Ecology (Ecology)
Washington State Department of Transportation (WSDOT)

Note: Do not use an apostrophe to form a plural acronym (e.g., BMPs, not BMP's)

General Information
- All discussion should follow the route from south to north; use the following names for segments:
    - South – S. Spokane Street to S. King Street
    - Central – S. King Street to Battery Street Tunnel
    - North Waterfront – Pike Street to Broad Street
    - North – Battery Street Tunnel to Ward Street

- Plural proper nouns capitalized when named (e.g., Streets, Avenues, Junctions).
- Bulleted items capitalized and end with period unless they are a short list - then there should be no punctuation.
- All document titles should have Initial Caps when in the reference section. References cited by last name and year with no comma between, e.g., (Johnson 1998). Titles of published works referred to in document text should be in *italics*.
- Do not use an abbreviation or acronym that the reader would not recognize quickly. When in doubt, spell it out.
- When referring to another technical section capitalize the sections name, e.g. for additional information, please refer to the Water Resources Section.
- Tables, Photos, and Figures will be referred to as Exhibits. When calling out or referring to an Exhibit the word should be capitalized. e.g., Exhibit 3-1 shows transit data

Definitions
Drainage Approaches
BMP Approach – Stormwater drainage alternative that proposes to manage stomwater from the project area by conveying it to Ecology approved treatment mechanisms (such as media filters and wet vaults). After treatment, stormwater would be directed to existing outfalls located along Elliott Bay.
Convey and Treat Approach – Stormwater drainage alternative that proposes to convey stormwater south of Columbia Street through a big pipe to a new treatment plant in the vicinity of the Royal Brougham area.
Elliott Bay Interceptor (EBI) – Large pipe in the AWV Corridor that conveys combined wastewater and stormwater flows to the West Point Treatment Plant for treatment.

Roadway Alternatives and Components of Alternatives

Alaskan Way surface street – Surface street that travels along the Seattle waterfront from S. Royal Brougham Way to Broad Street.

Alaskan Way Viaduct (AWV) – Only includes the Viaduct structure from S. Holgate Street to the Battery Street Tunnel.

Alaskan Way Viaduct Corridor – Includes the Viaduct from S. Spokane Street to the Battery Street Tunnel, the Battery Street Tunnel, north of the Battery Street Tunnel to Ward Street, the Alaskan Way Seawall from S. Washington Street to Myrtle Edwards Park, and the Alaskan Way surface street.

Broad Street Underpass – Proposed underpass that would travel under the Olympic Sculpture Park

Do Nothing Alternative – not No Action

Bypass Tunnel – Single-level tunnel under the Alaskan Way surface street that would provide two lanes in each direction for through traffic traveling on SR 99.

Retrofit – To strengthen the existing Viaduct with additional columns and supports

Rebuild – To rebuild the Viaduct in its current location

Side-by-Side Aerial – Single-level aerial structure

Side-by-Side Tunnel – Single-level tunnel structure

Stacked Aerial – Double-level aerial structure

Stacked Tunnel – Double-level tunnel structure

Surface Alternative – Remove Viaduct and replace with an at-grade (or surface) roadway

Tunnel Alternative – Side-by-side tunnel structure

Existing Seawall Types

Type A Seawall – Seawall type found mostly along the northern portion of the project area. This type of Seawall is constructed with a steel sheet pile wall covered with riprap, therefore, not exposed to the marine waters of Elliott Bay.

Type B Seawall – Seawall type found in central waterfront area near Pike Street. This type of Seawall is constructed with a steel sheet pile wall exposed to the marine waters of Elliott Bay.

Pile-Supported Gravity Seawall – Found in the south end of the project area near S. Washington Street and Colman Dock. This type of Seawall was constructed in 1916 and is constructed of unreinforced concrete supported by timber piles.

Options

Aerial Alternative
South:	SR 99 At-Grade With SR 519 Interchange
North Waterfront:	Battery Street Flyover Detour
North:	Lowered Aurora/SR 99
Seawall:	Seawall Frame

Tunnel Alternative
South:	Side-by-Side Aerial
Central:	Tunnel With Ramps at Elliott and Western Avenues
North Waterfront:	Battery Street Flyover Detour

Bypass Tunnel Alternative
South:	Side-by-Side Aerial
Central:	Bypass Tunnel With Armory Way
North Waterfront:	Battery Street Flyover Detour

Surface Alternative
South:	SR 99 At-Grade With SR 519 Interchange At-Grade
North Waterfront:	Existing SR 99 With Added Signals at Roy, Republican, and Harrison Streets

Detours

Broad Street Detour
Option: Battery Street Flyover Detour

Appendix J - Info Tracking

What information is contained in this appendix?

Appendix J contains tools you can use to help convey information between the environmental team and the engineering team.

Item 1 – A Form to Track Information

The first item is an example of a simple form that engineers can use to respond to questions from the environmental team. The form includes the question from the environmental team and a response from the engineering team.

Item 2 – Tracking Log for All Information Requests

The second form is a simple spreadsheet you can use to track information requests between the environmental and engineering teams. It's important to track the information requests so clear deadlines are established and met, and so your team members know who requested the information and who is responding to the request.

RFI #003 – RESPONSE TO EIS REQUEST FOR INFORMATION

TO: **S. Miller**

FROM: **Bill Ott**

SUBJECT: **Haul Routes and Modes**

DATE: **July 3, 2003**

CC: **Gordon Clark**

EIS REQUEST: Possible / likely construction haul routes and modes

Response:
Waterfront Activities (Hanford Street to Broad Street)
For all plans and options trucks will be the primary mode for import or export of materials into or off the waterfront portion of the project. The following truck routes were assumed for analysis. The City and / or WSDOT as part of the permitting process will determine actual routes.
- South End-utilize existing East Marginal Way, SR99, Michigan Street, Spokane Street and I-5. The partial interchange between Spokane Street and SR99 does not provide a Westbound to Northbound off-ramp nor a Southbound to Eastbound on-ramp which means that most truck traffic will use Michigan Street to link I-5 and SR99 / East Marginal Way.
- When completed SR519 will provide a majority of the access.
- North End- trucks will use the established truck routes between I-5 and Elliott Ave / 15th AVE. Trucks will predominately use Elliott Ave. for deliveries at the North end of the Project.
- East – West city streets- Do not anticipate any construction related truck traffic to use any streets in the downtown area. The only East-West movement will be on established truck routes either south of Dearborn Street or North of Denny Ave.

Tunnel Excavation for both the Tunnel Plan and the Bypass Plan should have the option to haul the excavated material to disposal sites by both barge and /or rail.
- Barges - Construction Sequence Drawings CS300 and CS700 indicate potential tie up locations for a barge. The material may be transported to the barge by either trucks or a conveyor.
- Rail – Unlikely, however the existing Tail track, with BNSF Approval, could be used as a holding area for rail the cars as they are loaded with the excavation material.

