

Civil Engineering Writing Project - Language Unit 5

ACTIVE AND PASSIVE VOICE

I. What do you need to know about effective writing in civil engineering practice?

Civil engineering practitioners use more active voice verbs in their writing than students do. Active voice allows practitioners to be explicit about who is responsible for different actions and judgments, and to be more concise and direct. These features are valued in workplace practice because they make ideas easy for readers to understand and limit unintentional liability by making responsibility clear.

In school, many assignments are decontextualized. Unlike in the workplace, writing for courses is often done without a specific context in mind and without the need to express who is responsible for actions or decisions. For example, lab reports are usually about general phenomena, and it is usually not important to state who did the procedures. As a result, students are often told not to use first person (*I* or *we*) but to use passives (e.g. *A crash analysis was conducted* instead of *we conducted a crash analysis*). Some students then believe passive voice is always the first choice for engineering writing. But for engineering practice, where engineers work on specific projects in specific contexts for specific clients, active voice is sometimes more effective. The key, then, is to know how to choose between active and passive.

This unit teaches you how to identify active and passive voice and how to choose between them effectively. Like all aspects of writing, choosing active or passive requires judgment. You should choose based on the most effective expression of the content for the audience, purpose, and context. Effectively choosing between active and passive will help you improve all your writing, including course writing assignments. In proposals or reports for clients, your choices will be even more important.



What experienced engineering practitioners say

...engineering reports are not scientific journal papers. Our reports present our *subjective* opinions and recommendations based on objective information. They are presentations of specific information, pertaining to a specific site. When we write our reports, we do not intend to draw broad conclusions applicable to other sites or situations. In fact, our limitations sections work hard to make that clear. So, why write in a manner that would suggest otherwise? Instead, be clear about who performed the action. ...Often the biggest challenge to clear writing is passive voice.

Note: Different tenses (e.g. past, present) and modal verbs (e.g. *can*, *will*, *may*) occur with both active and passive voice. If these confuse you, review Grammar Unit 2 - Verb Tenses or other materials about verbs before you continue this unit.

II. Identifying active and passive voice

The first step in using active and passive voice effectively is understanding what they are. Verb “voice” tells whether the subject of the sentence is the agent for the verb. Some verb forms are active voice, some are passive voice, and some are neither.

Check Your Knowledge. Identify each underlined verb as active, passive, or linking verb (neither active nor passive). For active and passive voice, tell the agent and recipient of the action. All the sentences are from engineering practitioners’ reports.

If this activity is too difficult, skip it, and continue reading this section.

1. After concurrence by the Department of Transportation on the number and type of further inspections, the study team collected supplemental information through visual inspections of 55 additional bridges.
2. The I-62 Red River Bridges are two of the four bridges included in Bundle 333 of the Bridge Delivery Program. The I-62 Blue River over-crossing bridges are addressed in a separate report.
3. The alternatives have been evaluated based on initial construction costs.
4. The appendix contains the existing turn movement counts.
5. At ± 15 feet, the fill becomes soft, low to medium plastic silt with some clay and traces of sand.
6. The existing bridge will remain open to traffic during the construction.
7. For this report, we have assumed a structure depth of 18" for all overflow bridge lengths.
8. It is anticipated that the trench will extend to a minimum of 8 to 10 feet in depth.
9. This determination is consistent with Statewide Bridge Delivery Program Environmental Performance Standards (EPS), dated November, 2009.
10. Based on our observations and experience with similar projects we recommend the following additional investigations and repairs for your consideration.
11. The existing 915-mm (36-inch) diameter storm sewer pipe will be replaced with 1220-mm (48-inch) diameter pipe.
12. When the bridge was widened, it was impractical to excavate to the depth of the original footings, so driven pile foundations were used for the end bents.

If you are not 100% confident about your answers, read points A-C below and then review your answers for *Check Your Knowledge*. If you are 100% confident about your answers, check them against the answer key at the end of the unit. If you got every answer correct, go on to Part III. If not, continue reading this section.

