

ST. CROIX RIVER CROSSING PROJECT SUPPLEMENTAL DRAFT EIS
CHAPTER 7
VISUAL IMPACT ANALYSIS

7.0 INTRODUCTION

This chapter examines potential visual impacts from implementation of the No-Build Alternative and the Build Alternatives. Visual impacts are examined as they relate to users of the highway, the river corridor, and adjacent lands between the two project termini. Visual resources, affected individuals, and mitigation strategies were identified using the Visual Impact Assessment (VIA) process, summarized in Figure 7-1 and described in Section 7.1. Visual Impact Special Study. The NPS will conduct a separate evaluation of the visual impacts of the project to the National Scenic Riverway, pursuant to Section 7(a) of the National Wild and Scenic Rivers Act.

The discussion of visual impacts in this chapter employs the concept of “viewer-groups.” The use of this term allows the potentially affected population to be divided by their assumed visual concerns and preferences into manageable groups. The main division is between neighbors, those people who would have views of the transportation facility, and travelers, those people who would have views from the transportation facility. Within each of these main categories, further subdivision has occurred as necessary. The concept of viewer-groups is an analytical tool and is not meant to portray an actual survey of the affected population’s opinion.

The project area is a diverse and unique setting consisting of an abundance of natural and cultural features. The primary defining element of the area is the Lower St. Croix National Scenic Riverway, a federally-designated Wild and Scenic River. The river, and the land area adjacent to the river extending approximately to the top of the bluffs constitute the Riverway and provide a unique resource on the edge of a major metropolitan area that attracts many visitors throughout the seasons. Much of the Lower St. Croix National Scenic Riverway (from Taylors Falls to Prescott) has a natural appearance, providing opportunities for parks, wildlife viewing, fishing, camping, and other passive and active recreational uses. Because the Riverway also abuts the Twin Cities metropolitan area, natural qualities of the project area are juxtaposed with constructed and historic elements, including downtown Stillwater, residential development, the Xcel Power Plant, the Stillwater wastewater treatment plant, Andersen Windows, and Sunnyside Marina and Condominiums. Much of the Wisconsin landscape can be categorized as rural residential and includes small towns and scattered residential and farmstead development.

7.1 VISUAL IMPACT ASSESSMENT PROCESS

This section describes the process used for the VIA. Figure 7-1 presents the process in a flow chart.

Figure 7-1 – Visual Impact Assessment Chart (8.5x11 – b/w)

7.1.1 Step 1: Identify Affected Visual Resources

Visual resources of the project area were divided into three types: natural, cultural, and highway.

- Visual elements of the natural environment create a *sense of natural harmony*. Natural harmony relates to the balance and visibility of natural elements such as topography and vegetation, with constructed elements such as residential development and roadways.
- Visual resources of the built or cultural environment create a *sense of cultural order*. Cultural order is defined by the relationship of constructed elements within the scene. These elements include buildings, streetscape elements, diversity of land uses, and all other elements associated with the cultural landscape. Cultural order defines the identity of the area and creates a sense of place. (The term “cultural order” as used in the VIA process is not intended to address visual impacts on historic and cultural resources as defined by Section 106 of the National Historic Preservation Act. These impacts are addressed by the Section 106 process being conducted for the project [see Chapter 11]).
- Visual resources internal to the highway—the highway itself as a designed product—creates a *sense of design quality*. The functions, geometrics, structures, appurtenances, materials and finishes of the highway need to be internally integrated if the project is to minimize the highway’s adverse impacts on design quality.

7.1.2 Step 2: Identify Affected Population

Five hypothetical viewer groups are used to address the concerns of individuals potentially affected by the project: three neighbor viewer groups (residential, business, and recreational) and two traveler viewer groups (commuting and touring). The visual concerns and preferences of each viewer group are based on an assumption of self-interest. However, since most people are members of more than one viewer group, it is difficult to determine how an individual or group—and therefore the affected population—would weigh visual impacts. In the VIA process, hypothetical viewer groups are used as an analytical tool. The discussion is not meant to portray the results of any type of survey of actual neighbors or visitors. Generalizations about a particular group’s preference are used for the purposes of this analysis, and viewer groups are artificially constrained into representative visitors to and neighbors of the project area. It is difficult, if not impossible, to determine likes and dislikes of specific viewer-groups. However, analysis by hypothetical viewer groups and assumed generalized preferences allows a useful comparative discussion of the various visual changes that could result from the project.

Neighbors, people who own or use property within view of the highway, were divided into three viewer-groups based on their use of their property. Agricultural and residential neighbors were combined into a single viewer group, **residential neighbors**. Retail, commercial and industrial neighbors were combined into another single viewer group, **business neighbors**. Within the **recreational neighbors’** viewer group, a distinction is made between riverbank users and surface water users to adequately assess visual impacts on the Wild and Scenic River and the unique experiences of these two user groups. Travelers are defined as people who use the

highway. Travelers were divided into two viewer groups based on their reasons for using the highway. Commuters and haulers were grouped into a single viewer group, **commuter travelers**. Tourists remained as its' own viewer group, **touring travelers**.

7.1.3 Step 3: Define Existing Visual Quality (Identifying Critical Viewsheds and Visual Corridors)

The visual quality of the existing scene serves as the basis for determining whether the project would cause an impact. If the project does alter the scene, the visual quality of the existing scene would serve as the basis for determining whether the impact is adverse or beneficial.

Visual quality is an aesthetic issue. Aesthetics, by definition, is the study of perceptions that are pleasing to people. What is visually pleasing to people, however, varies considerably. *The visual quality of the existing scene is defined by the person viewing it.* Visual quality is therefore a subjective issue based on personal preferences and perceptions.

Defining the existing visual quality of the project area requires an extensive investigation of critical views and visual elements of the project area. These views will be looked at in terms of natural harmony, cultural order, and highway design context and how these features relate to the perceptions of the affected individuals.

The diverse and unique nature of the St. Croix River and surrounding elements of the landscape setting create the opportunity for substantial visual impacts as a result of the Build Alternatives. Five critical viewsheds and two visual corridors have been identified as focus elements of the visual analysis (Figure 7-2). Viewsheds include visual point sources along with views to and from:

- Historic downtown Stillwater
- The Wisconsin bluff (including Houlton area)
- The Stillwater Municipal Barge Facility property (planned city park)
- The Minnesota bluff
- The St. Croix Overlook

Visual corridors are represented by sequential movement along a critical path and have been identified as:

- Views traveling along the project corridor (bridge and approach roadways); and,
- Views traveling along the Lower St. Croix National Scenic Riverway.

The intent of this visual analysis is to examine visual impacts for the entire project area. The identification of viewsheds and visual corridors are identified to bring appropriate attention to the need to preserve the scenic quality of the St. Croix Riverway. It is the intent that through the series of viewsheds and visual corridors, an appropriate level of analysis will be conducted to determine all visual impacts resulting from the Build Alternatives and will provide an appropriate level of focus on the Riverway itself.

Figure 7-2 – Critical Viewsheds and Visual Corridors (8.5x11 – b/w)

7.1.3.1 Critical Viewsheds of the St. Croix River Crossing Project

This section describes the existing project area viewsheds. Later sections describe the alternatives' impacts on these viewsheds.

Viewshed 1: Historic Downtown Stillwater (see Figure 7-3)

Historic downtown Stillwater provides the project area with an important sense of cultural order and provides a strong complement to the surrounding natural harmony of the area. The Lift Bridge provides a strong visual element to visitors, recreationalists, and residents of the area, and visually links the two sides of the river. Also defining the cultural order of the Stillwater viewshed are numerous historic structures within the designated downtown Stillwater Commercial Historic District. Visual components of these historic structures consist primarily of yellow and red brick, with the additional use of limestone for foundations and window treatments. Combined, the historic context of downtown Stillwater, the Lift Bridge, and the St. Croix River provide a sense of cultural order and physical connection/relationship among the various elements. In addition to the strong cultural and historic order present near Stillwater, natural harmony also plays a role in forming the existing visual quality of the area. Stillwater itself is set within the river bluffs and is intimately connected to the river, both from a historic perspective as well as from an environmental setting. Many of the bluff areas have heavy vegetative cover and rock outcroppings that are visible from the downtown area. Creating a transition between the natural environment of the St. Croix River and the historic context of downtown Stillwater is Lowell Park. Lowell Park is located at the edge of the St. Croix River, north and south of the Lift Bridge on the Minnesota side. This area is a local gathering place for recreation and festivals, and also preserves an area of green space between the river's edge and the urban downtown.

Viewshed 2: The Minnesota Bluff (see Figure 7-4)

A mix of cultural, natural, and highway elements best defines Viewshed 2, the Minnesota bluff area. This diversity of elements provides a discontinuous scene at times with naturally vegetated areas disrupted by urban development. The result is neither naturally harmonious nor culturally ordered.

The major element of the Minnesota bluff is the highway environment of Trunk Highway (TH) 95, an adjacent railroad corridor, and a planned park area, which bisects the Minnesota bluff into two tiers. TH 95 travels parallel to the bluff and adjacent to the river. As a result, travelers would favor the current visual elements of the Minnesota bluff that afford tree filtered views to the Lower St. Croix National Scenic Riverway on one side and a clearly defined and enclosed view created by the high bluff on the other side.