Alaskan Way Viaduct and Seawall Replacement Project

RFI Tracking Log
Requests for Information from the Environmental Team

RFI No.	Description of Request	Product	Technical Lead	Checker	Envn. Point of Contact	Date RFI Received	Due Date	Status
001	Determine Cut and fill quantities for each alternative/option by section (south, central, north waterfront, north) (not including in-water volumes)	Calcs	Bill Ott	Gary McClellan	S. Miller	5/28/03	7/30	Complete 8/12/03
002	Source of fill material - Will fill material be re-used from on-site cuts, or will new material be brought in?	Email/ Discussion	Bill Ott	Gordon Clark	S. Miller	5/28/03		Complete 7/17/03
003	Possible/likely construction haul routes and modes	Discussion	Bill Ott	Gordon Clark	S. Miller	5/28/03		Complete 7/30/03
004	Fill volumes, location of aquatic fill, width and depth of proposed aquatic fill, and likely fill material type	Calcs, drawing, and discussion	Gary McClellan	Bill Ott	S. Miller	5/28/03		Complete 8/12/03
004a	Provide additional information of shoreline changes. The City requests amount of surface area to increase or decrease by depth intervals of +10 to +4, +4 to 0, 0 to -4, -4 to -10, and -10 - greater ft MLLW. I think most of our changes are in the range of +4 to -10. I'm not sure that we have more specific information for depths along the Seawall. Provide surface area estimates by depth. At least use -10 and/or 0 ft MLLW as dividing lines if possible. I doubt much of added surface area (substrate) will be above +4 ft MLLW and probably little or none below 0 ft MLLW.	Calcs	Gary McClellan	Bill Ott	S. Miller; D. Weitkamp	10/14/2003		Complete 10/24/03
005	ADT for each plan - Current ADT, Year of Opening ADT, Projected ADT (2030)	Tables	Nick Roach		S. Miller	5/28/03		Complete 7/23/03
006	Construction costs for each plan, est. annual expenditures for each alternative/option, est. sales tax paid for each plan, est. annual sales tax paid. Please talk to Stephanie for additional details.	Tables	Bill Ott	Bill Conner	S. Miller; Angela Findley	5/28/03	Late June	Complete 7/31/03
007	Est. number of construction workers required each year for each plan. Please talk to Stephanie for additional details.	Tables	Bill Ott	Bill Conner	S. Miller; Angela Findley	5/28/03	Late June	Complete 7/31/03
008	Timeline for obtaining construction traffic information	Schedule/ Discussion	Steve Rolle	Nick Roach	S. Miller	5/28/03	7/15/03	Complete 7/21/03
009	Is there designated parking for construction workers (where)? Have transit routes been determined for the construction period?	Discussion	Stephanie Miller	Nick Roach	S. Miller	5/28/03		Complete 7/25/03

Alaskan Way Viaduct and Seawall Replacement Project

RFI No.	Description of Request	Product	Technical Lead	Checker	Envn. Point of Contact	Date RFI Received	Due Date	Status
010	Need bulleted list of main construction sequence and possible durations for each alternative/option, including possible durations for construction detour routes that will be in effect for more than one year	Bulleted list, durations	Bill Ott	Jim Schettler	S. Miller	5/28/03	7/30	Complete 8/5/03
10a	Please provide construction durations for the options.	Durations	Bill Ott	Bill Conner	S. Miller	8/25/2003		Final Coord. 9/2/03
10b	How long will it take to reconfigure the SIG Yard? How long will the soil improvements in the south end take? How long would it take to construct the Lowered Aurora and Existing Mercer with Signals?	Durations	Bill Ott	Bill Conner	S. Miller	8/28/2003		Final Coord. 9/2/03
011	Describe the jet grouting process	Description	Gordon Clark	Mike Rigsby	S. Miller	5/28/03	6/4/03	Complete 6/4/03
012	Describe Seawall construction techniques and on-going maintenance activities	Discussion	Bob Fernandes	Gordon Clark	S. Miller	5/28/03		Complete 7/25/03
013	For the Aerial Plan, how long is the Whatcom Yard impacted? How long is the temp. aerial structure needed?	Durations	Bill Ott	Eric Peiffer	S. Miller	6/16/03	Week of 6/11	Complete 7/17/03
014	For the Aerial Plan, are all of the street grid improvements part of "The Project" for the Lowered Aurora option?	Discussion	Eric Peiffer	Gil Salazar	S. Miller	6/16/03	Week of 6/11	Complete 6/19/03
015	For the Aerial Plan, how much overwater shading is there at Colman curve and what is the reason for the impact?	Discussion	Eric Peiffer	Gary McClellan	S. Miller	6/16/03	Week of 6/11	Complete 6/20/03
016a	For all alternative/options: How and why do staging areas vary between plans? How long will BST be closed? Is a sheet pile wall needed for Seawall construction?	Discussion	Bill Ott	Bill Conner	S. Miller	6/16/03	Week of 6/11	Draft 7/3/03; Revised 8/7/03 Complete
016b	Additional information needed to support 016a.	Discussion	Stephanie Miller	Bill Ott	S. Miller	6/16/03	Week of 6/11	Complete 8/4/03
017	Estimate the volume of jet grout slurry that will need to be removed from the site for each of the alternatives/options. Describe by section (south, central, north waterfront).	Tables	Bob Fernandes	Gary McClellan	S. Miller	6/17/03		Complete 7/17/03
018	Need cross-section for the aerial plan at the Colman curve. Specifically, the cross-section of the extended pier structure (vehicle and sidewalk areas).	Drawing	Eric Peiffer	Gil Salazar	S. Miller	6/23/2003		Complete 7/17/03
019	What is the estimated vertical and horizontal extent (depth and width) of soil disturbance (excavation, jet grouting, etc.) for each project section (south, central, north waterfront, north) by alternative and/or option? We do not need "exact numbers", but we need a "worst case" estimate. This information will be used to determine impacts to underground archeology.	Table/ discussion	Bill Ott	Gary McClellan	S. Miller; Kathy Rossi	7/3/2003	7/11/03	Complete 8/5/03
RFI No.	Description of Request	Product	Technical Lead	Checker	Envn. Point of Contact	Date RFI Received	Due Date	Status

020	Update the property impacts Excel spreadsheet and maps based on current (post CEVP) alternatives/options	Revised table and maps	Carrie Oshiro	Gordon Clark	S. Miller	7/8/2003	7/15/03	Complete 7/30/03
020a	Please revise property impacts maps and Excel spreadsheet to show: Colman curve connection on the Aerial Plan (overwater connection piece). Clarify what land will be taken on T46 for access ramps per plan.	Revised table and maps	Carrie Oshiro	Gordon Clark	S. Miller	7/30/2003		Complete 8/12/03
021	Develop more detail on assumptions that should be used for determining the area of land taken by the project. Currently the property impacts maps and Excel spreadsheets assume that an entire parcel is taken if it is touched by the project. In cases of large properties such as Terminal 46, a different approach may be warranted. Get additional detail from S. Miller.	See item 020, also an agreed upon approach to consider partial property takes	Carrie Oshiro	Bill Conner	S. Miller; Jeff Buckland	7/8/2003	7/15/03	Complete 7/31/03
022	Provide the number of long-term and short-term parking spaces under the Viaduct that are impacted for each alternative and/or option. Provide information on other lost parking spaces (pay lots, spaces on the north end, etc) if available. Provide the information broken out by geographic section (south, central, north waterfront, north).	Table	John Fenedick	Gil Salazar	S. Miller	7/8/2003		Complete 7/30/03
022a	Parking impacts - we need more information than what was provided in RFI 022. How many off-street and on-street parking spaces will be lost per plan in the north end (Mercer Corridor) per plan (the Seattle Center staging area is one, are there others, how many spaces will be lost or displaced). Also, does the Broad Street detour and/or backfilling of Broad Street impact any parking spaces? Also, what are anticipated parking losses per plan during construction?	Table	John Fenedick	Gil Salazar	S. Miller	7/30/2003		Complete 8/11/03
023	Confirm construction staging plan at Pier 48. I've heard two different plans. One plan is that the existing Pier 48 will be removed by others and the upland property will be used for staging and to tie up barges. The other plan is that the existing Pier 48 structure would be used for staging. Confirm which plan is the correct assumption. Confirm also how much of Terminal 46 is needed for construction	Discussion	Bill Ott (workshop to be held)	Bill Conner	S. Miller	7/8/2003		Complete 7/31/03
~~024~~	~~What pedestrian connections are made to connect the relocated Washington St. Landing to Pioneer Square?~~	~~Discussion~~	~~Boris Dramov~~	~~Gil Salazar~~	~~S. Miller~~	~~7/8/2003~~		Withdrawn