A) Active and passive voice express different relationships between subject, verb, and object.

Compare Active and Passive Voice	
Active Voice	Passive Voice
<ul style="list-style-type: none"> • The subject is the agent of the action. It is the “doer” of the action in the verb. • The object (the thing after the verb) is the recipient of the action or is the product of the action. • An active voice sentence can be made passive. • Active voice is the most direct and most common expression of action in English. 	<ul style="list-style-type: none"> • The subject is the recipient or product of the action. It has the action done to it. • The agent of the action may occur in a prepositional phrase after the verb. Most passive voice sentences do <u>not</u> state the agent. • A passive sentence can be changed to active voice, but you have to add an agent if it was not stated.
<p>1A. <i>We calculated a factor of safety greater than 1.6</i> for resistance to sliding for the abutment wall sliding. Subject: <i>we</i>, the agent who does the calculating</p>	<p>1B. <i>A factor of safety greater than 1.6 was calculated</i> for resistance to sliding for the abutment wall. Subject: <i>a factor...1.6</i>, the product of the</p>

Object: <i>a factor...1.6</i> , the product of the calculating	calculating No agent is stated.
2A. <i>Peterson Engineering, Inc.</i> , <u>has completed</u> a geotechnical investigation of the proposed site. Subject: <i>Peterson Engineering, Inc.</i> , the agent who has completed the investigation Object: <i>a geotechnical...site</i> , the recipient of the action (<i>completed</i>)	2B. A geotechnical investigation of the proposed site <u>has been completed by</u> <i>Peterson Engineering, Inc.</i> Subject: <i>A geotechnical...site</i> , the recipient of the action The agent is expressed in the prepositional phrase <i>by Peterson Engineering, Inc.</i>
3A. <i>This report</i> <u>documents</u> the hydraulic analysis. Subject: <i>This report</i> , the agent that does the documenting Object: <i>the hydraulic analysis</i> , the thing that is acted upon (it gets documented) Notice that an agent can be an inanimate object like a report. (In fact, we know human writers produced the report.)	3B. <i>The hydraulic analysis</i> <u>is documented</u> in this report. Subject: <i>The hydraulic analysis</i> , the thing that is acted upon The agent of the active sentence (<i>this report</i>) is now part of a prepositional phrase telling where (<i>in this report</i>).

B) In one kind of passive voice sentence, the subject is a meaningless *it* instead of the recipient of the action. These sentences are rarely effective because they omit the agent and make the recipient of the action whole ideas that are grammatically complex. (Tips for revision are covered in Part IV.)

"Empty It" Passive Voice Sentences
<p>1. It <u>was noticed</u> that there were several cracks...</p> <p>2. It <u>was observed</u> that many eastbound through vehicles fail to yield to oncoming northbound right-turn vehicles.</p> <p>Subject: <i>It</i> (an "empty <i>it</i>"). The <i>it</i> refers to nothing. Object: <i>there were several cracks, many eastbound through vehicles fail to yield to oncoming northbound right-turn vehicles</i></p>

C) Many verbs are neither active nor passive. They express a "linking" or "existing" relationship between the subject and whatever comes after the verb. There is no actor who causes the action to happen and there is no object that is acted upon.

Neither Active Nor Passive: Linking Verbs	
Examples	Explanation
1. Several historic residences <u>are</u> adjacent to the bridge and approach roadway.	Subject: Several historic residences Sentence 1 describes where the subject (<i>several historic residences</i>) exists in relation to the bridge and roadway. The verb <i>be</i> is the most common linking verb; <i>are</i> is a form of <i>be</i> (<i>am, is, are, was, were, etc.</i>).