Recreational visitors traveling on the St. Croix River would have glimpses of TH 95 and other constructed elements of the highway environment. Views of the Minnesota bluff provide a sense of natural harmony and cultural order. Rock outcroppings and remnant historic elements are found along the Minnesota bluff. These elements, while visible to recreationalists traveling the St. Croix River, are separated from the river by TH 95 and by other constructed elements.

Figure 7-3 – Viewshed 1 (Historic Downtown Stillwater) (8.5x11 – b/w)

Figure 7-4 – Viewshed 2 (Minnesota Bluff) (8.5x11 – b/w)

In addition to the existing visual quality created by TH 95, there are numerous homes on top of the bluff and a residential development, Sunnyside Condominiums, at the base of the bluff adjacent to the river. These views further disrupt the natural harmony of the bluff landscape and provide a discontinuous experience for users of the river. In summary, the visual quality of the Minnesota bluff landscape is varied, containing elements of the highway, cultural, and natural environments.

Viewshed 3: The Wisconsin Bluff (see Figure 7-5)

The Wisconsin bluff provides a dramatically different visual experience than does the Minnesota bluff. The Wisconsin bluff is dominated by natural vegetation with scattered constructed intrusions. Views from the river to the Wisconsin bluff provide opportunities to see wildlife and a forested area that contribute to a strong sense of natural harmony.

Kolliner Park is located at the base of the Wisconsin bluff and adjacent to the Lift Bridge. (The park is owned by the City of Stillwater.) Kolliner Park is currently in an undeveloped state and consists of heavily vegetated river bluff and riverbank located below the unincorporated community of Houlton, Wisconsin.

Land use on top of the Wisconsin bluff is dominated by residential uses west of State Trunk Highway (STH) 35 and agricultural uses east of STH 35. Occasionally, residences on the bluff are visible from the river and surrounding roadways; however, neither the agricultural uses nor STH 35 are visible from the river. Travelers of STH 35 on top of the bluff are afforded views of this agricultural landscape and are provided with a dominantly rural visual scene. In summary, the Wisconsin bluff provides the strongest sense of natural harmony within the project area.

Viewshed 4: Stillwater Municipal Barge Facility Property--Proposed Park (see Figure 7-6)

The Stillwater Municipal Barge Facility property is the site of a proposed riverfront park located just south of downtown Stillwater and Lowell Park. Natural vegetation and an abandoned fertilizer plant currently dominate the existing visual quality of this area. This remnant building (referred to as the Terra Terminal) disrupts the natural harmony of the river corridor and weakens the scenic value of the river. Other visual elements of the Stillwater Municipal Barge Facility property area include remnants of limestone walls, foundations (remnants of the Hersey & Bean archaeological site) and rock outcroppings. These elements add to the natural harmony and cultural order of the area by providing an historic context and an environmental awareness of the underlying geology of the bluff.

Viewshed 5: St. Croix Overlook (see Figure 7-7)

The natural environment dominates the St. Croix Overlook located near the south end of Stillwater, and the bluffs on either side enclose views. However, the views from the St. Croix Overlook are dramatically influenced by the time of year. In the winter and early spring, much of the river is visible from the overlook, providing a broad viewshed of the entire corridor. In the summer, however, overgrown deciduous vegetation restricts views to the river.

Figure 7-5 – Viewshed 3 (Wisconsin Bluff) (8.5x11 – b/w)

Figure 7-6 – Viewshed 4 (Stillwater Municipal Barge Facility Property) (8.5x11 – b/w)

Figure 7-7 – Viewshed 5 (St. Croix Overlook) (8.5x11 – b/w)

From the overlook, the primary summer views are of the Sunnyside Marina and Condominium development and the Xcel King Power Plant smokestack and barge off-loading facility in the foreground, with the river and Wisconsin bluffline in the background.

Wisconsin STH 35 Wayside (see Figure 7-8)

The Wisconsin STH 35 Wayside is located between the Wisconsin bluff and STH 35 across the St. Croix River from the Xcel Energy King Power Plant and the Andersen Windows Plant. The Wisconsin STH 35 Wayside is currently being demolished and is no longer included in the visual analysis.

7.1.3.2 Visual Corridors of the St. Croix River Crossing Project

This section describes the existing project area visual corridors. Later sections describe the Alternatives' impacts on these corridors.

Visual Corridor 1: Traveling on the St. Croix River (see Figure 7-9)

Travelers on the St. Croix River have a variety of views and experiences. In the northern section of the river, north of Stillwater, the river is high in natural harmony and provides a quiet setting removed from the urban environment further south. As one travels south, the river corridor changes from this natural setting to a more urban environment. Historic structures, including the Stillwater Lift Bridge, become visible, and travelers experience urban activity along the shores of Stillwater. South of Stillwater, the river changes again from an historic urban corridor to a modern urban corridor with the presence of Sunnyside Marina and Condominiums, the wastewater treatment plant, the Xcel King Power Plant, and the Andersen Windows Manufacturing Plant. These constructed elements provide visual disruptions of the existing visual scene that consist of a mix of cultural and natural elements. As one continues south, the river begins to bend near Bayport, Minnesota, and users traveling the river no longer have a view of the Stillwater Lift Bridge. Views of the Xcel King Power Plant are prominent as well as of the power lines crossing the St. Croix River near the Xcel King Power Plant. The Wisconsin bluffs in this area are heavily vegetated and strong in natural harmony. The visual quality of the scene is mixed; it is high in natural amenity in some aspects but clearly contains cultural elements of the urban environment.

Visual Corridor 2: Views Traveling along the Project (roadway approaches and bridge) Corridor (see Figure 7-10)

The visual quality of the project corridor is experienced by traveling TH 36 and TH 95 in Minnesota and STH 35/64 in Wisconsin. The western-most segment of the project corridor is lined by a variety of commercial uses interspersed with single- and multi-family residences. While landscaping of developed parcels and natural vegetation of a few remaining undeveloped parcels provide green space and trees, this segment is largely urban in character. The roadway itself has very few landscaping or streetscape amenities. As travelers approach Stillwater on TH 36/95, views of the Stillwater Lift Bridge and the river become apparent but often are limited by seasonal vegetation. Enhancing the cultural order are the many historic structures along the

Figure 7-8 – Viewshed 6 (Wisconsin STH 35 Wayside) (8.5x11 – b/w)

Figure 7-9 – Visual Corridor 1 (Traveling on the St. Croix River) (8.5x11 – b/w)

Figure 7-10 – Visual Corridor 2 (Project Corridor) (8.5x11 – b/w)

TH 36/95 corridor entering Stillwater. These views enhance the connection of the downtown Stillwater area to the St. Croix River. The approach into Stillwater on the Minnesota side is dominated visually by the Minnesota bluff to the west and the river corridor to the east. In the summer, the river corridor is partially blocked by thick stands of existing vegetation. In some places, the vegetation decreases and allows partial views of the river. On the Minnesota bluff side, much of the bluff consists of rock outcroppings and vegetation, and therefore, strongly defines the edge of the highway corridor. On the Wisconsin side, agricultural uses and rural character dominate the existing visual quality of the project corridor.

7.1.4 Step 4: Identify Affected Populations

Impacts on visual quality are identified by *type* and *degree*. The visual impact assessment methodology recognizes that impacts can occur to three types of aesthetic experiences (natural harmony, cultural order, and design quality) and evaluates the degree of the visual impact using three criteria (value, scale and extent). To successfully analyze visual impacts, a number of techniques have been used, including computer visualization studies, aerial photographs, Geographic Information Systems (GIS) viewshed analysis, and information gathered in previous studies.

The Build Alternatives would create visual impacts for certain viewer-groups. These visual impacts would be both adverse and beneficial, depending upon the perspective or mindset of the individuals. A critical aspect of identifying visual impacts of this project would be the relationship of impacts on the Wild and Scenic designation of the St. Croix River, and specifically, the need to identify and minimize impacts on the scenic and recreational values of the Riverway. However, it is important to note that the purpose of this chapter is to evaluate visual impacts over the entire project length, not just along the Riverway.

The following section provides a summary of visual impacts by alternative (No-Build Alternative and Build Alternatives) and discusses how impacts relate to the critical viewsheds and visual corridors previously described, including the St. Croix River.

7.1.5 Step 5: Summarize Impacts by Alternative

The visual impacts from each alternative are summarized.

7.1.6 Step 6: Mitigate Visual Impacts

Visual impacts should be minimized by preserving and enhancing the existing visual quality as much as possible. Visual impacts can be reduced by introducing new visual resources or offsetting/balancing visual impacts through mitigation strategies.

7.2 NO-BUILD ALTERNATIVE

The No-Build Alternative assumes continued operation and maintenance of the Lift Bridge and approach roadways.

The adverse visual impacts of the No-Build Alternative would occur primarily as a consequence of increased traffic congestion. Most of these adverse impacts would be minor in and of themselves. These changes include an increase in signs, concrete islands, safety barriers, turn lanes, and other incremental traffic changes. The aggregate of these changes, however, may create an adverse impact on the visual environment of the project area.

Increased queue lengths (beyond existing queues) due to increased congestion would result in further diminishing visual quality along Wisconsin and Minnesota bluffs. The adverse visual impacts would be most substantial within the downtown Stillwater area as a result of diminished cultural order. In general, commuters and tourists caught in traffic backups would have less time to experience the visual elements and less control over which elements to seek out.

Aggregate changes resulting from increased traffic control devices primarily affect the design quality of the highways and would adversely affect travelers. This would likely occur in downtown Stillwater and its approaches where the aggregate changes may also adversely impact a traveler's sense of cultural order.