RFI No.	Description of Request	Product	Technical Lead	Checker	Envn. Point of Contact	Date RFI Received	Due Date	Status
025	Turn the CEVP construction sequencing flow charts into pdfs and put them up on Project Solve. Summarize these flow charts for each alternative (with options) as requested in RFI 010.	pdf files	Sarah Herr/ Bill Ott	Jim Schettler	S. Miller	7/9/2003	7/30/03	Complete 8/5/03 (part of RFI 010)
026	What Best Management Practices/mitigation measures should be assumed to contain seawall construction along the waterfront? Where would sheet pile be used, where are silt curtains assumed? Are there other methods we should describe?	Discussion	Bob Fernandes/ Bill Ott	Gordon Clark	S. Miller; Don Weitkamp	7/9/2003		Complete 7/31/03
027	Provide additional details on utility relocations. Specifically, what is assumed for utility relocations on a linear foot basis for each alternative and option within each section (south, central, north waterfront, and north)? We suggest kicking this off with a meeting to discuss these issues further.	Table/ discussion	Tom MacBriar/ Charles Smith	Gil Salazar	S. Miller; Ron Grina	7/9/2003	7/25/03	Final Coord. 8/27/03
028	Provide the electronic (CAD) line showing the edge of new and/or replaced roadway (not bike/ped areas, only car areas) for each of the alternatives and options. This information will be used by Jenna Friebel to calculate the area of pollutant generating impervious surfaces for each watershed sub-basin in the project area. Call Jenna at 425-822-8880 to coordinate the data transfer.	CAD file	Ben Rodenbough	Gil Salazar	S. Miller; Jenna Friebel	7/10/2003	Call Jenna by 7/17; 7/28 CAD file	Complete 7/25/03
029	What assumptions are we making for fire station relocation?	Discussion	Bill Conner	Gil Salazar	S. Miller	7/25/2003		Complete 8/8/03
029a	Provide plan view of the relocated Fire Station facility - include calculations of anticipated overwater structure.	Table/drawing	Bill Conner	Gil Salazar	S. Miller	7/30/2003		See RFI 029
030	How will buildings outlined in blue on the property impacts maps (see Carrie's maps, RFI 020) be modified (access impacts, egress impacts, modified structure, etc.). Please describe impacts as they apply to each plan.	Table/ discussion	Carrie Oshiro/ Bill Conner	Gordon Clark	S. Miller	7/30/2003		Complete 8/8/03
031	Will a concrete batch plant be located in the project area for construction? If so, describe this facility and/or assumptions regarding this facility.	Discussion	Bill Ott	Gordon Clark	S. Miller	7/30/2003		Complete 8/11/03
032	Revise Colman curve overwater plan to include relocated Washington Street Landing facility. Provide "sketch" in plan view.	Drawing	Gordon Clark	Gil Salazar	S. Miller	7/30/2003		Complete 8/11/03

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Alaskan Way Viaduct and Seawall Replacement Project

RFI No.	Description of Request	Product	Technical Lead	Checker	Envn. Point of Contact	Date RFI Received	Due Date	Status
033	Please provide reference for O+M costs developed for the various alternatives. ~~Also, provide reference for PB study that determines the "costs" determined if the Viaduct and Alaskan Way were out of service due to a seismic event (are these documents available electronically)?~~	Table	Bill Conner	Mike Rigsby	S. Miller; Angela Findley	7/30/2003		Complete 8/8/03
034	Please provide ROW costs per plan.	Table	Bill Conner	Mike Rigsby	S. Miller; A. Findley	7/30/2003		Complete 8/8/03
035	Construction Expenditures and Worker Skills: Provide information on roughly what percentage of construction expenditures would be made in the local market. For example, 20% of steel is purchased locally (Puget Sound region) and 80% outside the local market. I do not need itemized expenditures, just rough percentages per plan on what the local/non-local split is on total construction expenditures. Also, are there any special technical skill sets that will require soliciting specialized construction workers from outside of the local area? If so, what are these skills, approximately what percentage of the construction workforce would require these skills, and how many years to we anticipate these folks will be needed?	Table/ discussion	Bill Conner/ Bill Ott	Mike Rigsby	S. Miller; Angela Findley	7/31/2003		Complete 8/8/03
036	What is the estimated volume of material that will be removed when the Viaduct is demolished?	Table	Gary McClellan	Bill Ott	S. Miller	8/12/2003		Complete 9/3/03
037	Where are we anticipating that DSM spoils, jet grout spoils, etc. will be stockpiled and dewatered?	Discussion	Bill Ott	Gordon Clark	S. Miller	8/12/2003		Complete 8/29/03
038	How are we planning to handle bentonite slurry spoils from the project? How did the Central Artery project deal with this issue and how did they handle contaminated bentonite slurry disposal?	Discussion	Gary McClellan	Gordon Clark	S. Miller	8/12/2003		Complete 8/29/03
039	How will parcels outlined in blue on the property impacts maps (see Carrie's maps from RFI 020) be modified. Please describe impacts as they apply to each plan.	Table/ discussion	Carrie Oshiro/ Bill Conner	Gordon Clark	S. Miller	8/12/2003		Complete 8/20/03
040	For building impacts, resolve differences between tax assessor records and building impact spreadsheet. See list of questions from Dawn Wulf.	Table/ discussion	Nina Olsson	Carrie Oshiro	S. Miller; Dawn Wulf	8/12/2003		Complete 8/18/03
041	Provide a list of deviations for each of the AWV alternatives, noting the deviation, the location, etc	Spreadsheet	Ben Rodenbough & John Fenedick	Gil Salazar	S. Miller; Liz Young	8/12/2003		Complete 9/4/03