<p>2. During large flood events, Old Meadow Road <u>can become</u> unpassable as the Horton River <u>rises</u> above the existing roadway elevation.</p>	<p>Subjects: <i>Old Meadow Road</i> and <i>Horton River</i></p> <p>Sentence 2 is a complex sentence with two subject+verb sets. The first set describes a possible condition of Old Meadow Road (<i>unpassable</i>). The second set describes how far Horton River rises (<i>above...</i>).</p> <p>Notice that these sentences cannot be made passive. For example, “Unpassable is become Old Meadow Road by the Horton River” is not grammatical and does not make sense.</p>
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Return to *Check Your Knowledge*. Revise your answers. Then check them against the answer key at the end of this unit.

III. How can you choose between active and passive for effective civil engineering writing?

The choice between active and passive voice is a **choice about the subject of the sentence**, not the verb: **Should the agent be the subject of the sentence?** Choose the most effective subject for a sentence, and the verb will follow. Three general principles apply to the choice of any subject, and then additional considerations apply to distinguish active and passive. Multiple factors interact in sentences, so examples are provided after the complete list of considerations.

Subjects of any sentences are most effective when...

- The subject is known information (i.e. the subject has previously been brought up in readers' minds). By putting a known item in subject position, you follow the expected known-new information ordering in English. This makes it easy for your readers to follow your text. (See more in Unit 7.)
- The subject is the thing or person whose “story” is being told. Readers expect sentences to be “about” the item that is the subject. The rest of the sentence provides information about this subject.
- The subject of the sentence is short. To interpret sentences, readers subconsciously work to match subjects and verbs, so short subjects facilitate faster, easier reading.

Active voice is especially effective when...

- You need to establish responsibility. If the responsibility for observations, actions, assumptions, recommendations, or judgments is unclear, readers become confused and firms may take on liability unintentionally.
- You are emphasizing a client-consultant relationship - *we* (the engineers) do something that *you* (the client) wanted.
- Passive voice makes the content hard to follow. Active voice expresses actions in the most direct and concise way, so it is the easiest structure for readers to interpret.

Passive voice is especially effective when...

- The agent is unknown or unimportant. Descriptions of project locations, geology, or old structures often use passive voice effectively because the agent is unknown or unimportant.
- You have already established the agent and now the receiver of the action is the topic of interest. Many descriptions of methods use passive voice effectively after the agent has been stated in an initial active voice sentence.
- Your audience asks you to use passive voice. For example, instructors may ask students to use passive voice in the methods sections of lab reports. Their instructions reflect the context of that kind of academic writing: the agent is unimportant or assumed to be the student writer.

Effective Active and Passive Choices	
Examples	Explanation
<p>1. During the site visit, we <u>observed</u> the classic arched shaped crack pattern and headscarp graben of landslides. (<i>Tech memo</i>)</p> <p>2. Recommendation of Design Team: The design team <u>recommends</u> the construction of Access Road A. This roadway <u>helps</u> control access onto Western Road and <u>reduces</u> the impact to the adjacent property owners.... (<i>Report</i>)</p>	<p>Examples 1 and 2 use active voice to explicitly state responsibility for observations and recommendations, using we and the design team as subjects. Example 2 also uses an inanimate subject (this roadway) for a concise active voice sentence. The subjects are short and are known information (introduced in previous sentences).</p>
<p>3. On August 15 and 19, 2003, we <u>drilled</u> five exploratory borings with a portable drill rig using solid stem auger techniques. These borings <u>were drilled</u> to provide data for retaining wall and signal pole foundation design. The boreholes <u>were drilled</u> to depths ranging from ±2 to 6 m. (<i>Tech Memo – Field Exploration section</i>)</p>	<p>Example 3 begins in active voice, explicitly establishing responsibility for the action (we drilled). After the verb, the first sentence introduces five borings. The second sentence begins with the “known” information these borings because the borings are now the topic that will be developed; the second and third sentences describe the purpose and depth of the borings. The passive subjects are short phrases.</p> <p>Active voice versions of the passive sentences would be repetitive and wordy: We drilled these borings to provide... We drilled the boreholes to depths ranging...</p> <p>Versions with different active and linking verbs are possible: These borings provided data for... The boreholes ranged from...</p> <p>However, they take the action (drilled) out of the sentences. They are less effective because this section is meant to describe actions that were taken for field exploration.</p>
<p>4. At your request, we <u>visited</u> a potential substation location near the intersection</p>	<p>Examples 4 and 5 make responsibility explicit, and they also emphasize the client-consultant</p>