Business neighbors, who are dependent on travelers, may also be adversely affected by the aggregate changes in increased traffic control devices. The No-Build Alternative would have fewer adverse visual impacts on both residential and recreational neighbors than would the Build Alternatives.

7.3 ALTERNATIVE B-1

The following section describes the visual impacts on each of the viewsheds and visual corridors that would result from construction of Alternative B-1.

In general, Alternative B-1 incorporates a number of design elements to minimize the visual impacts of the project. These elements include:

- An alignment of the new crossing that is mostly perpendicular to the river, in a moderately wide section of the river, minimizing bridge length;
- Minimizing impacts on the Wisconsin and Minnesota bluffs by locating in existing bluff cuts;
- Minimizing the number of piers and apparent mass of the structural components for each bridge "type" considered for Alternative B-1. This would decrease adverse visual impacts on the St. Croix River; and
- Incorporation of signature bridge designs ("cable stay" and "extradosed girders") for two of the three bridge types being considered for Alternative B-1.

Bridge Aesthetics for Alternative B-1

The river bridge types considered for Alternative B-1 are widely varied in terms of appearance of structural form, bridge elements and details relating to aesthetic characteristics. Aesthetic

characteristics of the bridge are those that are perceived by both the viewers and users of the bridge. They may generate a positive, neutral or negative “subjective” response on the part of viewers or users. While the determination of appropriate aesthetics for the Alternative B-1 river bridge is highly subjective as it relates to the perception of viewers and users, the bridge types can be compared objectively with regard to their structural elements and potential visual impacts.

“Cable Stay” Bridge Type (Figure 7-11) – This bridge type consists of two towers of approximately 450 feet in height above the bridge deck, and arrays of cables supporting the bridge spans. Thus, the structural elements of the bridge are highly visible to viewers and users on the bridge. Viewed from off the bridge, the towers and cables present a visually dynamic bridge silhouette form when viewed against the sky or river bluffs. The “cable stay” bridge introduces a visually unique bridge type to the river corridor. The “cable stay” bridge does not correspond in bridge type to the nearby Lift Bridge or to other bridge types found on the St. Croix River. It presents a visually dramatic form and structural appearance to viewers and users both off and on the bridge. Viewers on the bridge also see details of the towers and cables at close range. The towers and cables present a nearly continuous webbing overhead and somewhat interrupt views along the sides of the bridge for most of the crossing. Thus, the scale, proportion, materials and coloration of the towers and cables become important characteristics in viewers’ perception of the bridge. The towers would be constructed of either concrete or steel. Concrete is usually of a light coloration. Concrete would present a visually higher contrast within the river corridor setting than steel with a dark coloration. Bridge railings and barriers, while highly visible to bridge users, are secondary to the towers and cable arrays. The bridge approach span piers and the tower bases would likely be concrete in material, presenting a wide variety of design opportunities for appearance. The viewer’s perception of the piers and tower bases for the “cable stay” bridge type will be based on an appropriate visual balance with the spans and towers. Also, the piers and tower bases will be seen at close range, both from land and water, making pier details and pier surface treatment important visual elements.

“Extradosed Girders” Bridge Type (Figure 7-12) – This bridge type features seven towers of approximately 50 to 90 feet in height above the bridge deck and six 500 foot box girder spans, arrays of cables from each tower supporting the bridge spans. Thus, the structural elements of the bridge are highly visible to viewers and users on the bridge. Viewed from off the bridge, the towers and cables present a visually active bridge silhouette form when viewed against the sky or river bluffs. The “extradosed girders” bridge introduces a visually unique bridge type to the river corridor. The “extradosed girders” bridge does not correspond in bridge type to the nearby Lift Bridge or to other bridge types found on the St. Croix River. It presents a visually dramatic form and structural appearance to viewers and users both off and on the bridge. Viewers on the bridge also see details of the towers and cables at close range. The towers and cables introduce a continuous structural presence for most of the crossing. Thus, the scale, proportion, materials and coloration of the towers and cables become important characteristics in viewers’ perception of the bridge. The towers would be constructed of either concrete or steel. Concrete, usually of a light coloration, would present a visually higher contrast within the river corridor setting than steel with a darker coloration. Bridge railings and barriers are highly visible to bridge users, particularly when the towers and cables are at the center of the bridge rather than the edges. The bridge approach span piers and the tower bases are concrete in material, presenting a wide variety of design opportunities for appearance. The viewer’s perception of the piers and tower

Figure 7-11 – Alternative B-1 – 1500’ Cable Stay Bridge Type (8.5x11 – b/w)

Figure 7-12 – Alternative B-1 – 6-500' Extradosed Box Girders Bridge Type (8.5x11 – b/w)

bases for the “extradosed girders” bridge type will be based on an appropriate visual balance with the spans and towers. Also, because the piers and tower bases will be seen at close range, both from land and water, design details and surface treatments are important visual elements.

“Haunched Girders” Bridge Type (Figure 7-13) – A series of 10 haunched (slightly arched) 360 feet concrete box girders are located below the deck of this bridge type. Unlike the other bridge types considered for Alternative B-1 which include towers and arrays of cables above the bridge deck, the “haunched girders” bridge type presents the visually “quietest” silhouette when viewed against the sky or river bluffs. It is more visually “active” as a structure where the numerous piers enter the river. Viewers and users on the bridge would see only barriers, railings and light poles along the bridge without interruptions of towers or cable arrays. Thus, the detail design, surface treatments and coloration of the railing and barriers would be pronounced on this bridge type. The bridge would probably be light in coloration, concrete box girders usually receiving a light color surface treatment. Light colored structures typically present a higher contrast to natural or man-made surroundings. The piers for the “haunched girders” bridge type appear integral to the form of the structure. The viewer’s perception of the piers, then, will be based on the overall design integration of the numerous concrete piers and haunched spans, and in the development of their architectural detailing.

7.3.1 Critical Viewsheds (Alternative B-1)

7.3.1.1 Viewshed 1: Historic Downtown Stillwater (Alternative B-1)

The Alternative B-1 bridge would be visible from many parts of downtown Stillwater. Lowell Park, which sits along the western bank of the St. Croix River in the downtown area, provides a viewing point to the St. Croix River for tourists, business neighbors and patrons of downtown businesses. Figure 7-14 depicts the current view of the St. Croix River looking to the south from Lowell Park. Figure 7-15 illustrates the effects to this view resulting from the Alternative B-1 “cable stay” bridge type. Figure 7-16 illustrates the “extradosed girders” bridge type. Figure 7-17 illustrates the “haunched girders” bridge type.

The Alternative B-1 Bridge would interrupt the view from Lowell Park and other downtown points by adding a large physical element to the river corridor. These impacts could be perceived as adverse by tourists, residential neighbors, business neighbors and patrons of downtown businesses due to the scale and dominating presence of the bridge. The “cable stay” bridge type is the most visually dominant of the bridge types considered due to its tower heights of approximately 450 feet above the bridge deck. The “extradosed girders” bridge type has far lower towers, approximately 50 to 90 feet high, so this bridge type is less visually dominant than the “cable stay” bridge type. The “haunched girders” bridge type is the least visually dominant of the bridge types considered as no towers or piers rise above the surface of the bridge deck. However, the “extradosed girders” (approximately 7 piers) and “haunched girders” (approximately 9 piers) bridge types introduce more piers into the river and view than does the “cable stay” bridge type (approximately four piers). None of the bridge types considered provide an obvious connection to the historic materials and design elements found in structures throughout the downtown area but aesthetics of piers and abutments can address this.

**Figure 7-13 – Alternative B-1 – 10-360' Haunched Concrete Box Girders Bridge Type
(8.5x11 – b/w)**

Figure 7-14 – Existing View from Lowell Park (8.5x11 – b/w)

**Figure 7-15 – View from Lowell Park – Alternative B-1 1500’ Cable Stay Bridge Type
(8.5x11 – b/w)**

**Figure 7-16 – View from Lowell Park – Alternative B-1 500’ Extradosed Box Girders
Bridge Type (8.5x11 – b/w)**

Figure 7-17 – View from Lowell Park – Alternative B-1 10-350' Haunched Concrete Box Girders Bridge Type (8.5x11 – b/w)

7.3.1.2 Viewshed 2: The Minnesota Bluff and TH 95/TH 36 (Alternative B-1)

Visual impacts on the Minnesota bluff resulting from the construction of Alternative B-1 would vary according to viewer group and individual preferences within viewer groups (see Figure 7-18).

From the perspective of residential neighbors, negative visual impacts would result from the increased lanes of pavement and bridge structure, a decrease in vegetation, and the closer proximity of the roadway to the river and to residents of Sunnyside Condominiums.

Both positive and negative visual impacts may be experienced by recreational neighbors and river users. The bridge crossing over TH 95 would increase the visibility of the bridge approach structures, walls, piers and bridge access ramps. Visual impacts would vary for recreational and river users and would depend upon the perspective of the user.

Visual impacts on travelers would also vary. Adverse visual impacts would result from increased pavement and reduced views from TH 95 to the surrounding landscape in the vicinity of the bridge. Also, structural elements of the Alternative B-1 bridge as it crosses over TH 95 would result in a dramatic change in scale and presence of roadway elements. The travelers' experience of entering downtown Stillwater would be altered as individuals pass under the bridge structure.