Alaskan Way Viaduct and Seawall Replacement Project

RFI No.	Description of Request	Product	Technical Lead	Checker	Envn. Point of Contact	Date RFI Received	Due Date	Status
042	Identify locations for potential parking mitigation in the south end (south of S. King St.). Number of spaces provided should be roughly commensurate with impacts to parking in the Stadium Region.	Discussion/ drawing	John Fenedick	Gil Salazar	S. Miller; Dave Mattern	8/14/2003		Complete 9/5/03
043	What quantities of various materials can trucks, railcars, and barges haul?	Table	Bill Ott	Gary McClellan	S. Miller	8/19/2003		Complete 8/19/03
044	Provide photos of jet grouting and/or deep soil mixing.	Photos	Gary McClellan	Bill Ott	S. Miller	8/20/2003		Complete 8/26/03
045	Provide written description of how drilled shafts are typically constructed. A photo and/or drawing would also be helpful.	Description/ photo	Gary McClellan	Bill Ott	S. Miller	8/20/2003		Complete 8/26/03
046	CAD revisions to drawings CS 733 and CS 734. See Stephanie for markups.	Drawings	Frank Woslum	Bill Ott	S. Miller	8/25/2003	8/29/03	Complete 9/2/03
047	Resolve discrepancies between the property impacts spreadsheet and the King County Tax Assessor records (refer to memo from Peter Geiger).	Discussion	Carrie Oshiro	Nina Olsson	S. Miller; Peter Geiger	8/26/2003		Complete 8/28/03
048	Describe the construction approach for the Broad Street Detour for the Aerial Plan.	Discussion	Bill Ott	Bill Conner	S. Miller	8/26/2003	8/29/03	Complete 9/2/03
049	Identify the additional building impacts (per the 8/28 meeting) in the vicinity of the Pike Place Hillclimb (Bypass Plan).	Discussion/ graphic	Carrie Oshiro	Bill Conner	S. Miller	8/28/2003		Complete 9/3/03
050	Provide updated Property Impacts spreadsheet to include responses to questions from Betsy Minden.	Spreadsheet	Carrie Oshiro	Mike Rigsby	S. Miller, Betsy Minden	9/2/2003		Complete 9/3/03
051	For the Lowered Aurora option, how will access be maintained to adjacent parcels under this option? How far would the roadway be lowered and how will pedestrian and vehicle access be maintained for buildings along Aurora Avenue N between Roy Street and Thomas Street? If access cannot be maintained, we may need to show buildings in this area as takes under this option.	Discussion	Ben Rodenbough	Gil Salazar	S. Miller; Jeff Buckland	9/10/2003		Complete 9/17/03
052	I know that O&M costs were presented in RFI 33. What are the current O&M costs? Is there a Do Nothing O&M cost estimate? Would the current cost be the same as the Rebuild Alternative, or would costs drop because you basically have a new freeway to maintain?	Costs	Ralph Graves	Bill Conner	S. Miller; Peter Geiger	9/12/2003		Draft complete

Alaskan Way Viaduct and Seawall Replacement Project

RFI No.	Description of Request	Product	Technical Lead	Checker	Envn. Point of Contact	Date RFI Received	Due Date	Status
053	Are driven piles going to be allowed/widely used, or will all (nearly all) support piles be drilled/bored shaft/vibrated into place. This makes a big difference to construction noise. Currently I'm covering either type of construction. I take it all seawall piles will be drilled shaft installation.	Discussion	Bill Ott	Gordon Clark	S. Miller; Lawrence Spurgeon	9/18/2003		Complete 9/22/03
054	Pile Driving Locations - Please confirm: South of King Street there are no nearby residential structures (nothing within 300 feet). There are a couple of old brick warehouses within 100 feet. In the King to Pike area there is one hotel about 50 feet from the structure and 1 apartment building about 100 feet away. There are several old brick commercial buildings within 25 to 50 feet of where pile driving could occur under the rebuild alternative. In the Mercer St. vicinity, there is a hotel within 100 feet but no residential for about 300 feet. Nearest buildings are concrete 1950s style industrial/commercial construction about 25' away. The temporary Broad St. Trestle is about 25' from an old brick warehouse ("Old Spaghetti Factory" Restaurant). Closest residential is new high-rise apartment building within 25 feet. The other temporary structures could likewise have pile driving within about 25 feet of apartment/condominium buildings.	Discussion	Carrie Oshiro	Bill Ott	S. Miller; Lawrence Spurgeon	9/24/2003		Complete 10/9
055	Are there going to be any buildings at T-46 that are being removed?	List/Discussion	Carrie Oshiro	Gordon Clark	S. Miller; Peter Geiger	10/6/2003		Complete 10/10
055a	Provide sketch of anticipated future buildings on T-46.	Sketch	Carrie Oshiro	Gil Salazar	S. Miller; Peter Geiger	10/23/2003		Complete 10/27/03

Note:
The sections (south, central, north waterfront, north) are:
· South: S. Spokane Street to S. King Street
· Central: S. King Street up to the Battery Street Tunnel (does not include the Battery Street Tunnel)
· North Waterfront: Pike Street to Broad Street (along the waterfront)
· North: Through the Battery Street Tunnel to Ward Street (includes the improvements to BST)
· Seawall: S. King Street to Myrtle Edwards Park

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Appendix K - Schedules

What information is contained in this appendix?

Appendix K contains two project review schedules. There are many different ways to develop a project schedule—these two examples are provided to give you ideas of different approaches.

The first schedule was developed using a spreadsheet for the Alaskan Way Viaduct and Seawall Replacement Project. The second schedule was created on a calendar for the SR 520 Bridge Replacement and HOV Project.