<p>of State Route 10 and Quincy Mountain Road in Slide County, Washington.</p> <p>5. Per your request, SRL Engineering <u>has completed</u> an investigation for the proposed NB alignment of Highway 65 and the Elderwood Parkway Bridge. <i>(Tech memos – opening sentences)</i></p>	<p>relationship: the opening sentence reminds the recipients that they have a contractual agreement with the engineering firm. The subjects are short, and they are known information (established in the memo header).</p> <p>Firms differ in preference for <i>we</i> or the firm name with active voice. The meaning is equivalent.</p>
<p>6. Project Description <u>The project is located</u> at the junction of I-290 and Hwy 444... <i>(Report)</i></p> <p>7. Bridge 852.9 According to the Bridge Engineering Baseline Report, <u>this 184' long bridge was constructed</u> in 1952... <i>(Report)</i></p>	<p>Examples 6 and 7 are effective passives because the agents are unknown or unimportant. In 6 there is no agent for the location of the project; it depended on the roadways. In fact, you could alternatively call <i>is + located</i> a linking verb (<i>is</i>) + adjective (<i>located</i>). In 7 the baseline report may not tell who constructed the bridge, and that detail is irrelevant to its current condition. The subjects are short and were established in the headings.</p>
<p>8. <u>Shaft stabilization will be required</u>. We recommend at least 20 feet of temporary surface casing. <i>(Report)</i></p> <p>9. Shaft Type, Construction and Material Specifications. <u>Our analysis assumes the drilled shafts will be constructed</u> using reinforced concrete with a minimum compressive strength of 3,500 psi. <i>(Report)</i></p>	<p>Examples 8 and 9 contain passive and active voice. Passives are used when the agent is unimportant.</p> <p>In 8 no matter who does the construction, shaft stabilization will be required. The passive also allows the topic of interest (<i>shaft stabilization</i>) to be the subject of the sentence. It is a short phrase. Active voice is then used for the recommendation.</p> <p>Example 9 is a complex sentence that first uses active voice (<i>our analysis assumes...</i>). The subject is “known” information (the analysis was introduced in the previous Analysis section of the report). The second part of the sentence uses passive voice (<i>the drilled shafts will be constructed</i>) because the agent of that action is irrelevant. Active voice would contain an irrelevant, vague agent and hide the topic (<i>the drilled shafts</i>) deep in the sentence: <i>Our analysis assumes that any contractor will construct the drilled shafts using reinforced concrete...</i></p>

MYTH BUSTER

Isn't passive voice better because it makes writing sound objective?

Many people remember hearing that passive voice makes writing sound objective and is therefore preferred in engineering, which requires evidence and objective reasoning. This belief reflects misconceptions about both engineering practice and writing.

First, although evidence and reasoning are important in engineering, professional engineers are required to make subjective judgments. In fact, clients hire engineers specifically

for their professional judgments. The objective data is the basis for these judgments. What's important, then, is not to make your writing "sound objective," but to describe your data and analysis distinct from your interpretations and judgments. Remember the quote from the engineering practitioner above: "Our reports present our **subjective** opinions and recommendations based on objective information."

Second, there is no inherent reason for passive voice to sound objective and active voice to sound subjective. For example, sentences 1 and 2 use *we* + active voice, but they are objective descriptive statements, not subjective opinions :

1. For the approach embankment slopes under existing static conditions, we calculated a factor of safety of 2.0. *(Report)*
2. At the Garrapata Parkway Landslide located 0.8 miles east of Branson Road, we observed a 200-foot wide slope failure that covered Garrapata Parkway with 10 to 15 feet of mud and debris. *(Site visit memo)*

Making these sentences passive (*a factor of safety was calculated, a 200-foot wide slope failure was observed*) would not change the level of objectivity; it would just obscure the agent.