Disruption to the Minnesota bluff would be minimal due to the alignment of TH 36 approaching the bridge. The TH 36/TH 95 interchange area would allow some opportunities for landscape treatments which may provide a better visual background for river recreational users. Revegetation of the reclaimed land currently paved as TH 36, approximately four acres, may also enhance the natural harmony of the bluff area.

The TH 36/TH 95 interchange area, under Alternative B-1, would be placed in an area where there exists within the viewshed many man-made or industrial structures. These include a wastewater treatment plant, the Xcel power plant, Anderson Windows company and Sunnyside Marina and Condominiums.

In summary, the Minnesota interchange area has the potential for beneficial visual impacts on the Minnesota bluff area, but additional lanes of pavement and bridge approach structures would be added, reducing visual quality to residential neighbors and other individuals with preference for trees and vegetative covering. Also, areas within the proposed interchange planned as sedimentation ponds would limit the extent of landscaping. The revegetation of the reclaimed area may result in a positive visual impact on recreational users.

7.3.1.3 Viewshed 3: The Wisconsin Bluff (Alternative B-1)

Visual impacts on the Wisconsin bluff resulting from the Alternative B-1 bridge are demonstrated in Figure 7-19. The extent of visual impacts would be localized and the scale of impact should be minimal. Only the immediate area of the bridge touchdown point on the Wisconsin side would be affected. As a result of construction, vegetation would be removed, exposing more of the bluff. Revegetation may be possible to some extent but the bridge structure would have an adverse visual impact on vegetation or on the visual quality of the bluff.

Figure 7-18 – Minnesota Bluff Cross Sections (11x17 – b/w)

BACK

Figure 7-19 – Wisconsin Bluff Cross Sections (11x17 – b/w)

BACK

These impacts would affect all viewer groups (business neighbors, residential neighbors, tourists, commuters, and recreational neighbors) that could see the Wisconsin bluff. Most substantially affected would be recreationalists on the river adjacent to the bluff and riverbank users in the vicinity of the bridge. The initial removal of vegetation would reduce the natural harmony of the Wisconsin bluff, which is currently heavily vegetated. Tourists crossing from Minnesota into Wisconsin would also be visually affected and sensitive to the disruption of natural harmony. Commuters would most likely be neutral to the initial loss of vegetation. Mitigation of the adverse impacts would rely on the amount of revegetation opportunities that exist and the extent that clearing could be avoided during construction.

7.3.1.4 Viewshed 4: Stillwater Municipal Barge Facility Property – Proposed Park (Alternative B-1)

Visual impacts on the proposed park on the Stillwater Municipal Barge Facility property would be minimal. The bridge structure, TH 36/TH 95 interchange and alignment of TH 95 do not physically impact the Stillwater Municipal Barge Facility property site. Views to the river would be maintained but altered by the presence of the bridge structure to the south. The presence of the bridge may reduce the park user's sense of natural harmony, a result of viewing the man-made structure within the river corridor.

7.3.1.5 Viewshed 5: St. Croix Overlook (Alternative B-1)

Visual impacts on the St. Croix Overlook would depend greatly on the maintenance strategy pursued for the area. Currently, minimal views of the river are afforded by the overlook as a result of overgrown vegetation. However, primary existing views are of the Xcel King Power Plant and the Sunnyside Marina and Condominiums. Therefore, the bridge would be visible from the overlook. Views toward the bridge would not afford a visual experience dominated by natural harmony but rather of man-made structures. Particularly dominant from the overlook, would be the “cable stay” bridge type with towers of 450 feet in height. The “extradosed girders” and “haunched girders” bridge types would be far less visually dominant. The impacts of any bridge type may be beneficial or adverse, depending upon the individual viewer. Some viewers may feel the bridge is appropriate and provides an additional element to the cultural order of the existing scene. The bridge may be more visually appealing than the Xcel King Power Plant, the wastewater treatment plant, or the Sunnyside Marina and Condominiums that currently dominate the scene.

7.3.2 Visual Corridors (Alternative B-1)

7.3.2.1 Visual Corridor 1: Views Traveling along the St. Croix River (Alternative B-1)

There are many different visual experiences as one travels the St. Croix River. Three perspective sketches of the river corridor are illustrated in Figures 7-20, 7-21, and 7-22 in an attempt to compare visual impacts of each bridge type considered for the Alternative B-1 Bridge. The degree of visual impact would be closely tied to the distance one is from the bridge. Individuals near the bridge would be more adversely affected than individuals a considerable distance away

**Figure 7-20 – View from St. Croix River – Alternative B-1 1500’ Cable Stay Bridge Type
(8.5x11 – b/w)**

**Figure 7-21 – View from St. Croix River – Alternative B-1 6-500’ Extradosed Box Girders
Bridge Type (8.5x11 – b/w)**

Figure 7-22 – View from St. Croix River – Alternative B-1 10-360’ Haunched Concrete Box Girders Bridge Type (8.5x11 – b/w)

from the bridge. Visual impacts from the perspective of a recreationalist in the northern segment of the river (Figure 7-9) would be influenced by the approaching historic elements of downtown Stillwater. The bend in the St. Croix River north of Stillwater allows Stillwater to become visible before the Alternative B-1 bridge comes into view. As a result of the existing transition from natural to urban as one moves from north to south, visual impacts would be minimized. The “cable stay” bridge type (Figure 7-20), of the three bridge types considered for Alternative B-1, would be most visible against the sky due to its two high towers (450 feet) and their arrays of cables. The “extradosed girders” bridge type (Figure 7-21), although less visible with its towers of 50 to 90 feet, introduces more towers into the sky and river. The “haunched girders” bridge type (Figure 7-22) is the least visible with no piers or towers located above the bridge deck. The “haunched girders” bridge type does, however, introduce more piers into the river than the other bridge types, presenting a more visually obstructed river corridor to the viewer. Also, the “haunched girders” bridge type visually presents a thicker or heavier appearing bridge span than either the “cable stay” or “extradosed girders” bridge types. A similar experience exists in the southern segment of the river. Again the scenery gradually changes from a natural setting to an urban setting as the Xcel King Power Plant and associated power lines become visible. These factors, combined with the distance to the Stillwater Lift Bridge from these vantage points, would minimize the adverse impacts created by Alternative B-1. However, the visual effect associated with the urban elements of the river is increased by the presence of Sunnyside Marina and Condominiums, the wastewater treatment plant, single-family residential homes on both the Wisconsin and Minnesota bluffs, and a variety of other constructed elements. These urban elements may already adversely affect the visual quality associated with recreationalists on the St. Croix River.

As one approaches the new bridge, the scale of the impact increases and becomes more intrusive. The bridge restricts some views to distant scenery and the bridge becomes the dominant element of the scene. However, in approaching the bridge from the south and due to the height of the bridge above the water, views to downtown Stillwater are framed by the structure. The importance of maintaining vegetation on the two bluffs and the shoreline of the river is more evident to the viewer. Depending upon the amount of vegetation that is cleared on the Wisconsin side, the natural harmony may be preserved, minimizing the visual effects of the bridge.

7.3.2.2 Visual Corridor 2: Views Traveling along the Project Corridor (Alternative B-1)

The visual experience of the project corridor would vary from the existing situation, and visual impacts would depend upon the viewer’s individual perception and the choice of construction materials. Traveling east along TH 36 from TH 5 to Beach Road, the current visual experience is one of an urban commercial/industrial corridor broken by three signalized at-grade intersections. This would be altered in construction to present a corridor of grade-separated intersections with bridges crossing over TH 36 at Washington Avenue, Greeley Avenue (CSAH 66), Osgood Avenue (County Road [CR] 24) and Beach Road. The visual impact would occur with the addition of bridges and highway related structures including pavement, median barriers, retaining walls, fencing, railings and corridor lighting. Visual effects created by conflicts with views of commercial and man-made elements adjacent to the corridor could be minimized by choice of construction material and designing visually complementary highway

elements. This includes highway barrier, fencing, retaining walls, railings and lighting design. Corridor plantings could further minimize adverse visual effects. The view along TH 36 as one passes under Osgood Avenue would be “framed” by the Osgood Bridge, the river valley view revealing itself.

Visual impacts would primarily occur in the immediate area of the Alternative B-1 crossing and the two interchange areas. The infrastructure and highway design elements associated with the bridge crossing could adversely affect the visual quality of the approach into downtown Stillwater, and views from the bridge of the river corridor. This would occur to the extent that the Alternative B-1 Bridge conflicts with views to downtown by restricting views into downtown or by the selected bridge “type” restricting views from the bridge to the river corridor. Visual effects created by conflicts with views to downtown could be minimized by choice of construction material and by designing highway elements to complement existing historic elements associated with downtown. Visual effects created by conflicts with views from the bridge to the river corridor could be considered in selection of bridge “type” and design of bridge elements. Both the “cable stay” and “extradosed girders” bridge types introduce bridge elements (towers and cables) which somewhat interrupt views from the bridge. The “haunched girders” bridge type does not introduce bridge elements above the railing/barrier of the bridge that would interrupt the view. Tourists may be affected by the amount of highway-related infrastructure as they approach an historic setting and would be most responsive to highway elements that respond to an historic setting.

The construction of interchange areas in Minnesota and Wisconsin would alter the existing visual scene. In Minnesota, the TH 95 and TH 36 interchange would require substantial grading (earth-movement) and alteration of the existing alignment. Lanes of pavement would be added and some vegetation would be removed.

