Appendix L

Visual Impact Analysis

VISUAL IMPACT ANALYSIS
BNSF Sandpoint Junction Connector Project

Bonner County, Idaho

U.S. Coast Guard
District Thirteen
Seattle, Washington

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TABLE OF CONTENTS

FIGURES

TABLES

ABBREVIATIONS AND ACRONYMS

BNSF	BNSF Railway Company
CFR	Code of Federal Regulations
FHWA	Federal Highway Administration
LPO	Lake Pend Oreille
MP	milepost
MRL	Montana Rail Link
NEPA	National Environmental Policy Act
Project	BNSF Sandpoint Junction Connector Project
US 95	U.S. Route 95
USC	United States Code

1.0 INTRODUCTION

The purpose of the BNSF Sandpoint Junction Connector Project (Project) is to reduce the delay of freight and passenger rail traffic by increasing the operational efficiency of the BNSF Railway Company (BNSF) freight rail system between its Algoma Siding track south of Sandpoint (BNSF milepost [MP] 5.1) and the Sandpoint Junction (MP 2.9), where BNSF and the Montana Rail Link (MRL) main line tracks join just north of the Sandpoint Amtrak Station.

The BNSF northern tier is a high-volume traffic corridor that connects both the Midwest Chicago Terminus and Canada to the West Coast. This rail corridor moves key commodities such as wheat, corn, and soybeans from the northern tier of Midwest states to West Coast ports of Seattle, Tacoma, and Vancouver, Washington, making it a critical transportation link in the international delivery of agricultural products. This corridor also serves as Amtrak's only route across the northern United States (the "Empire Builder"), connecting the Midwest (Chicago) with the West Coast, making it an important piece of the passenger rail system. Rail traffic volumes have risen steadily for the past three decades on this portion of the interstate main line, increasing the economic significance of the corridor. Currently, approximately 60 trains use this section of track per day, resulting in nearly 22,000 overwater crossings per year.

Two sections of Line Segment 45 have two parallel main line tracks ending at Algoma (BNSF MP 5.1) and Sandpoint Junction (BNSF MP 2.9). These sections of double track are separated by a 2.2-mile section with only one main line track over Sand Creek and Lake Pend Oreille (LPO), which dates from the early 1900s. Sandpoint Junction is located at the north end of the single-track section, just north of the Sandpoint Amtrak Station, where an MRL siding track meets two main line tracks (BNSF and MRL). At the south end of the single-track section, the main line intersects with the BNSF Algoma (East) Siding track.

The 2.2-mile segment of single main line track is a constraint to safe and efficient rail movement in the BNSF northern tier, resulting in local and regional impacts to shipping and interstate commerce. The existing single-track configuration causes trains to back up on existing sidings and rail yards for up to 30 minutes, waiting for an opening to cross the bottleneck.

Trains waiting for a crossing opportunity cause long vehicular wait times on local county and city streets at public at-grade rail crossings. The delay in train and truck traffic results in a delay of the local and regional transport of people, goods, and services.

Rail traffic in this corridor has increased as a result of population growth and the corresponding increase in the demand for freight, and will likely continue this trend. The existing bridges over Sand Creek and LPO have the physical capacity to move more trains, but additional train volumes would increase congestion and delays, negatively impacting North Idaho communities and communities throughout the BNSF network. If the constriction at this location is not addressed, the delay is expected to increase, resulting in a lower level of service for both rail and vehicle traffic and further constraining the movement of goods and services at a local, regional, national, and international level.

Deteriorating rail service may also cause shippers with alternative options, such as consumer product containers, to convert to highway transportation by truck. One double-stack intermodal train carries the same cargo as 280 trucks that would be diverted to publicly funded highways, producing negative highway congestion, economic impacts, and safety impacts.