Sentences 3 and 4, on the other hand, both sound subjective even though 3 is active voice and 4 is passive voice:

3. We felt that a rain barrel system met our two requirements. *(Student report - active)*
4. The intent is to improve driver recognition of right-of-way such that drivers do not feel compelled to hastily merge from the acceleration lane in to the left adjacent lane. This is believed to be the cause of a handful of merging and sideswipe collisions.... *(Student report – passive)*

These sentences sound subjective because of the verbs – *feel* and *believe*. Changing the voice of the verbs (*It was felt that a rain barrel system...., someone believes the cause to be....*) does not change how subjective the ideas sound.

In sum, the verb voice is not what allows you to express objectivity and subjectivity. Accurate verbs and effective subjects for the purpose and content are more important.

IV. Techniques for Improving Your Writing

Section II covered general principles for choosing between active and passive. This section covers more specific techniques that address the most common ineffective passives found in student papers . (Remember, passives can be effective!)

Writing requires judgment, just as all engineering does. You will need to think about how you can apply these techniques in your own writing for particular content, purposes, and audiences. If you are in school and an instructor tells you to use passive voice or never to use personal pronouns like *we*, you must adapt for that audience.

Technique 1: State the agent for observations, assumptions, recommendations and other judgments explicitly.	
Original	Revision
<p>1. Pedestrian Crossings. Pedestrian activity <u>was noted</u> near the intersection of Fremont Ave, 57th Ave, and Camino Blvd. The width and unusual geometry of Camino Blvd made pedestrian crossings difficult. <u>It was recommended</u> that some form of pedestrian improvement was necessary to increase the safety of crossings. The options include a marked crosswalk, curb extensions, a pedestrian median refuge island, and a pedestrian actuated signal. <i>(Report)</i></p> <p>2. According to Dr. Larry Simpson from a personal interview, <u>the assumption was made</u> that the weakest soil in that area is silty sand. <i>(Report)</i></p>	<p>1. <u>We observed</u> pedestrian activity at the intersection of Fremont Ave, 57th Ave, and Camino Blvd. Due to the width and unusual geometry of Camino Blvd, pedestrians had to run across the intersection, return to the curb repeatedly, or abandon attempts to cross. <u>We therefore recommend</u> modifying the intersection to increase pedestrian safety. The options include a marked crosswalk, curb extensions, a pedestrian median refuge island, and a pedestrian actuated signal.</p> <p>2. Based on our interview with Dr. Larry Simpson on April 7, 2014, <u>our analysis assumes</u> the weakest soil in that area is silty sand.</p>
<p>Explanation</p> <p>The originals are unclear about who is responsible for making the observations, recommendations, and assumptions. The revisions use active voice to make the agent clear. Other revisions include:</p> <ul style="list-style-type: none"> • In example 1, telling the observations rather than jumping to an interpretation that crossing was difficult without stating the basis for that interpretation. • Using present tense for the recommendation and assumption (<i>recommend, assumes</i>). The originals use past tense (<i>was recommended, was made</i>), which makes the responsibility even more ambiguous. It suggests that someone in the past did the actions, not the current writers. • In example 2, changing from a nominalization (<i>our assumption + passive</i>) to an inanimate subject + active verb (<i>our analysis assumes</i>). 	

Practice 1: Revise the following so that the agents for observations, assumptions, recommendations and other judgments are explicit. Pay special attention to the underlined phrases. Also include other revisions in sentence structure and vocabulary to make the writing more effective.

a. Alternative 1 results in little improvement for a high cost. Therefore, the closing of the tunnel and more detailed feasibility studies for alternatives 2 and 3 are recommended. *(Report)*

b. Introduction

Standard University is planning to build a new building in the southwest corner of the College of Arts and Sciences quadrangle. A geotechnical study was conducted on the subsurface conditions at the proposed site in order to determine the feasibility of the development. An engineering recommendation was made after the analysis was completed. *(Report)*

[Note: The writers of this report did the work referred to in these sentences. The report describes this work.]