In Wisconsin, the proposed interchange areas have the potential for diminished visual quality. The existing visual scene would be altered from one that is dominated by rural and agricultural character to one of increased road infrastructure. The interchange would add substantially to the existing roadway pavement and to the presence of road facilities within the area. Also, the lack of existing vegetation to buffer visual sight lines would increase the potential for adverse visual impacts. Expansive views of the existing rural landscape would be altered by the construction of Alternative B-1 and would result in a diminished visual quality.

7.3.3 Step 5: Summary of Potential Visual Impacts (Alternative B-1)

Potential impacts on the visual quality of the St. Croix River and the river valley could result from the construction of Alternative B-1 that would disturb the natural harmony, cultural order, or design quality of the existing scene. In general, impacts would be related to the scale and extent of the Alternative B-1 Bridge and approach roadways and to the personal preference of the viewer.

Impacts on natural harmony would mostly result from the removal of vegetation and the disruption of views up and down the river corridor (Revegetation and landscaping guidelines would be developed prior to construction. A landscape plan would be developed from these

guidelines and implemented as part of the project.) Recreationalists and river users would be most affected, particularly as one approaches the river bridge. Residents of the area would be aware of a visual impact on natural harmony to the extent they perceive the bridge as replacing natural elements of the riverway or competing with natural elements of the river valley. Residents would sense an adverse visual impact if they perceive that the bridge becomes a dominant element of the river corridor.

Impacts on cultural order generally would be minimal and would relate to the individual's personal preference for how the design of the bridge fits with the existing quality of the scene. Individuals who strongly value the historic character of the Stillwater area might perceive an adverse visual impact, whereas those individuals who perceive the bridge as enhancing or creating a new cultural order might perceive a beneficial visual impact.

Design impacts also relate to individual preference. Individuals most likely to be affected by changes to the design quality of the corridor are travelers. Impacts would be judged to the extent that the function of the roadway either enhances or detracts from the visual quality of the scene. In this regard, the degree of congestion, the availability of visual landmarks, and the experience of the corridor would be the most important factors in determining visual effects.

7.3.4 Step 6: Mitigation of Visual Impacts (Alternative B-1)

The Alternative B-1 alignment and considered bridge types reflect intentional efforts to avoid or minimize visual effects to the project area, particularly in regard to the Lower St. Croix National Scenic Riverway.

7.3.4.1 Minimization of Visual Impacts Through the Designs of Alternative B-1 Bridge Types

The designs of Alternative B-1 bridge types were selected to provide a complementary fit with the surrounding landscape and visual setting of the Stillwater area. Specifically, the bridge designs attempt to complement the character of downtown Stillwater and the natural features of the St. Croix River valley. Specific elements addressing these issues were described in the introduction to Section 7.3.

7.3.4.2 Proposed Mitigation For Visual Impacts

Beyond the specific mitigation discussed in Section 7.3.4.1, potential mitigation items applicable to all Build Alternatives are described in Chapter 14. Upon identification of a Preferred Alternative, a mitigation package, appropriate to the level of impacts, will be identified by the lead agencies from the list of mitigation items as well as additional mitigation items identified by agencies or the public during the SDEIS comment period. Additional potential impacts associated with the mitigation package items for the Preferred Alternative will be presented in the Supplemental Final EIS.

7.4 ALTERNATIVE C

The following section describes the visual impacts on each of the view sheds and visual corridors that would result from construction of Alternative C.

In general, Alternative C incorporates a number of design elements to minimize the visual impacts of the project. These elements include:

- An alignment of the new crossing that is mostly perpendicular to the river, in a relatively narrow section of the river, minimizing bridge length;
- Minimizing impacts on the Wisconsin and Minnesota bluffs by using existing ravines;
- Minimizing the number of piers and apparent mass of the structural components for each bridge “type” considered for Alternative C. This would decrease adverse visual impacts on the St. Croix River; and
- Incorporation of signature bridge designs (“concrete deck arch” and “extradosed girders”) for two of the three bridge types considered for Alternative C.

Bridge Aesthetics for Alternative C

The river bridge types considered for Alternative C are widely varied in terms of appearance of structural form, bridge elements and details relating to aesthetic characteristics. Aesthetic characteristics of the bridge are those that are perceived by both the viewers and users of the bridge. They may generate a positive, neutral or negative “subjective” response on the part of viewers or users. While the determination of appropriate aesthetics for the Alternative C river bridge is highly subjective as it relates to the perception of viewers and users, the bridge types can be compared objectively with regard to their structural elements and potential visual impacts.

“Haunched Girders” Bridge Type (Figure 7-23) – A series of six haunched (slightly arched) 350-foot concrete box girders are located below the deck of this bridge type. These serve as the spans over the river and a series of shorter length haunched concrete box girders serve as approach spans to the river spans. This bridge type is visually “quiet” when viewed against the sky or river bluffs – none of the structure extends above the bridge deck. It is most visually “active” as a structure where the numerous piers enter the river. Viewers and users on the bridge would see only barriers, railings and light poles along the bridge without interruptions of towers or cable arrays (as found in the “extradosed girders” bridge type, Figure 7-24). Thus, the detail design, surface treatments and coloration of the railing and barriers would be pronounced on this bridge type. The bridge would probably be light in coloration, concrete box girders usually receiving a light color surface treatment. Light colored structures typically present a higher contrast to natural or man-made surroundings. The piers for the “haunched girders” bridge type appear integral to the form of the structure. The viewer’s perception of the piers, then, would be based on the overall design integration of the numerous concrete piers and haunched spans, and in the development of their architectural detailing.

“Concrete Deck Arch” Bridge Type (Figure 7-25) – This bridge type consists of a 500-foot concrete deck arch with back spans (appearing as half arches). Concrete box girder spans serve as approaches to the concrete deck arch span which is located over the river channel nearest the Wisconsin bluff. All spans are located below the deck of the bridge. Thus, the bridge is visually “quiet” when viewed against the sky or river bluffs. It is most visually “active” as a structure where the numerous piers enter the river. Also, the bridge incorporates two bridge system types, concrete deck arch and concrete box girder, to span the river corridor. This creates a more

**Figure 7-23 – Alternative C – 6-350' Haunched Concrete Box Girders Bridge Type
(8.5x11 – b/w)**

Figure 7-24 – Alternative C – 4-500' Extradosed Girders Bridge Type (8.5x11 – b/w)

Figure 7-25 – Alternative C – 500’ Concrete Deck Arch with Back Spans & Box Girder Approaches Bridge Type (8.5x11 – b/w)

“active” or visually “busier” silhouette than the “haunched girders” bridge type previously discussed. Viewers and users on the bridge would see only barriers, railings and light poles along the bridge without interruptions of towers or cable arrays (as found in the “extradosed girders” bridge type, Figure 7-24). Thus, the detail design, surface treatments and coloration of the railings and barriers will be pronounced on this bridge type. The bridge, all concrete, would probably be light in coloration. As such, the bridge structure will be in high contrast to its natural and man-made surroundings. The viewer’s perception of the numerous bridge piers will be based on their visual integration with the bridge spans (including the deck arch span) and in the development of the architectural detailing of the piers.

“Extradosed Girders” Bridge Type (Figure 7-24) – This bridge type features five towers of approximately 50 to 90 feet in height above the bridge deck and four 500-foot box girder spans, arrays of cables from each tower supporting the bridge spans. Thus, the structural elements of the bridge are highly visible to viewers and users on the bridge. Viewed from off the bridge, the towers and cables present a visually “active” bridge silhouette form when viewed against the sky or river bluffs. The “extradosed girders” bridge introduces a visually unique bridge type to the river corridor. The “extradosed girders” bridge does not correspond in bridge type to the nearby Lift Bridge or to other bridge types found on the St. Croix River. It presents a visually dramatic form and structural appearance to viewers and users both off and on the bridge. Viewers on the bridge also see details of the towers and cables at close range. The towers and cables introduce a continuous structural presence for most of the crossing. Thus, the scale, proportion, materials and coloration of the towers and cables become important characteristics in viewers’ perception of the bridge. The towers would be constructed of either concrete or steel. Concrete, usually of a light coloration, would present a visually higher contrast within the river corridor setting than steel with a darker coloration. Bridge railings and barriers are highly visible to bridge users, particularly when the towers and cables are at the center of the bridge rather than the edges.

Detail design, surface treatments and coloration of the railing and barriers would be important to the viewer’s perception of the structure. The bridge approach span piers and the tower bases are concrete in material, presenting a wide variety of design opportunities for appearance. The viewer’s perception of the piers and tower bases for the “extradosed girders” bridge type will be based on an appropriate visual balance with the spans and towers. Also, because the piers and tower bases will be seen at close range, both from land and water, design details and surface treatments are important visual elements.

7.4.1 Critical Viewsheds (Alternative C)

7.4.1.1 Viewshed 1: Historic Downtown Stillwater (Alternative C)

The Alternative C bridge would be visible from many parts of downtown Stillwater. Lowell Park, which sits along the western bank of the St. Croix River in the downtown area, provides a viewing point to the St. Croix River for tourists, business neighbors and patrons of downtown businesses. Figure 7-14 depicts the current view of the St. Croix River looking to the south from Lowell Park. Figure 7-26 illustrates the effects to this view resulting from the Alternative C “haunched girders” bridge type. Figure 7-27 illustrates the “concrete deck arch” bridge type. Figure 7-28 illustrates the “extradosed girders” bridge type.