The Proposed Action Alternative involves the construction of an approximately 2.2-mile-long second main line track west of the existing BNSF main line to connect the Algoma Siding track (MP 5.1) south of Sandpoint, to the Sandpoint Junction switch (MP 2.9), where the BNSF and the MRL main lines converge in Sandpoint. This alternative includes constructing three new bridges over Bridge Street (Bridge 3.0), Sand Creek (Bridge 3.1), and LPO (Bridge 3.9).

1.1 Purpose

The purpose of the Visual Impact Analysis is to document visual changes that may be perceived by people viewing the bridges both during construction and over the life of the new bridges. Because of the public nature and visual importance of these bridges to the surrounding area, both positive and negative visual impacts must be adequately assessed and disclosed. The visual analysis, along with minimization recommendations, is intended to provide decision makers with information and recommendations on minimizing negative impacts on visual quality and to provide opportunities to enhance existing visual quality and community aesthetics within the scope of the Project.

1.2 Regulatory Context

The National Environmental Policy Act (NEPA) requires that an environmental analysis be performed during project development to minimize harm to the human, physical, or biological environment.

Section 101(b)(2) of NEPA (§4321 of Title 42 of the United States Code [USC]; 42 USC 4321) states that it is the “continuous responsibility” of the federal government to “use all practicable means” to “assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.” Federal implementing regulations are Part 771 of Title 23 of the Code of Federal Regulations (CFR; 23 CFR 771; Federal Highway Administration [FHWA]) and 40 CFR 1500–1508.

According to the Council on Environmental Quality implementing regulations, environmental analysis is to consider impacts on “Urban quality, historic and cultural resources, and the design of the built environment . . .” (40 CFR 1502.16[g]). Agencies will “Identify methods and procedures . . . to insure that presently unquantified environmental amenities and values may be given appropriate consideration” (40 CFR 1507.2[b]).

The visual quality analysis for this Project was conducted in accordance with the U.S. Department of Transportation’s, *FHWA Guidelines for the Visual Impact Assessment of Highway Projects* (FHWA 2015). While this Project is not subject to this policy, the guidelines provide a useful and widely accepted framework for analyzing visual impacts.

2.0 VISUAL ASSESSMENT METHODOLOGY

2.1 Visual Character Assessment Methodology

The visual experience is an important component of a project and its impact on the environment. How a project functions as a facility is closely allied with how it looks and fits into the natural or built environment, and how well it is accepted by the population.

2.2 What is the FHWA Assessment Method?

Although visual quality is inherently subjective, the FHWA methodology provides definitions and a process for evaluating existing and proposed views. By following this process, the assessment is repeatable by other experts.

2.2.1 Visual Quality

Landform, water, vegetation, and man-made elements are all analyzed according to three criteria. The three criteria used to perform an evaluative appraisal of the landscape visual quality are vividness (or memorability), intactness, and unity.

Each of the three criteria is independent. Each is intended to evaluate one aspect of visual quality. The process in a visual impact analysis generally follows these steps:

1. Determine the project elements and their extent. This involves understanding all of the elements that may occur as a result of the project, such as conversion of farm fields to suburban uses or stormwater treatment areas.
2. Determine the visual extent of the project; this may extend far beyond the construction limits.
3. Determine who has views toward the project, and what the views will be from the facility.
4. Evaluate viewer “sensitivity.” In general, a person living along or next to the project will be more “sensitive” to visual changes than a traveler passing through once, because the resident’s duration or frequency of view will be greater. The number of viewers is also considered for selection of representative views.
5. Describe and evaluate representative views of the landscape before the project.
6. Describe and evaluate the same representative views from and toward the project after its construction. This is possible because of the understanding gained in Step 1 and continuing conversation with the design team. It may also consider computer design simulations or models.

The 1988 FHWA methodology used a numerical rating system for views. The current system was taken out of the 2015 methodology, but it is a useful tool to understand how and why the view ratings increase or decrease and is used for this report.