**Washington State
Department of Transportation**

ALASKAN WAY VIADUCT AND SEAWALL REPLACEMENT DEIS
TECHNICAL REVIEW SCHEDULE

Document	Tech Lead	Due for Technical Review (12noon)	Technical Review Due	Receive Draft (8am)	Send Report to Ellen (word processing)	Comment Responses to Reviewers	First Draft Due to Client	Client Receives Draft (8am)	PB Reviewer	Client Comments Due (12noon)	Review Meeting	Review Meeting	Tech Lead Comments Resolved and Teach Lead Revisions	Document to Editor (Lorena Dinger) (am)	Report Back from Editor (am)
Alternatives Description & Construction Methods Technical Memo	Stephanie Miller / Kathy Rossi	9/2/2003	9/8/2003	9/9/2003	9/15/2003 8:00AM	9/16/2003	9/17/2003	9/18/2003	Judy Aranda, Borst	10/1/2003	10/6/2003 1-3 pm PB 22nd L	10/7/2003 1-4pm PB 22nd L	10/15/2003	10/16/2003	11/6/2003
Geology & Soils Technical Memo	Scott Gaulke	8/20/2003	9/3/2003	9/4/2003	9/12/2003 8:00AM	9/15/2003	9/17/2003	9/18/2003	Gail Cheever	10/1/2003	10/9/2003 1:30-5:00pm PB 22nd L		10/15/2003	10/16/2003	11/6/2003
Hazardous Materials Discipline Report	Scott Gaulke	8/20/2003	9/3/2003	9/4/2003	9/12/2003 8:00AM	9/15/2003	9/17/2003	9/18/2003	Gail Cheever	10/1/2003	10/9/2003 1:30-5:00pm PB 22nd L		10/15/2003	10/16/2003	11/7/2003
Land Use and Shorelines Technical Memo	Jeff Buckland	8/20/2003	9/3/2003	9/4/2003	9/12/2003 8:00AM	9/15/2003	9/17/2003	9/18/2003	Sam Seskin	10/1/2003	10/9/2003 1:30-5:00pm PB 22nd L		10/15/2003	10/16/2003	11/7/2003
Fisheries, Wildlife, and Habitat Discipline Report	Don Weitkamp	8/27/2003	9/10/2003	9/11/2003	9/19/2003 8:00AM	9/22/2003	9/24/2003	9/25/2003	Dobson/Ray	10/8/2003	10/15/2003 9-11am PB 22nd L		10/22/2003	10/23/2003	11/13/2003
Water Resources Discipline Report	Jenna Friebel	8/27/2003	9/17/2003	9/18/2003	9/26/2003 8:00AM	9/29/2003	10/1/2003	10/2/2003	Morris McClung	10/15/2003	10/21/2003 9-11:30am PB 22nd L	10/27/2003 1-3pm PB 22nd L	10/29/2003	10/23/2003	11/13/2003
Visual Quality Technical Memo	David Sherrard	9/4/2003	9/10/2003 (9/12/2003)	9/11/2003 (9/13/2003)	9/19/2003 8:00AM	9/22/2003	9/24/2003	9/25/2003	Judy Aranda	10/8/2003	10/15/2003 1-3pm PB 22nd L	10/21/2003 1-3pm PB 22nd L	10/22/2003	10/23/2003	11/13/2003
Parks and Recreation Technical Memo	David Sherrard	9/4/2003	9/17/2003	9/18/2003	9/26/2003 8:00AM	9/29/2003	10/1/2003	10/2/2003	Judy Aranda	10/15/2003	10/22/2003 1-2pm PB 10th S	11/3/2003 9-11am PB 44th L	10/29/2003	10/30/2003	11/18/2003
Relocation Technical Memo	Jeff Buckland	9/11/2003	9/17/2003	9/18/2003	9/26/2003 8:00AM	9/29/2003	10/1/2003	10/2/2003	Sam Seskin	10/15/2003	10/22/2003 2-4pm PB 10th S		10/29/2003	10/30/2003	11/18/2003
Historic Resources Technical Memo	Mimi Sheridan	9/11/2003	9/24/2003	9/25/2003	10/3/2003 8:00AM	10/6/2003	10/8/2003	10/9/2003	Kristen Campbell	10/22/2003	10/29/2003 9-11am PB 22nd L		11/5/2003	11/6/2003	11/24/2003
Archaeological Resources Technical Memo	Lynn Larson	9/18/2003	9/26/2003	9/29/2003	10/6/2003 12:00PM	10/7/2003	10/8/2003	10/9/2003	Kristen Campbell	10/22/2003	10/29/2003 9-11am PB 22nd L		11/5/2003	11/6/2003	11/24/2003
Transportation Discipline Report — Chapters 2, 3 & 4	Nick Roach	9/10/2003 10/6/03	10/1/2003 10/14/03 noon	10/2/2003 10/15/03	10/10/2003 10/20/03	10/13/2003 10/21/03	10/16/2003 10/21/03	10/15/2003 10/21/03	Cathy Strombom	10/29/2003 11/3/2003 11/7/2002 12:00 PM	11/12/03 9-11:30am 11/17/03 4-pm PB 10th	11/18/03 1-4pm PB 10th 11/20/03 1-4pm PB 10th	11/25/03 11/18/03	12/1/2003	12/17/2003
Transportation — Chapters 5, 6, & 7			10/27/03				10/28/03				11/5/2003				
Energy Technical Memo	Lawrence Spurgeon	9/18/2003	10/1/2003	10/2/2003	10/10/2003 8:30AM	10/13/2003	10/15/2003	10/16/2003	Judy Aranda	10/29/2003	11/3/2003 1-3pm PB 22nd L	11/5/2003 9-11am PB 22nd L	11/12/2003	11/13/2003	12/1/2003
Public Services and Utilities Technical Memo	Ron Grina	9/18/2003	10/1/2003	10/2/2003	10/10/2003 8:00AM	10/13/2003	10/15/2003	10/16/2003	Judy Aranda	10/29/2003	11/5/2003		11/12/2003	11/13/2003	12/1/2003

Document	Tech Lead	Due for Technical Review (12noon)	Technical Review Due	Receive Draft (8am)	Send Report to Ellen (word processing)	Comment Responses to Reviewers	First Draft Due to Client	Client Receives Draft (8am)	Client Comments Due (12noon)	Review Meeting	Comments Resolved and Teach Lead Revisions	Document to Editor (Lorena Dinger)	Report Back from Editor (am)	Document to Author
EconomicsTechnical Memo	Angela Findley	9/25/2003	10/1/2003	10/2/2003	10/10/2003 8:00AM	10/13/2003	10/15/2003	10/16/2003	10/29/2003	11/5/2003 1-3pm PB 22nd L	11/12/2003	11/13/2003	12/1/2003	
Complete?			X	X	X	X	X	X	X	X	X	X	X	X
Noise and Vibration Discipline Report	Lawrence Spurgeon	10/2/2003	10/15/2003	10/16/2003	10/24/2003 8:00AM	10/27/2003	10/29/2003	10/30/2003	11/12/2003	11/19/2003 1-3pm PB 10th S	12/4/2003 (12/5/03)	12/5/2003	12/19/2003	
Complete?			X	X	X	X	X	X	X	X	X	X	X	X
Air Quality Discipline Report	Lawrence Spurgeon	10/2/2003	10/15/2003	10/16/2003	10/24/2003 8:00AM	10/27/2003	10/29/2003	10/30/2003 11/19/03	11/13/2003 11/25/03	11/19/2003 12/1/03 1-3pm PB 10th S	12/4/2003 (12/5/03)	12/5/2003	12/19/2003	
Complete?			X	X	X	X	X	X	X	X	X	X	X	X
Section 4(f)	David Sherrard	10/22/2003 11/5/03	10/29/2003 11/12/03	10/30/2003 11/13/03	11/5/2003 11/19/03	10/21/2003 11/19/03	10/22/2003 11/19/03	11/6/2003 11/20/03	11/13/2003 11/26/03	11/19/2003 12/5/03 1-3pm PB 44th S	11/26/2003	12/1/2003	12/17/2003	
Complete?			X	X	X	X	X	X	X	X	X	X	X	X
Social Elements Technical Memo	Betsy Minden	10/9/2003	10/22/2003	10/23/2003	10/31/2003 8:00AM	11/3/2003	11/5/2003	11/6/2003	11/19/2003	11/24/2003 9-11am PB 44th L	12/4/2003 (12/5/03)	12/5/2003	12/19/2003	
Complete?			X	X	X	X	X	X	X	X	X	X	X	X
Environmental Justice	David Mattern	10/9/2003	10/15/2003	10/16/2003	10/20/2003 4:00PM	10/21/2003	10/22/2003	10/23/2003	11/5/2003	11/12/2003 1-3pm PB 22nd L	11/12/2003	11/13/2003	12/1/2003	
Complete?			X	X	X	X	X	X	X	X	X	X	X	X

June 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18 **Navigation (Kinyan Lui)**	19
20	21	22	23	24	25	26
Navigation (Kinyan Lui)		**Energy (John Maas)**				
27	28	29	30			
Navigation		**Energy (John Maas)**				
		Cultural Resources (Craig Holstine)				

July 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3

Navigation

Energy (John Maas)

Cultural Resources (Craig Holstine)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4	5	6	7	8	9	10

Energy (John Maas)

Navigation Comment Review Meeting

Energy Comment Review Meeting

Cultural Resources

Recreation (Paul Krueger)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
11	12	13	14	15	16	17

Cultural Resources (Craig Holstine)

Recreation (Paul Krueger)

Water Resources (UCO)

Cultural Resources Comment Review Meeting

Transportation (Mark Bandy)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
18	19	20	21	22	23	24

Recreation (Paul Krueger)

Water Resources (UCO)

Transportation (Mark Bandy)

Recreation Comment Review Meeting

Land Use/Relocations/Econ

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25	26	27	28	29	30	31

Water Resources

Water Resources Comment Review Meeting

Transportation (Mark Bandy)

Transportation Comment Review Meeting

Land Use/Relocations/Econ

Public Services & Utilities (Ghassan Sabboubeh)

Geology & Soils (Lynn Moses)

August 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7

Land Use/Relocations/Econ

Public Services & Utilities (Ghassan Sabboubeh)

Geology and Soils (Lynn Moses)

Visual Quality (Dave Peterson)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8	9	10	11	12	13	14

Public Services

Land Use/Relocation/ Econ Comment Review Meeting (9)

Public Services & Utilities Comment Review Meeting (11)