Figure 7-26 – View from Lowell Park – Alternative C 6-350’ Concrete Haunched Box Girders Bridge Type (8.5x11 – b/w)

Figure 7-27 – View from Lowell Park – Alternative C 500’ Concrete Deck Arch Bridge Type (8.5x11 – b/w)

**Figure 7-28 – View from Lowell Park – Alternative C 4-500’ Extradosed Box Girders
Bridge Type (8.5x11 – b/w)**

The Alternative C bridge would interrupt the view from Lowell Park and other downtown points by adding a physical element to the river corridor. These impacts could be perceived as adverse by tourists, residential neighbors, business neighbors and patrons of downtown businesses due to the scale and dominating presence of the bridge. The “extradosed girders” bridge type is the most visually dominant of the bridge types considered due to tower heights of approximately 50 to 90 feet above the bridge deck. The “haunched girders” and “concrete deck arch” bridge types are less visually dominant as no piers or towers rise above the surface of the bridge deck. However, the “haunched girders” (approximately seven piers) and “concrete deck arch” (approximately seven piers) bridge types introduce more piers into the river and view than does the “extradosed girders” (approximately five piers) bridge type. The arched form of the “concrete deck arch” bridge type provides a visual connection to design elements found in historic buildings throughout the downtown area.

7.4.1.2 Viewshed 2: The Minnesota Bluff and TH 95/TH 36 (Alternative C)

Visual impacts on the Minnesota bluff resulting from the construction of the Alternative C bridge would vary according to viewer group and individual preferences within viewer groups (see Figure 7-29).

From the perspective of residential neighbors, negative visual impacts would result from the increased lanes of pavement, a decrease in vegetation, and the closer proximity of the roadway to the river and to residents of Sunnyside Condominiums.

Both positive and negative visual impacts may be experienced by recreational neighbors and river users. Changes to the visual scene include increased visibility of retaining wall structures and a loss of vegetation. Retaining walls, which could be as tall as 30 feet in height, would be required at the Minnesota end of the bridge. Consequently, visual impacts would vary for recreational and river users and would depend upon the perspective of the user.

Visual impacts on travelers would also vary. Adverse visual impacts would result from increased pavement and to the degree that lowering the roadway alignments reduces views to the surrounding landscape. Also, structural elements of the Alternative C bridge as it crosses over TH 95 would result in a dramatic change in scale and presence of roadway elements. The traveler’s experience of entering downtown Stillwater would be altered as individuals pass under the bridge structure.

Disruption to the Minnesota bluff along the west side of TH 36 would be minimal. The new roadway would be located slightly east of the existing roadway, moving the alignment further away from the bluff. This would allow the reclamation of land currently paved as TH 36, approximately four acres, and would allow opportunities for revegetation, providing a better visual background for river recreational users. Revegetation of the reclaimed area may also enhance the natural harmony of the bluff area by concentrating vegetation along the most visible elements of the bluff from the Riverway.

Figure 7-29 – Minnesota Bluff Cross Sections – Alternative C (11x17 – b/w)

BACK

In summary, the Minnesota interchange area has the potential for detrimental and beneficial visual impacts on the Minnesota bluff area. Additional lanes of pavement would be added, and a loss of vegetation would result in reduced visual quality to residential neighbors and other individuals with preference for trees and vegetative buffering. Areas within the proposed interchange are planned as sedimentation ponds, which would limit the extent of revegetation. The profile of TH 95 indicates the roadway would be lower than the existing grade, which would result in decreased visibility of the roadway from the St. Croix River. A positive visual impact on recreational users would therefore result.

7.4.1.3 Viewshed 3: The Wisconsin Bluff (Alternative C)

Visual impacts on the Wisconsin bluff resulting from the Alternative C bridge are demonstrated in Figures 7-30a and 7-30b. The extent of visual impacts would be localized and the scale of impact should be minimal. Only the immediate area of the bridge touchdown point and Delta Pond location on the Wisconsin side would be affected. As a result of construction, vegetation would be removed, exposing more of the bluff. Revegetation may be possible to some extent but could be difficult due to the shading of vegetation by the bridge structure, which would have an adverse visual impact.

These impacts would affect all viewer groups (business neighbors, residential neighbors, tourists, commuters, and recreational neighbors) that could see the Wisconsin bluff. Most substantially affected would be recreationalists on the river adjacent to the bluff and riverbank users in the vicinity of the bridge. The removal of vegetation would reduce the natural harmony of the Wisconsin bluff, which is currently heavily vegetated. Tourists crossing from Minnesota into Wisconsin would also be visually affected and sensitive to the disruption of natural harmony. Commuters would most likely be neutral to the loss of the vegetation. Mitigation of the adverse impacts would rely on the degree of revegetation needed and the extent that clearing could be avoided during construction.

7.4.1.4 Viewshed 4: Stillwater Municipal Barge Facility Property – Proposed Park (Alternative C)

Visual impacts on the proposed park on the Stillwater Municipal Barge Facility property would be substantial and adverse. The southern portion of the proposed park would need to accommodate the beginning of the bridge structure and supporting infrastructure. As a result, the experience of visitors to the southern end of the proposed park would be dominated by the presence of the bridge. Views to the river would be maintained, but the overall visual experience at the south end of the property would be reduced. This reduction would occur primarily to the viewer's sense of natural harmony and would be a direct result of the dominating scale of the bridge. Individuals viewing the St. Croix River from the south end of the proposed park would experience the large scale of the bridge as well. In some instances, the bridge infrastructure would be directly overhead. The bridge would also affect visitors to the north end of the proposed park, as the bridge would be a dominant element to viewers looking south along the St. Croix River.

7.4.1.5 Viewshed 5: St. Croix Overlook (Alternative C)

Visual impacts on the St. Croix Overlook would depend greatly on the maintenance strategy pursued for the area. Currently, minimal views of the river are afforded by the overlook as a result of overgrown vegetation. Under current conditions, the bridge would most likely not be visible from the overlook. In addition to the overgrown vegetation of the overlook, the primary existing views are of the Xcel King Power Plant and the Sunnyside Marina and Condominiums. These three elements, combined with the overgrown vegetation, minimize the potential for the overlook to afford a visual experience dominated by natural harmony. If a vegetative clearing program were pursued, the bridge would become visible and visual impacts would occur. (However, vegetative clearing would also provide additional views to the river.) Of the bridge types considered for Alternative C, the “extradosed girders” bridge type would be somewhat more visually dominant due to its series of five towers 50 to 90 feet in height. The impacts may be beneficial or adverse, depending upon the individual viewer. Some viewers may feel the bridge is appropriate and provides an additional element to the cultural order of the existing scene. The bridge may be more visually appealing than the Xcel King Power Plant, the wastewater treatment plant or the Sunnyside Marina and Condominiums that currently dominate the scene. However, if the bridge were seen as an adverse impact, selective cutting of vegetation (leaving vegetation to the north) would minimize the adverse impacts without dramatically restricting the perceived scenic qualities of the overlook.

7.4.2 Visual Corridors (Alternative C)

7.4.2.1 Visual Corridor 1: Views Traveling along the St. Croix River (Alternative C)

There are many different visual experiences as one travels the St. Croix River. Three perspective sketches of the river corridor are illustrated in Figures 7-31, 7-32, and 7-33 in an attempt to compare visual impacts of each bridge type considered for the Alternative C bridge. The degree of visual impact would be closely tied to the distance one is from the bridge. Individuals near the bridge would be more adversely affected than individuals a considerable distance away from the bridge. Visual impacts from the perspective of a recreationalist in the northern segment of the river (Figure 7-9) would be influenced by the approaching historic elements of downtown Stillwater. The bend upstream from the Lift Bridge in the St. Croix River allows Stillwater to become visible before the Alternative C Bridge comes into view. As a result of the existing transition from natural to urban as one moves from north to south, visual impacts would be minimized. The “extradosed girders” bridge type, of the three bridge types considered for Alternative C, would be most visible against the sky due to its five towers (approximately 50 to 90 feet above the bridge deck) and their arrays of cables. Both the “haunched girders” and “concrete deck arch” bridge types would be less visible against the sky as no tower or pier elements are located above their bridge decks. These two bridge types do, however, introduce more piers into the river (approximately seven piers) than the “extradosed girders” bridge type (approximately five piers), presenting a more visually obstructed river corridor to the viewer. Also, the “haunched girders” and “concrete deck arch” bridge types visually present a thicker or heavier appearing bridge span than the “extradosed girders” bridge type. A similar visual experience exists in the southern segment of the river. Again the scenery gradually changes from a natural setting to an urban setting as the Xcel King Power Plant and

Figure 7-30a – Wisconsin Bluff Cross Section – Alternative C (Option 1) (11x17 – b/w)

BACK

Figure 7-30b – Wisconsin Bluff Cross Section – Alternative C (Option 2) (11x17 – b/w)

BACK

Figure 7-31 – View from St. Croix River – Alternative C 6-350' Haunched Concrete Box Girders Bridge Type (8.5x11 – b/w)

Figure 7-32 – View from St. Croix River – Alternative C 500' Concrete Deck Arch with Back Spans & Box Girder Approaches Bridge Type (8.5x11 – b/w)

Figure 7-33 – View from St. Croix River – Alternative C 4-500' Extradosed Girders Bridge Type (8.5x11 – b/w)

associated power lines become visible. These factors, combined with the distance to the Stillwater Lift Bridge from these vantage points, would minimize the adverse impacts created by Alternative C. However, the visual effect associated with the urban elements of the river is increased by the presence of Sunnyside Marina and Condominiums, the wastewater treatment plant, single-family residential homes on both the Wisconsin and Minnesota bluffs, and a variety of other constructed elements. These urban elements may already adversely affect the visual quality associated with recreationalists on the St. Croix River.