3.0 AREA OF VISUAL EFFECT

The area of visual effect, or viewshed, is defined as areas with a line of sight (exclusive of vegetation) looking toward and away from the Project. The viewshed is larger than the Project area because built and natural features determine what can and cannot be seen. This Project's viewshed was determined by reviewing photograph, plans, aerial mapping, and topographical information.

3.1 Types of Viewers

Viewers of the Project can be described as either static or dynamic. Dynamic viewers are those moving through the Project area, such as boats on LPO and Sand Creek and motorists on Bridge Street. Motor vehicle operators can be further divided into local homeowners, recreationalists, freight movers, and commuters. Static viewers include people viewing the new rail bridges from homes or businesses.

Views toward the bridges will be from local homes and businesses, drivers on Bridge Street and US 95, and from the water by boaters.

Views from the new Bridge 3.1 will be of short duration, while trains are moving, and any changes in the existing Bridge 3.1 itself will not be highly visible from the train. Views from the new Bridge 3.9 will be of longer duration, and the parallel existing Bridge 3.9 will be visible as the train crosses LPO. However, these views will be of short duration, and LPO will be visible beyond the parallel track. Many trains using this route carry freight, and the engineers operating the trains are there for business; while they may enjoy the view, they are working and likely less sensitive to changes in the view because they understand the need for additional structure.

Drivers on local roads are presumed to be less sensitive to the view of the bridges than recreational users who view the lake and rail bridges from the nearby roadside park, hotel, and marina. There are homes with views of the bridges. Some condos have nearby views, while homes on the hill above the south end of Bridge 3.9 have more distant views of frequent and long duration. All of these viewers are presumed to be highly sensitive to changes in the view.

To effectively analyze the visual impacts of the Project, Key Views were established to best represent the views of the above users. Figure 1 illustrates key view locations.

Figure 1: Key View Map

4.0 AFFECTED ENVIRONMENT

4.1 Key View 1

Key View 1a represents views of Bridge 3.0 from Bridge Street looking east. Bridge Street is in the foreground with Bridge 3.0 in the middle ground view. City Beach Park on Lake Pend Oreille is in the background view. The current bridge has two lanes with pedestrian tunnels on either side of the road. This view has an average total visual quality rating.

For context, the below photograph is a view of U.S. Route 95 (US 95) from Bridge Street looking east. Note the color on the bridge support beam.

The new Bridge 3.0 (Key View 1b) will have a wider opening to accommodate both the road and sidewalks on either side. The red beam over the roadway continues the color theme used on the bridge supporting US 95. Large shrubs and trees will be removed as part of the Project so the vegetation rating will decrease slightly, but the rating for man-made structures will increase slightly because of the more open structure and the color tie-in with the nearby US 95 bridge over Bridge Street, resulting in an equivalent total visual quality rating.

Table 1: Key View 1 Visual Quality Rating

Key View 1	Vividness Rating	Intactness Rating	Unity Rating	Total Visual Quality Rating
Existing Condition	2.8	4	4	3.58
Proposed Project	2.8	4	4	3.58

Key View 1a: **Bridge 3.0 viewing east from Bridge Street**.

Key View 1b: **Simulation of new Bridge 3.0 from Bridge Street**.

4.2 Key View 2

Key View 2a represents views of Bridge 3.1 over Sand Creek, from the water. The marina at City Beach Park can be seen in the background. This is a view that recreational boaters would have. The foreground view is of Sand Creek. The middle ground view is of Bridge 3.1. Just outside the view on the left is US 95. The existing bridge is a visual encroachment in what would be an intact, unified scene. The existing total visual quality ratings are moderately high.

The Project will remove the trees between the existing rail bridge and US 95 (Key View 2b). This will lower vividness ratings for vegetation. The new Bridge 3.1 will be constructed between the existing rail bridge and US 95. The new bridge will continue the visual theme of the red beam over the channel that is proposed over Bridge Street. It will screen the older bridge from this view point. While the bridge will still be an encroachment on a lake view, the more unified design theme will raise the ratings for man-made elements, which offsets the decrease in the rating for vegetation.