- c. The new bridge is intended to be permanent and available for use throughout the year. Based on survey data and observation of previous flood marks, a high water level of 222 ft above sea level has been established for design purposes. *(Report)*


Technique 2: Change long subjects to short subjects, and change verbs from passive to active.	
Original Sentence Needing Revision	Revision
<p>1. While doing the calculations for this lab, finding the theoretical values for strain, a better concept of how the equations are applied in experimental situations <u>was obtained</u>. <i>(Lab report)</i></p> <p>2. Many westbound through vehicles yielding to oncoming southbound right-turn vehicles <u>were observed</u>. <i>(Report)</i></p>	<p>1. <u>The calculations for this laboratory illustrated</u> the application of the theoretical equations for strain in experimental situations.</p> <p>2. <u>We observed</u> that many westbound through vehicles yielded to oncoming southbound right-turn vehicles.</p>
<p>Explanation. The originals are difficult to read because there are so many words before the verb. No matter what context they occur in, these sentences would not be effective. The revisions use short subjects and place the main verb early in the sentence. These changes result in active voice sentences. Also notice the following:</p> <ul style="list-style-type: none"> • Example 1 changes a complicated sentence structure into a simple one. More complicated clauses are changed into concise phrases (e.g. <i>while doing the calculations for this lab</i> was revised to <i>the calculations for this laboratory</i>). • In example 2 the phrases <i>eastbound through vehicles</i> and <i>oncoming northbound right-turn vehicles</i> are long because of their precise content. When sentences include long, precise phrases like this, short subjects and verbs early in the sentence are especially helpful for readers. 	

Practice 2. Revise these sentences so that they have shorter subjects followed by active verbs. Include other revisions in sentence structure and vocabulary to make the writing more effective.

- a. Using design guidelines found in the course textbook, the number of tanks and their dimensions could be designed. *(Report)*
- b. Visual inspections of the existing conditions of the structures are proposed. With digital photographs and drawings, architectural distress and damage, including existing visible cracks larger than 1 mm, will be documented. *(Proposal)*
- c. By the size of the “I” section utilized (approximately 14”x 36” flanges and 14”x 72” web) and amount of camber imposed on the bridge’s largest span (a medium span – approximately 70’), it is speculated the bridge was pre-cast. *(Site visit observation - bridge description)*

[Hints: This sentence says that the entire bridge was precast. Entire bridges cannot be precast. Rather, bridges use precast beams of reinforced concrete. Age is another reason to expect beams were precast. Precast became dominant in the 1970s. This bridge was built in 1979.]

Technique 3: Revise passive sentences with “empty it” subjects to have an informative subject.

Original Sentence Needing Revision	Revision
<p>1. Due to the design of the intersection, initially <u>it was thought</u> that cyclists would merge to the right lane and be forced to compete with merging freeway traffic, but <u>it was observed</u> that most cyclists merged safely into the left car lane well before reaching the intersection. <i>(Report)</i></p>	<p>1. Due to the design of the intersection, <u>we anticipated</u> that cyclists would merge into the right lane of traffic and be forced to compete with merging traffic from the interstate. However, <u>during our observations, 90% of the cyclists merged</u> safely into the left traffic lane well before reaching the intersection.</p>
<p>Explanation. The original is ambiguous (who thought this?). It is wordy because of the “empty it passives.” Notice that the two passives are revised in different ways, both of which are more effective:</p> <ul style="list-style-type: none"> • change to first person pronoun + active voice (<i>it was thought</i> → <i>we anticipated</i>) • change to a statement of the observation (<i>it was observed that...</i> → <i>during our observations, 90% of the cyclists...</i>) <p> When you look for ineffective passive voice, do not assume that all sentences that begin with <i>it is</i> or <i>it was</i> are passives. Some are linking verbs, for example:</p> <p><i>No structural analysis was performed because <u>it is</u> beyond our scope of work.</i></p> <p><i>According to Mr. Robert during our site visit, <u>it is</u> likely that all the drain easements on this parcel were established in the early part of the 1900s.</i></p>	

Practice 3. Revise the following passives with “empty it” to make more effective sentences. Also include other revisions in sentence structure and vocabulary to make the writing more effective.