As one approaches the new bridge, the scale of the impact increases and becomes more intrusive. The bridge restricts views to distant scenery and the bridge becomes the dominant element of the scene. The importance of maintaining vegetation on the two bluffs and the shoreline of the river is more evident to the viewer. Minimizing the amount of vegetation that is cleared on the Wisconsin side may allow the natural harmony to be preserved, minimizing the visual effects of the bridge.

7.4.2.2 Visual Corridor 2: Views Traveling along the Project Corridor (Alternative C)

The visual experience of the project corridor would vary from the existing situation, and visual impacts would depend upon the viewer's individual perception and the choice of construction materials. Traveling east along TH 36 from TH 5 to Beach Road, the current visual experience is one of an urban commercial/industrial corridor broken by three signalized at-grade intersections. This would be altered in construction to present a corridor of grade-separated intersections with bridges crossing over TH 36 at Washington Avenue, Greeley Avenue (CSAH 66), Osgood Avenue (CR 24) and Beach Road. The visual impact would occur with the addition of bridges and highway related structures including pavement, median barriers, retaining walls, fencing, railings and corridor lighting. Visual effects created by conflicts with views of commercial and man-made elements adjacent to the corridor could be minimized by choice of construction material and designing visually complementary highway elements. This includes highway barrier, fencing, retaining walls, railings and lighting design. Corridor plantings could further minimize adverse visual effects. The view along TH 36 as one passes under Osgood Avenue would be "framed" by the Osgood Bridge, the river valley view revealing itself.

Visual impacts would primarily occur in the immediate area of the Alternative C crossing and the two interchange areas. The infrastructure and highway design elements associated with the bridge crossing could adversely affect the visual quality of the approach into downtown Stillwater. This would occur to the extent that the Alternative C bridge conflicts with views to downtown, whether by restricting views into downtown or by the bridge not being considered compatible with the historic elements of Stillwater. Visual affects created by the latter could be minimized by choice of construction material and by designing highway elements to complement existing historic elements associated with downtown. Tourists may be affected by the amount of highway-related infrastructure as they approach an historic setting and would be most responsive to highway elements that respond to an historic setting.

Visual effects created by conflicts with views from the bridge to river corridor could be considered in selection of bridge "type" and design of bridge elements. The "extradosed girders"

bridge type introduces bridge elements (towers and cables) which somewhat interrupt views from the bridge. The “haunched girders” and “concrete deck arch” bridge types do not introduce bridge elements above the railing/barrier that would interrupt the view.

The construction of interchange areas in Minnesota and Wisconsin would alter the existing visual scene. In Minnesota, the TH 95 and TH 36 interchange would require substantial grading (earth-movement) and alteration of the existing alignment. Lanes of pavement would be added, some vegetation would be removed, and the roadway would require retaining walls that may be viewed as obtrusive to the existing scene. These structural elements are extensive in scale and would dominate the visual scene as travelers approached downtown Stillwater.

In Wisconsin, the proposed interchange areas have the potential for diminished visual quality. The existing visual scene would be altered from one that is dominated by rural and agricultural character to one of increased road infrastructure. The highway interchange within Wisconsin would add substantially to the existing roadway pavement and to the presence of road facilities within the area. Also, the lack of existing vegetation to buffer visual sight lines would increase the potential for adverse visual impacts. Expansive views of the existing rural landscape would be altered by the construction of Alternative C and would result in a diminished visual quality.

7.4.3 Step 5: Summary of Potential Visual Impacts (Alternative C)

Potential impacts on the visual quality of the St. Croix River and the river valley could result from the construction of Alternative C that would disturb the natural harmony, cultural order, or design quality of the existing scene. In general, impacts would be related to the scale and extent of the Alternative C Bridge and approach roadways and to the personal preference of the viewer.

Impacts on natural harmony would mostly result from the removal of vegetation and the disruption of views up and down the river corridor. (Revegetation and landscaping guidelines would be developed prior to construction. A landscape plan would be developed from these guidelines and implemented as part of the project.) Recreationalists and river users would be most affected, particularly as one approaches the river bridge. Residents of the area would be aware of a visual impact on natural harmony to the extent they perceive the bridge as replacing natural elements of the riverway or competing with natural elements of the river valley. Residents would sense an adverse visual impact if they perceive that the bridge becomes a dominant element of the river corridor.

Impacts on cultural order generally would be minimal and would relate to the individual's personal preference for how the design of the bridge fits with the existing quality of the scene. Individuals who strongly value the historic character of the Stillwater area might perceive an adverse visual impact, whereas those individuals who perceive the bridge as enhancing or creating a new cultural order might perceive a beneficial visual impact.

Design impacts also relate to individual preference. Individuals most likely to be affected by changes to the design quality of the corridor are travelers. Impacts would be judged to the extent that the function of the roadway either enhances or detracts from the visual quality of the scene. In this regard, the degree of congestion, the availability of visual landmarks, and the experience of the corridor would be the most important factors in determining visual effects.

7.4.4 STEP 6: Mitigation of Visual Impacts (Alternative C)

The Alternative C alignment and bridge design reflect intentional efforts to avoid or minimize visual effects to the project area, particularly in regard to the Lower St. Croix National Scenic Riverway.

7.4.4.1 Minimization of Visual Impacts Through the Designs of the Alternative C Bridge

The designs of the Alternative C bridge types were selected to provide a complementary fit with the surrounding landscape and visual setting of the Stillwater area. Specifically, the bridge designs attempt to complement the character of downtown Stillwater and the natural features of the St. Croix River valley. Specific elements addressing these issues were described in the introduction to Section 7.4.

7.4.4.2 Proposed Mitigation For Visual Impacts

Beyond the specific mitigation discussed in Section 7.4.4.1, potential mitigation items applicable to all Build Alternatives are described in Chapter 14. Upon identification of a Preferred Alternative, a mitigation package, appropriate to the level of impacts, will be identified by the lead agencies from the list of mitigation items as well as additional mitigation items identified by agencies or the public during the SDEIS comment period. Additional potential impacts associated with the mitigation package items for the Preferred Alternative will be presented in the Supplemental Final EIS.

7.5 ALTERNATIVE D

The following section describes the visual impacts on each of the view sheds and visual corridors that would result from construction of Alternative D.

Alternative D incorporates a number of design elements to minimize the visual impacts of the project. These improvements include:

- An alignment of the new crossing near existing downtown Stillwater structures, including the Lift Bridge, thus concentrating bridge structures in a more developed section of the St. Croix River;
- Minimizing the number of piers and the apparent mass of the structural components for each bridge type considered, decreasing visual impacts on the Lower St. Croix National Scenic Riverway; and
- Incorporation of traditional-style bridge designs for the four bridge types considered for Alternative D, potentially increasing compatibility with downtown Stillwater and the Lift Bridge.

Bridge Aesthetics for Alternative D

The river bridge types considered for Alternative D are widely varied in terms of appearance of structural form, bridge elements and details relating to aesthetic characteristics. Aesthetic characteristics of the bridge are those that are perceived by both the viewers and users of the bridge. They may generate a positive, neutral or negative “subjective” response on the part of viewers or users. While the determination of appropriate aesthetics for the Alternative D river bridge is highly subjective as it relates to the perception of viewers and users, the bridge types can be compared objectively with regard to their structural elements and potential visual impacts.

“Steel Thru Trusses” Bridge Type (Figure 7-34) – This bridge type consists of a series of three steel trusses, each 350 feet long, located above the deck of the bridge. Thus, the structural elements of the trusses are highly visible to viewers and users on the bridge. Viewed from off the bridge, the trusses present a visually active silhouette form when viewed against sky, bluffs or downtown Stillwater structures. Although the steel thru trusses correspond in bridge type to the nearby Lift Bridge, the diagonal truss members would be considerably heavier in appearance than the Lift Bridge trusses. This would present a heavier silhouette and structural look to viewers and users both off and on the bridge. Viewers on the bridge also see details of the trusses at close range. The trusses present a nearly continuous structure overhead, and interrupt views along the sides of the bridge for much of the river crossing. Thus, the scale, proportion, materials and coloration of the bridge trusses become important characteristics in viewers’ perception of the bridge. Steel truss spans, however, are usually painted in medium to dark colors to visually minimize their scale. Additionally, dark colored steel spans are frequently favored to “fit” into both natural and man-made surroundings. Bridge railings and barriers, while visible to bridge users, are secondary to the highly visible bridge trusses. The bridge piers, concrete in material, present a wide variety of design opportunities for appearance. The viewer’s perception of the piers for the “steel thru trusses” bridge type will be based on an appropriate visual balance with the heavy and pier surface treatment important visual elements.