Table 2: Key View 2 Visual Quality Rating

Key View 2	Vividness Rating	Intactness Rating	Unity Rating	Total Visual Quality Rating
Existing Condition	3.3	4	5	3.58
Proposed Project	3.3	4	5	3.58

Key View 2a: **Bridge 3.1 over Sand Creek, viewing northwest from the water**.

Key View 2b: **Simulation of new Bridge 3.1 over Sand Creek**.

4.3 Key View 3

Key View 3a is of Bridge 3.1 from US 95. The foreground view is of the highway. Bridge 3.1 and Sand Creek are in the middle ground view. The city of Sandpoint and the hills beyond make up the background view. This is an urban view of a developed area with average total visual quality ratings. The trees in the center of the view raise the rating for vegetation, but the existing Bridge 3.1 encroaches on the view from the roadway.

After Project completion, the trees in the center of the view will be gone and the new bridge will screen the old bridge from this viewpoint. As in Key View 3b, the more unified design theme will raise the ratings for man-made elements, which offsets the decrease in the rating for vegetation.

Table 3: Key View 3 Visual Quality Rating

Key View 3	Vividness Rating	Intactness Rating	Unity Rating	Total Visual Quality Rating
Existing Condition	3.0	4	4	3.67
Proposed Project	3.0	4	4	3.67

Key View 3a: **Bridge 3.1 from US 95 viewing northeast**.

Key View 3b: **Simulation of new Bridge 3.1 between US 95 and the existing Bridge 3.1**.

4.4 Key View 4

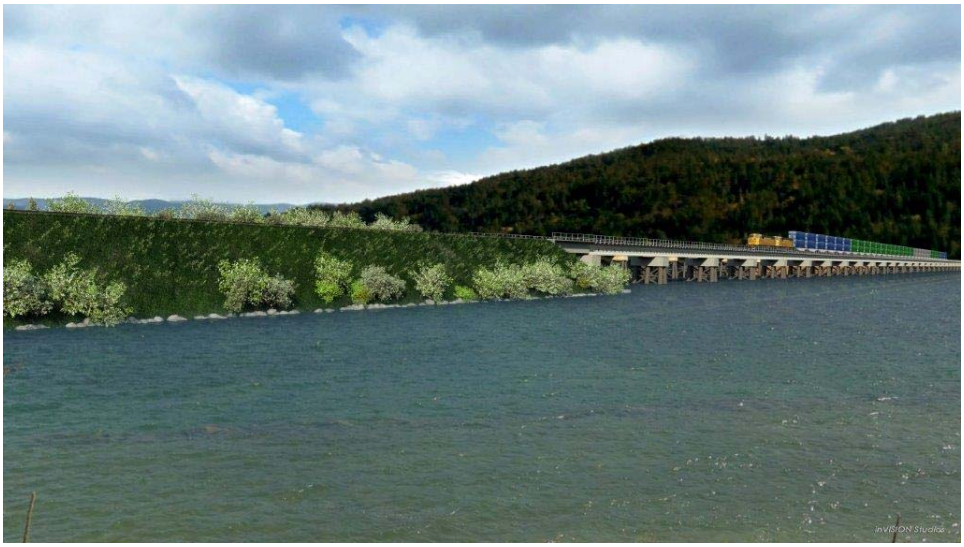
Key View 4a shows Bridge 3.9 over LPO viewing from the northwest shoreline. The foreground view is of LPO. Bridge 3.9 and a cluster of deciduous trees are in the middle ground view. The hills beyond are in the background view. The rail line introduces a man-made element that breaks up the unity of a natural scene, but the expansive views of the water and the tree covered hills beyond make this a viewpoint with high visual quality.