- a. It was common for vehicles to disobey the traffic control at this intersection. It was observed that many eastbound through vehicles fail to yield to oncoming northbound right-turn vehicles. This type of conflict is presented in Figure 7. *(Report)*
 [Note: A table with the data should also be included, but in your revision you can assume that is referred to elsewhere in the report.]
- b. LABOE Standards using LABOE Traffic Index values
 After comparing results for three different types of calculations, it was determined that Alternative 1 was the most cost effective and met all standards. The process to reaching this conclusion is included throughout this report. *(Report)*
- c. No evidence of slope instability in the existing slopes was observed and hand probing encountered stiff soils. Therefore, it is proposed to use 1:1.5 fill slopes in this section to avoid sliver fills. *(Report)*

Technique 4: Use inanimate subjects in active voice sentences or instead of *it* passives.

Original Sentence Needing Revision	Revision
<p>1. [Note: preceding paragraph describes the basis for the liquefaction analysis] A potential for liquefaction in the loose sand between 15 and 30 feet <u>was indicated</u>. (Report)</p> <p>2. Data were then compiled for both the coarse and fine samples and rendered in a gradation curve. <u>It was assumed</u> that the samples were homogenous prior to testing. (Lab report methods section – passive requested by the instructor)</p>	<p>1. <u>The results of the liquefaction analysis indicate</u> a potential for liquifaction in the loose sand between 15 and 30 feet.</p> <p>2. Data were then compiled for both the coarse and fine samples and rendered in a gradation curve. <u>The samples were assumed</u> homogenous prior to testing.</p>

Explanation.

- The original of example 1 has a long subject before the verb. The revision uses a shorter, inanimate subject + active verb (*results indicate*) for easier reading. The revision also now follows expected information structure in two ways: it explicitly moves from data analysis to the engineers’ interpretation of it (see Unit 4, Part 1) and it follows known-new information sequencing (see Unit 4, Part 2).
- In the example 2 revision, the inanimate subject *the samples* improves on the original empty *it* subject. The revision still uses passive voice because the instructor requested it, but the sentence is more concise and therefore more effective.



When you use an inanimate subject, make sure the meaning is accurate, for example:

accurate: This memorandum documents our observations and makes recommendations for...

inaccurate: This memorandum observes the conditions...

A memorandum cannot observe. Languages vary on how inanimate objects can be used as actors. In English, the verb is usually an inherent function of the object. For example, written papers can document and report things because documenting and reporting content are an inherent function of papers. Similarly, we can use active voice for *the bridge spans a river* and *the foundation supports a bridge* because it is an inherent function of bridges to span rivers and foundations to support bridges.

Practice 4. Make these passages more effective by revising some sentences to use inanimate subject + active verb . Also include other revisions in sentence structure and vocabulary to make the writing more effective.

- The first step of the experiment it was used the caliper. With this device it was measured the length of specimen, than the width and last the depth. (Lab report)
[Hint: These sentences are not grammatical, probably because the student is trying very hard to use passive voice in a lab report. Instead, inanimate subjects + active voice would be more effective.]
- We obtained lumber costs from City Lumber. We calculated the costs of the pier construction by contacting Baying Construction. We include prices that are effective as of May 27, 2010.
[Hint: These writers are probably trying to use active voice to show their responsibility, but they have overdone it so there is too much focus on them. The “story” is about the materials, not

the writers. Consider establishing responsibility in a first sentence and then using an inanimate subject. Also notice that the second sentence is inaccurate. The writers did not calculate costs by contacting the company; they just got prices.]

c. Cost Analysis

Materials, labor, engineering costs, and operating expenses were all included as factors that were considered in estimates of the cost of each alternative design.