☆ **Navigation Coop Agency Comment Review Meeting**

Geology and Soils (Lynn Moses)

Visual Quality (Dave Peterson)

Ecosystems (Michelle Steinmetz)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
15	16	17	18	19	20	21

Visual Quality

Geology and Soils Comment Review Meeting (16)

Visual Quality Comment Review Meeting (18)

☆ **Energy Coop Agency Comment Review Meeting**

Ecosystems (Michelle Steinmetz)

Noise (John Maas)

Hazardous Materials (Melany Vorass)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
22	23	24	25	26	27	28

Ecosystems (Michelle Steinmetz)

Noise (John Maas)

Hazardous Materials (Melany Vorass)

Ecosystems Comment Review Meeting (25)

☆ **Cultural Coop Agency Comment Review Meeting**

Section 4(f) (Kimberly Farley)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	31				

Noise (John Maas)

Hazardous Materials

Noise Comment Review Meeting (31)

☆ **Recreation Coop Agency Comment Review Meeting**

Hazardous Materials Comment Review Meeting

Section 4(f) (Kimberly Farley)

Air Quality (John Maas)

September 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	

Noise (John Maas)
Hazardous Materials

Noise Comment Review Meeting

☆ **Recreation Coop Agency Comment Review Meeting**

☆ **Water Res. Coop Agency Comment Review Meeting**

Hazardous Materials Comment Review Meeting

Section 4(f) (Kimberly Farley)

Air Quality (John Maas)

5	6	7	8	9	10	11

Section 4(f) (Kimberly Farley)
Air Quality (John Maas)

Section 4(f) Comment Review Meeting

Indirect & Cumulative (Paul Krueger)

12	13	14	15	16	17	18

Air Quality (John Maas)
Indirect and Cumulative (Paul Krueger)

Air Quality Comment Review Meeting

☆ **Trans. Coop Agency Comment Review Meeting**

☆ **Utilities Coop Agency Comment Review Meeting**

☆ **Land Use... Coop Agency Comment Review Meeting**

19	20	21	22	23	24	25

Indirect and Cumulative (Paul Krueger)
Social (Kathleen McKinney)

☆ **Geology Coop Agency Comment Review Meeting**

26	27	28	29	30		

Indirect and Cumulative Comment Review Meeting

Social (Kathleen McKinney)

☆ **Visual Coop Agency Comment Review Meeting**

October 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
	Indirect and Cumulative Comment Review Meeting	Social (Kathleen McKinney)				
	☆ **Visual Coop Agency Comment Review Meeting**					
3	4	5	6	7	8	9
	Social	**Social Comment Review Meeting**				
	☆ **Ecosystems Coop Agency Comment Review Meeting**					
10	11	12	13	14	15	16
		☆ **Haz Mat Coop Agency Comment Review Meeting**				
17	18	19	20	21	22	23
	☆ **Section 4(f) Agency Comment Review Meeting**	Environmental Justice (Kathleen McKinney)				
24	25	26	27	28	29	30
		☆ **Noise Coop Agency Comment Review Meeting**	Environmental Justice (Kathleen McKinney)			
31		☆ **Air Quality Coop Agency Comment Review Meeting**				
EJ						

November 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
	Environmental Justice (Kathleen McKinney) → **EJ Comment Review Meeting** ☆ **Indirect and Cumulative Coop Agency Comment Review Meeting**					
7	8	9	10	11 ☆ **Social Coop Agency Comment Review Meeting**	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

December 2004

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15 ☆ **EJ Coop Agency Comment Review Meeting**	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Appendix L - Internal Comment Tools

What information is contained in this appendix?

Appendix L contains two tools you can use to manage internal review comments.

Item 1 – Instructions to Reviewers

The first tool is a list of instructions that were provided to internal reviewers for the internal review of the Draft EIS for the Alaskan Way Viaduct and Seawall Replacement Project. Your review process will be more productive if internal reviewers have clear direction on how they should provide comments.

Item 2 – Comment Form

The second tool is a simple form you can provide to your internal review team. This form helps both internal reviewers and document authors who will be responding to the review comments.

Washington State
Department of Transportation

Updated Instructions to technical reviewers for AWV PDEIS #1

Attached is a technical study and portions of the Preliminary Draft EIS prepared for the Alaskan Way Viaduct and Seawall Replacement Project. All technical studies have already been reviewed by lead agency staff and subsequently revised by each technical author. The PDEIS sections are based on these technical studies and written to be easily understood by the general public.

This project is on a shortened time frame and will not be following "typical" procedures for preparing an EIS. Please read and follow these instructions carefully.

1. **Review Technical Studies for accurate revisions**. Each technical memo or discipline report has been revised to address comments received during the first round of review unless otherwise noted. Your review should verify this was done completely and as intended. Copies of the comment tables with the agreed resolution to each comment have been distributed. Contact your agency's Environmental Coordinator if you need a completed comment table. **New issues will not be addressed.**

2. **Review PDEIS sections for accuracy**. The PDEIS is not following a "normal" EIS outline. It is designed around a question-and-answer format that focuses on information that differentiates between the alternatives and presents simple, conclusionary statements.

   As you review the PDEIS, please consider the following <u>critical</u> questions:
   - a. Is the information factually correct?
   - b. Is there enough information provided to understand the effects of the project?
   - d. Is there essential information missing?

3. **Use the comment form provided**. Draft materials are distributed as PDF files, or hard copy where requested. While this facilitates document distribution it does not allow modification. Forms are provided for you to note your comments. Note the page and paragraph on the comment form in the columns provided to help us locate the subject of your comment. Using these forms will help make it easier to compare and consolidate comments from multiple reviewers. Please note that you will have one spreadsheet for your comments regarding the technical memo, and a second spreadsheet for your comments related to the PDEIS text. Please provide PDEIS text comments only on the text version. Comments on PDEIS graphics should be made to the 11 x 17 version.

   Assign a priority to each comment: To facilitate our review each comment should be assigned one of these three priorities:
   - 1. **Critical issue requiring inter-agency discussion**
   - 2. Factual or substantive error or issue that should be corrected prior to publication
   - 3. Editorial suggestion to improve readability or other idea

   Please be respectful of our schedule and time limitations in assigning Priority 1. Every critical issue must be prioritized at the Agency level prior to the review meetings. Comments without priorities will be considered only as time allows.

   Your comments should have an explanation or accomplish a clear purpose. Comments without a good explanation may not be addressed. Please refrain from sermonizing or lecturing.

4. **Comments MUST be returned in time for consolidation by the stated due date**. Ask your coordinator exactly when they need your comments. The coordinators are:

   - a. FHWA – Mary Gray
   - b. WSDOT – Allison Ray
   - c. Seattle – Susan Chu
   - d. AWV Engineering – Carrie Oshiro
   - e. AWV Environmental – Ellen Minor

ALASKAN WAY VIADUCT AND SEAWALL REPLACEMENT DEIS
COMMENT FORM
PDEIS #2, 2/13/2004 DRAFT

Comments Due: **2/25/2004, 12noon**

Document: _PDEIS Text 2/13/2004 draft_
Reviewer: _INSERT NAME_

Chapter No.	Page No.	Line No.	Exhibit No.	Priority	Comment	Action Taken by Tech Lead	Reviewer	Agency
2 (example)	2	2		3	Delete "it was determined that" and replace with "engineers determined	(leave blank)	(last name)	i.e. WSDOT

Appendix M - Lessons Learned

What information is contained in this appendix?