After Project construction the trees in the middle ground view will be removed (Key View 4b). The shoreline will be restored using native shrubs at the toe of slope. The expansive views of the water and the tree-covered hills beyond will remain with Bridge 3.9, providing the only break in the visual unity of the scene. The total visual quality rating will be slightly lower because of the removal of the trees in the middle ground, but the total visual quality rating remains high.

Table 4: Key View 4 Visual Quality Rating

Key View 4	Vividness Rating	Intactness Rating	Unity Rating	Total Visual Quality Rating
Existing Condition	5.5	5	5	5.17
Proposed Project	5.3	5	5	5.08

Key View 4a: **Existing Bridge 3.9 from the north shoreline of Pend Oreille River**.



Key View 4b: **Simulation of new Bridge 3.9 from the north shoreline of Pend Oreille River**.

5.0 IMPACT SUMMARY

5.1 New Sources of Shadow, Glare, or Light

Navigational lighting is currently in place on the bridges. Fixed navigational lighting, as required by the U.S. Coast Guard and by the Idaho Department of Lands, will be implemented on the new bridges. Lighting will be comparable to the existing navigational lighting.

5.2 Visual Impacts During Construction

Construction is currently estimated to take three years and will be done in multiple stages. The new bridges will be constructed parallel to and at the same height as the existing bridges. Temporary work bridges will be built adjacent to the west and parallel to both bridges 3.1 and 3.9.

Temporary work bridges will have navigation and moorage lighting as required by the U.S. Coast Guard . There will be a temporary increase in signs in the work zone to alert people to submerged work-related items such as turbidity curtain cables, service boat anchor lines, and to show navigation channels during construction.

For the duration of construction, this will be a very active work zone, which may provide visual interest as well as encroachment on views of Sand Creek and Lake Pend Oreille.

5.3 Summary of Impacts

The addition of a second track will not create substantial adverse impacts on visual quality. Locating the new track alignment between and at the same elevation as the existing US 95 and rail line is the least visually intrusive placement possible. Minor adverse changes to views of the natural environment are anticipated with the removal of trees to accommodate the new track. The impacts do not rise to the level of a substantial impact (1.0 change in rating). This Project has the potential to improve the views toward City Beach Park from Bridge Street should the older span ever be replaced with a newer, wider span to match this proposed Sandpoint Junction Connector structure.

6.0 MINIMIZATION AND MITIGATION MEASURES

It is BNSF policy to avoid, minimize, and mitigate for negative project impacts, in that order. Preliminary engineering design avoids and minimizes impacts throughout the Project. This report makes recommendations to minimize negative visual impacts from new bridges.

6.1 Construction-Related Mitigation

Construction-related activities are temporary and require no mitigation. Fugitive light from light sources used for construction should be minimized and directed only on the work zone. Where feasible, limit construction to daylight hours.

6.2 Design-Related Minimization

The proposed Project will not create substantial adverse impacts on visual quality, there will be minor adverse changes to the natural environment by the removal of trees. The following minimization measures could improve the post-construction visual quality ratings if implemented:

- Ensure materials for permanent structures are non-reflective and colored to blend with the surroundings.
- Carry the color theme forward on horizontal rail bridge beams to match the color of the beam across Bridge Street that supports US 95.
- Where feasible, plant trees to mitigate for the removal of trees within Project limits.

7.0 CUMULATIVE EFFECTS TO VISUAL QUALITY

Under NEPA, cumulative effects result from the incremental effects of a project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the other actions. Should the older span over Bridge Street ever be replaced, it has the potential to improve visual quality at that location by opening up the view as people are moving under the bridges.

8.0 REFERENCES

Federal Highway Administration (FHWA), U.S. Department of Transportation. 1988. *Visual Assessment for Highway Projects*. Publication No. FHWA-HI-88-054.

———. 2015. *Guidelines for the Visual Impact Assessment of Highway Projects*. Publication No. FHWA-HEP-15-029. January.