More Practice

Instructions: Apply the principles for effective active and passive use, the specific techniques in this unit, and techniques from other units to make these passages more effective. If necessary, you may invent details for these practice revisions (but never for real content!).

1. Introduction

The following summarizes the Western Railroad Right-of-Way/West Gaston Alternatives Study Report. A wide range of possible transportation alternatives were identified to meet the needs and goals for transit improvements along the corridor. Transportation alternatives were identified and evaluated. Technical and environmental analysis, as well as public and stakeholder input, were evaluated in each analysis. Each transportation alternative was evaluated on support, environmental and community impacts, and operations, as well as cost effectiveness.

(Report – from a first section summarizing the report)

2. As requested, a condition assessment of select exterior facade elements of the Preston Project located in Seacrest, Idaho was performed. WRI services performed to date are documented, and it summarizes our conclusions and recommendations for your further consideration.

(Report, written by WRI. Opening sentence)

3. Several tests were administered per ASTM standards on samples of soil obtained from the Glacier Way dam site. Whether either of two proposed dam sites was acceptable was determined by these tests. Gradation analysis was completed from data found by sieve and hydrometer tests conducted per ASTM standards D 421-85 and D-422-63 using an ASTM 152H hydrometer. This allowed us to classify the soil per the ASTM/USCS classification system D 2487-93.

(Report)

[Note: The writers did the soil tests and evaluated the proposed dam sites.]

4. Pick a passage from your own engineering writing where you think active or passive voice could be used more effectively. Revise it. Show the original and your revision.

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Check Your Knowledge Answer Key

1. After concurrence by the Department of Transportation on the number and type of further inspections, the study team collected supplemental information through visual inspections of 55 additional bridges.
Active voice. Agent = the study team. Recipient of action = supplemental information
2. The I-62 Red River Bridges are two of the four bridges included in Bundle 333 of the Bridge Delivery Program. The I-62 Blue River over-crossing bridges are addressed in a separate report.
are: Linking verb.
are addressed: Passive voice. Agent can be considered unstated or a separate report. Recipient of action = the I-62 Blue River over-crossing bridges
3. The alternatives have been evaluated based on initial construction costs.
Passive voice. Agent is unstated. Recipient of action = the alternatives
4. The appendix contains the existing turn movement counts.
Active voice. Agent = the appendix. Recipient of action = the existing turn movement counts
5. At ±15 feet, the fill becomes soft, low to medium plastic silt with some clay and traces of sand.
Linking verb
6. The existing bridge will remain open to traffic during the construction.
Linking verb
7. For this report, we have assumed a structure depth of 18" for all overflow bridge lengths.
Active voice. Agent = we. Recipient of action = a structure depth of 18"
8. It is anticipated that the trench will extend to a minimum of 8 to 10 feet in depth.
Passive voice. Agent is unstated. Recipient of action = the trench will extend to a minimum of 8 to 10 feet.
9. This determination is consistent with Statewide Bridge Delivery Program Environmental Performance Standards (EPS), dated November, 2009.
Linking verb
10. Based on our observations and experience with similar projects we recommend the following additional investigations and repairs for your consideration.
Active voice. Agent = we. Recipient of action = the following additional investigations and repairs
11. The existing 915-mm (36-inch) diameter storm sewer pipe will be replaced with 1220-mm (48-inch) diameter pipe.
Passive voice. Agent is unstated. Recipient of the action = the existing 915-mm (36-inch) diameter storm sewer pipe
12. When the bridge was widened, it was impractical to excavate to the depth of the original footings, so driven pile foundations were used for the end bents.
was widened: Passive voice. Agent is unstated. Recipient of action = the bridge
was: Linking verb
were used: Passive voice. Agent is unstated. Recipient of action = driven pile foundations