Appendix M contains summaries of lessons learned while creating reader-friendly documents for WSDOT projects. This appendix includes lessons learned for the following projects:

- Alaskan Way Viaduct and Seawall Replacement Project Draft EIS

- I-405 Kirkland Nickel Project EA

Washington State
Department of Transportation

Alaskan Way Viaduct and Seawall Replacement (Viaduct) Project Lessons Learned Summary

Overall

1. **Set the schedule early**. Create a realistic schedule, get buy-in and solid commitments from all parties on the schedule, and stick to it. Establishing concrete due dates is the only way to ensure timely review and revisions for all parties. For the Viaduct Project, we set our deadlines early and had people put the dates on their schedules months ahead of time. The consultant team initialed their due dates to confirm their commitment. Once the dates were set, they were not changed.

2. **Establish a pattern for important dates**. Try to establish a due date pattern for deliverables to help people remember the process. For example, technical reports are always due close of business on Wednesdays, client comments are always due at noon on Fridays, etc.

3. **Set an engineering design cut-off date**. This is critical in order for the environmental work to proceed according to schedule. Be firm. *No more changes* after the cut-off. If changes are required, have a process where WSDOT, the lead engineer, the lead traffic engineer, and the environmental lead sign off approving/ allowing a change to the design after the cut-off date. This sign-off should include a determination if the change will affect the project schedule and budget.

4. **Require a technical editor to review all documents prior to agency review**. This ensures quality products and makes efficient use of time for reviewers.

5. **Avoid inconsistencies between the EIS/EA and technical reports.** Some inconsistencies may be inevitable; however, there are many ways these inconsistencies can be avoided.
   - Require one technical editor and one technical reviewer to review all documents prior to agency review.
   - Have the EIS/EA author(s) interview each technical report author as part of the writing process.
   - Have the technical report leads review the EIS/EA in draft form to make sure information is technically accurate and consistent with their reports.
   - Encourage authors to communicate and work together. This sounds like common sense, but many disciplines are interrelated, and communication is key.

6. **Practice making a PDF file before tight deadlines.** The Viaduct team identified several problems with Adobe's Acrobat software. To avoid headaches, do a sample PDF run on a technical report and the EIS/EA early (this is particularly important with graphics software).

7. **Coordinate with document printers early.** For technical reports, run a sample document early to check printing quality, fonts, figures, and color. Be sure to closely examine a sample of each technical document before the main print run. For EIS/EA printing, establish a detailed budget and complete a press check before the final

print run. A high-quality print job requires going to a top-end off-wet lithography printer. This type of printing takes more time than a typical quick printer such as Kinko's. For high-quality printing (like the Viaduct Draft EIS), it is essential that your graphic designer has experience producing complicated documents.

8. **Recognize dedication and have fun!** Our work is important and can really help make our communities a better place. All staff should be recognized for hard work and commitment both during regular meetings and with team-building events.

Technical/Discipline Reports and Analysis

1. **Develop tools**. Tools help guide technical report authors to ensure that all reports have a similar look, style, and feel. Tools include:
    - **Style guide**. This should have key project-specific terms and some writing guidance for authors so everyone is using the same terminology and style. For example, should the team use "sub-basin" or "subbasin." Should authors spell out street names (First Avenue South) or abbreviate (1st Ave. S)? Develop a list before authors begin writing, and share it with the team. One person should be responsible for updating the list as the project progresses. Update it often and make sure authors know where to find the latest version.
    - **Document template**. Develop a common template/format for all technical reports to give them a similar look and feel.
    - **Map templates.** Develop a series of maps that authors can use as templates for their work. Work with authors before they begin developing their reports to come up with a series of templates that meets their needs.
    - **Provide guidance for graphics**. This is similar to the style guide.
    - **List of appendices.** Develop an expected list of appendices/technical reports, name them, and stick to the list/names. The list of appendices should be developed as early as possible (before the technical reports and EIS/EA are written). This will help the technical and EIS/EA authors reference other reports appropriately and will minimize the number of changes needed as part of technical editing.

2. **Require authors to prepare an annotated outline** (10 percent review). This forms the foundation of the technical author's report and analysis. The outline must be a deliverable. It is essential to get agency buy-in on the outline and overall approach. The outline should include both the outline for the text and accompanying graphics. Consider developing the outline in the form of a checklist that models the checklists in the *Environmental Procedures Manual*. Circulate these checklists and use them for agency review of the reports.

3. **Develop a document that describes the alternatives and construction methods**. This should be the first technical report written. It provides a common base for all of the technical authors to work from. All supporting technical reports should reference this main document to cut down on repetition in the supporting reports.

Have a joint environmental team/engineering team meeting to describe the designs and construction methods so everyone is working from a common set of assumptions.

4. **Develop a process for information requests**. This helps facilitate the flow of information between the engineers and the environmental team. It works best to have one environmental and engineering point of contact who coordinates all requests and responses. Responses to environmental questions should be prepared in a common format. For the Viaduct Project, we called these RFIs (Requests for Information). We had a tracking log and a simple form. The environmental lead for this task worked with the engineers to get the information and forward it to the entire team.

Main Environmental Document (EIS or EA)

1. **Develop an annotated outline and establish document organization**. The outline should include a rough outline of the figures and tables that will likely be developed. The figures and tables should be outlined in text boxes near the text/question they will support. As part of outlining, the team must determine how the EIS/EA will be organized and how the story of the project will be told. There are several different ways to organize an effective, reader-friendly environmental document, and there are pros and cons to each type of organization. For example, the Viaduct Draft EIS does a good job telling the story of what each alternative is, but the alternatives description text is redundant. This organization worked for the Viaduct Draft EIS because a preferred alternative was not identified, but there are other ways to organize the discussion that may work better for other projects. Examples of other ideas considered for the Viaduct Draft EIS included organizing the text/discussion by element of the environment (transportation, noise, etc.) or condition (affected environment, operations, construction). This is a very important issue for the environmental team to set up from the beginning. There are a few chapters for the Viaduct Draft EIS that worked very well, and we would suggest incorporating these elements into all reader-friendly EISs and/or EAs. These include:
   - **Chapter 1 Introduction**. Use this chapter to introduce the project and engage the readers. To engage the readers, they need to have a sense for why they should care about the project. Use this chapter to describe the purpose of the project and why it is needed.
   - **Summary and comparison of the alternatives.** This is the most important chapter in the entire document! It can go in the front of the document or in the back. There are pros and cons to either approach. When developing this chapter, pay close attention to NEPA and/or SEPA regulations. This chapter should have meaningful graphics and text that focus on key differences and similarities between the alternatives. DON'T make these comparisons in one giant table. These large tables become difficult to work with, and there are better ways to compare information.

- **Developing the alternatives**. This is an important chapter that focuses on how the alternatives were developed. It starts with project scoping and continues through alternatives screening. Use this chapter to discuss how the preferred alternative was/will be selected.
- **Other things to consider**. This chapter is a great place to cover NEPA required topics that may not fit in as well with other sections of the document. Use this chapter to cover cumulative and indirect effects, irreversible decisions or irretrievable resources, and tradeoffs between short-term uses of the environment and long-term environmental gains.
- **Acronyms.** Include a list of acronyms in the back of the EIS/EA.
- **Index.** Include both a typical index and an index by NEPA subject. An example of the index by subject is found on page 161 of the Viaduct Draft EIS. This index includes a typical NEPA document outline, and it lists page numbers to guide reviewers to information required by NEPA/SEPA.
- **Other chapters.** Obviously the EIS/EA must include discussion describing the alternatives, affected environment, operational effects and mitigation, and construction effects and mitigation. There are many ways to organize this information, as previously discussed. You may want to consider a separate chapter for construction effects and mitigation.

2. **Add a roadmap for technical reviewers.** In addition to the index by NEPA subject, create an appendix to help guide technical reviewers. In the Viaduct Draft EIS, this document is called Appendix Y. It is an outline of the EIS/EA that references NEPA/SEPA regulations. This appendix is another tool to help technical reviewers locate specific information required by law.

3. **Use sidebars often.** Sidebars should be used throughout the document. They can be used to define technical terms, refer readers to detailed information in technical reports, highlight tradeoffs or key issues, etc. Establish a consistent appearance and place in the layout for sidebars.

4. **Put technical reports on a CD.** Include the CD as a back cover attachment to the EIS/EA.

5. **Use footnotes.** Reference information should be put in footnotes throughout the document; don't use parenthetical references.

6. **Develop and maintain a high-quality photo library.** High-quality photos are difficult to come by, and most people don't realize that *most digital photos won't work* for a high-quality printing process similar to what was used for the Viaduct Draft EIS. High-quality photos include photos with a resolution of *at least 350 dpi*. Most digital photos don't meet this criterion unless they are taken with a high-resolution camera. Still photos work, as long as the photos themselves are good. The photo library should be started early in the project. Whenever there is a public meeting or resource agency event, someone should be designated to photograph the event. Consult with the project's lead graphic designer to develop guidelines for the photo library.

7. **Provide adequate time for EIS/EA layout.** To develop a document like the Viaduct Draft EIS, it is critical to allow adequate time for layout. Some layout work can be done in the early stage of text development based on the outline, but most of the work can't be done until the *text is final*. This is very difficult for people to understand, but it is critical that people realize that text changes cannot be made after a particular date, because it affects the layout of the entire document. To get an example of the layout, lay out one or two chapters as part of preliminary review.

WSDOT (Agency)/Consultant Review Process

1. **Develop a simple spreadsheet and set of instructions for agency comments**. See the example from the Viaduct Project. All agencies should be responsible for consolidating their own comments. Provide line numbers in all review documents to help reviewers and authors (not all people count paragraphs the same!). Require reviewers to prioritize comments. The Viaduct team used a simple priority 1 through 3 ranking system:
   - Priority 1. Critical issue requiring interagency discussion
   - Priority 2. Factual or substantive error or issues that should be corrected prior to publication
   - Priority 3. Editorial suggestion to improve readability or other idea
   Regardless of the ranking system used, provide an example of a comment from each category to give reviewers a clear idea of how comments should be ranked. This is *very* important. People must know that they cannot rank all of their comments a Priority 1 unless they are truly deal-breaker issues. Likewise, under-ranked issues can get lost.
2. **Set the review schedule early**. Get review dates for both document review and review meetings on people's calendars. This ensures that people are available and scheduled to provide timely reviews. Try to anticipate hot-button subjects (such as the transportation report) and schedule more than one meeting for sensitive topics.
3. **Identify a small group of reviewers for review meetings.** Note the word *small*! For these meetings to be effective, it is essential that the review meetings have a lean crew. By lean, we mean one representative for each agency. This person needs to have the authority to determine how issues will be resolved. This person must come to the meetings prepared to represent their agency's review comments. If more than one representative is needed for a particular topic, reviewers should be available by phone so the meeting representative can "phone a friend."
4. **Have a strong facilitator at the review meetings**. This is critical to ensuring that the meetings are productive and that all the main issues get worked out. This person's role is to keep the meetings on track. The facilitator should make sure that once a decision is made, it doesn't get revisited. If time becomes an issue, it may be necessary to set time limits on particular discussions.
5. **Prepare a list of do's and don'ts for review meetings**. This will help meeting participants prepare for the meeting and know what to expect. It is critical that people come prepared to these meetings. That means the participants should know

their agency's key issues and they should be able to articulate issues from their agency's reviewers. Rather than having the consultant team explain why a change should/shouldn't be made as suggested, review meeting participants should explain why/how the agency's comments should be included/changed in the documents.

Memorandum

December 4, 2005

TO: Kimberly Farley

FROM: Jim Jordan
             Ranae Buscher

SUBJECT: Lessons Learned from Preparation of the Kirkland Nickel Reader Friendly
             Environmental Assessment

WHAT WORKED WELL:

Just the process of planning a reader friendly document made us think about the messages that we were trying to convey more carefully that if we were preparing a typical EA. Many times we asked ourselves the question, "What are we trying to say here?". As a result, we deleted a lot of extraneous material and brought important things into text boxes and graphics. We discovered that going through the process helped us communicate with each other.

Writing in an active voice was both a challenge and a pleasure. All of us have at one time or another been put off by impersonal, scientific writing that doesn't engage the reader. The writing class that WSDOT provided was a great benefit and an eye opener to another way of writing environmental documents. Thanks!

Some of the specific things that worked well were:

- Weekly face-to-face meetings with core team (Project Manager, editors, graphics staff) and WSDOT staff to discuss status of the document – provide direction.
- Thinking creatively on how to translate technical data into interesting charts, graphics, and tables for the reader.
- Understanding expectations and seeing other documents and samples that present information and materials in a favorable way.
- Working as a cohesive team with the same key individuals from start to finish. This gave everyone an awareness of what the project was about, and a sense of ownership.
- Skinny Maps (maps that fit on just part of a page) were a brainstorm that really made the graphics in the document stand out and convey information well to the reader.

WHAT CHALLENGED US:

Microsoft Word as a production tool: Word is a great word processing tool for everyone; as a formatting and layout tool, however, it presents many challenges. Throughout document development, we encountered glitches that could not easily be resolved (e.g., header and footer issues, outline numbering, misuse of styles and templates, embedding graphics). To create a document of this nature requires an individual with top-notch formatting and trouble-shooting skills—someone who is not always available when things go wrong.

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Memorandum

Also, Word does not handle embedded graphics well. The file sizes quickly become too large and crash. We found that JPGs worked the best, although in the end, many of our "maps" were in an EMF format because the images were clearer.

Templates and Styles: We learned that no matter how much planning we did to create and troubleshoot the template, individuals who were not familiar with Word's styles and formatting features, did not use it correctly. Despite group training sessions and step-by-step, written instructions, most of our subconsultants (authors) did not use it. We discovered that the term "template" is interpreted by many people as using the same fonts and page setup, but nothing to do with applying "styles." Consequently, we ended up doing most of the formatting ourselves, which required many extra hours of effort that could have been avoided. More project team meetings, especially coordination with the individuals doing internal edits of the discipline reports would have helped.

Document Control: One person maintaining control of the document works best, even though it places the burden of formatting on one person. For us, emailing a copy of a chapter for the author to edit often resulted in styles being deleted or new styles inserted. This happens all the time when people "cut and paste" between documents. It is better to have one individual (the editor) manage the document; with a trustworthy backup resource at the ready if the editor is not available.

Comment Response Form: When we received comments, many of the reviewers did not fill out the comment forms. Instead, they responded in emails or asked to mark up the actual document. This added time to the schedule. We think the comment form is an excellent tool on which to record and respond to comments; it provides a good paper trail for documentation and assures that every issue is addressed. However, when all reviewers do not use it, it becomes more difficult to document responses and increases the chance that some will get overlooked.

Overall, our first try at preparing a reader friendly environmental report was a good experience, and we're ready to do it again!

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