“Steel Bow String Truss with Haunched Girders” Bridge Type (Figure 7-35) – This bridge type features a 500-foot long “main span” truss, located above the deck of the bridge, and five “haunched” (slightly arched) concrete girders, each 250 feet long, located beneath the deck of the bridge. The steel bow string main span truss is the highly visible element of the bridge to viewers and users on the bridge. Viewed from off the bridge, the steel bow string truss presents a dramatic silhouette form when viewed against the sky, bluffs or downtown Stillwater structures. Unlike the nearby Lift Bridge, or the “steel thru trusses” bridge type, the steel bow string truss presents a somewhat lighter silhouette and less “structured” appearance to viewers both off and on the bridge. Viewers on the bridge would see details of the truss at close range. The steel bow string truss presents an overhead structure and interrupts the view for 500 feet of the 1,750-foot river crossing. Thus, the scale, proportion, materials and coloration of the bridge truss becomes an important characteristic in viewers’ perception of the bridge. Because steel truss spans are often painted in medium to dark colors in order to harmonize with their surroundings, the steel bow string truss coloration may contrast with the lighter colored concrete trusses. Also, the piers will be seen at close range, both from land and water, making pier details haunched girder spans. Because only one truss rises above the deck of the bridge (unlike the “steel thru trusses” bridge type), and the remaining span girders are visible only below the deck,

Figure 7-34 – Alternative D – 3-350' Steel Thru Trusses Bridge Type (8.5x11 – b/w)

Figure 7-35 – Alternative D – 500’ Steel Bow String “Main Span” with 5-250’ Haunched Concrete Girders Bridge Type (8.5x11 – b/w)

the bridge railings and barriers are prominent to viewers and users. The detail design, surface treatments and coloration of the railings and barriers will be pronounced on this bridge type. The bridge piers, concrete in material, present a wide variety of design opportunities for appearance. The viewer's perception of the piers for the "steel bow string truss with haunched girders" bridge type will be based on an appropriate visual balance of piers with the steel bow string truss and the concrete haunched girder spans. Seen at close range from both land and water, pier details and pier surface treatment are important visual elements.

"Concrete Arches" Bridge Type (Figure 7-36) – A series of seven concrete arch spans, each 250 feet long, are located below the deck of this bridge type. Unlike the other river bridge types considered for Alternative D which include thru truss or arch elements above the bridge deck, the "concrete arches" bridge type presents the visually "quietest" silhouette when viewed against the sky, bluffs or downtown Stillwater. Viewers and users on the bridge would see only barriers, railings and light poles along the bridge without interruptions of overhead arch or truss spans. Thus, the detail design, surface treatments and coloration of the railings and barriers will be pronounced on this bridge type. The bridge would probably be light in coloration, concrete arch spans usually receiving a light color surface treatment. Light colored structures typically present a higher contrast to natural or man-made surroundings. The bridge piers for the "concrete arches" bridge type appear more integral to the form of the structure than either the "steel thru trusses" or "steel bow string truss with haunched girders" bridge types. The series of arches "spring" from the bases of the piers near the water line, so the viewer's perception of the piers, would be based on the overall design integration of the concrete piers and arches, and on the development of the pier's architectural detailing.

"Concrete Thru Arch with Concrete Arches" Bridge Type (Figure 7-37) – This bridge type has similar characteristics to the previously discussed "concrete arches" bridge type. It introduces, however, a 500-foot main span concrete thru arch, and utilizes only five 250-foot concrete arch approach spans. The main span concrete thru arch is the highly visible element of the bridge to viewers and users on the bridge. Viewed from off the bridge, the concrete thru arch presents a dramatic silhouette form when viewed against the sky, bluffs or downtown Stillwater structures. Viewers on the bridge would see details of the concrete thru arch at close range. The concrete thru arch presents an overhead structure and interrupts the view for 500 feet of the 1,750-foot river crossing. Thus, the scale, proportion, treatment of materials and coloration of the concrete thru arch become important characteristics in viewers' perception of the bridge.

7.5.1 Critical Viewsheds (Alternative D)

7.5.1.1 Viewshed 1: Historic Downtown Stillwater (Alternative D)

The Alternative D Bridge would be visible from many parts of downtown Stillwater. Lowell Park, which sits along the western bank of the St. Croix River in the downtown area, provides a viewing point to the St. Croix River for tourists, business neighbors and patrons of downtown businesses. Figure 7-14 depicts the current view of the St. Croix River looking to the south from Lowell Park. Figure 7-38 illustrates the effects to this view resulting from the Alternative D "steel thru trusses" bridge type. Figure 7-39 illustrates the "steel bow string truss with haunched girders" bridge type. Figure 7-40 illustrates the "concrete arches" bridge type. Figure 7-41 illustrates the "concrete thru arch with concrete arches" bridge type.

Figure 7-36 – 7-250' Concrete Arches Bridge Type (8.5x11 – b/w)

Figure 7-37 – Alternative D – 500’ Concrete Thru Arch with 5-250’ Concrete Arches Bridge Type (8.5x11 – b/w)

**Figure 7-38 – View from Lowell Park – Alternative D 3-350’ Steel Thru Trusses Bridge Type
(8.5x11 – b/w)**

Figure 7-39 – View from Lowell Park – Alternative D Flush Haunched Concrete Girders 5-250’ with “Main Span” 500’ Steel Bow String Truss Bridge Type (8.5x11 – b/w)

**Figure 7-40 – View from Lowell Park – Alternative D 7-250' Concrete Arches Bridge Type
(8.5x11 – b/w)**

Figure 7-41 – View from Lowell Park – Alternative D 5-250' Concrete Arches with 500' Main Span Concrete Thru Arch Bridge Type (8.5x11 – b/w)

The Alternative D Bridge would interrupt the view from Lowell Park and other downtown points by adding a large physical element to the river corridor. The impacts could be perceived as adverse by tourists, residential neighbors, business neighbors and patrons of downtown businesses due to the scale and dominating presence of the bridge. An enclosed space, limiting views, would be created with the Lift Bridge on one side and the new bridge on the other. The “steel thru trusses” bridge type is the most visually dominant of the bridge types considered due to the height and number of trusses (three) that obstruct the view of the Wisconsin bluff line. The “steel bow string truss with haunched girders” and “concrete thru arch with concrete arches” bridge types also obstruct the view to the Wisconsin bluff line, although to a somewhat lesser degree, because the single thru-trusses for the main span minimize obstructions above the bridges’ deck lines. The “concrete arches” bridge type is the least obtrusive as the spans remain below the deck line. However, the “concrete arches” bridge type, as do the other bridge types considered for Alternative D, introduces a visual obstruction to the view of the Wisconsin bluff line from Lowell Park. Also, each of the four bridge types introduces approximately seven piers into the river and view. Access and exit ramps on the Stillwater end of the bridges introduce additional piers and bridge structures both into the river and riverfront. These ramp structures would be highly visible from Lowell Park and downtown Stillwater.

All four of the bridge types considered for Alternative D contain materials and design elements found in historic structures throughout the downtown area. These include the use of steel and concrete materials as well as arches and traditional truss forms.

7.5.1.2 Viewshed 2: The Minnesota Bluff and TH 95/TH 36 (Alternative D)

Visual impacts on the Minnesota bluff resulting from the construction of the Alternative D Bridge would vary according to viewer group and individual preferences within viewer groups (see Figure 7-42).

From the perspective of residential neighbors, negative visual impacts would result from the increased lanes of pavement and bridge structure, a decrease in vegetation, and the closer proximity of the roadway to the river.

Negative visual impacts may be experienced by recreational neighbors and river users. The eastbound bridge crossing over TH 95 and the three-level interchange would increase the visibility of the bridge approach structures, walls, piers and bridge access ramps. Due to the expansion of the Minnesota approach to four lanes, fill into the Stillwater Municipal Barge Facility property would require retaining walls anticipated as high as 45 feet. Although terracing of the retaining walls may reduce the visual impact, additional Stillwater Municipal Barge Facility property would then be required. Access and exit ramps from the bridge on the west approach introduce a visual “complexity” to the bridge structure, adding land piers and river piers. River users would see a three level interchange at the river’s edge and 45-foot high retaining walls running the length of the property.

Visual impacts on travelers would also vary. Adverse visual impacts would result from increased pavement and reduced views from TH 95 to the surrounding landscape in the vicinity of the bridge. The travelers’ experience of entering downtown Stillwater would be altered as

individuals pass through the river bridge interchange area. The eastbound exit ramp into downtown would go over the eastbound entrance ramp to the river bridge, then under the river bridge structure and the west bound off ramp of the river bridge. Thus, the interchange is a visually complex structure that creates an adverse visual impact in the approach to downtown Stillwater.

Disruption to the Minnesota bluff along the west side of TH 36 would be minimal. Reclamation of some land currently paved as TH 36 (approximately 3.5 acres) would allow opportunities for revegetation, providing a better visual background for river recreational users. Revegetation of the reclaimed area may also enhance the natural harmony of the bluff area by concentrating vegetation along the most visible elements of the bluff from the Riverway.

In summary, both the Minnesota interchange area and Stillwater interchange area (at the bridge) has the potential for detrimental and minor beneficial visual impacts on the Minnesota bluff area. Additional lanes of pavement would be added, and a loss of vegetation would result in reduced visual quality to residential neighbors and other individuals with preference for trees and vegetative buffering. Also, areas within the proposed Minnesota interchange area are planned as sedimentation ponds, which would limit the extent of revegetation. The revegetation of the reclaimed area may result in a positive visual impact on recreational users.

7.5.1.3 Viewshed 3: The Wisconsin Bluff (Alternative D)

Visual impacts on the Wisconsin bluff resulting from the Alternative D Bridge are demonstrated in Figure 7-43. The visual impacts and scale of the impacts would be extensive. As a result of expansion of the Wisconsin approach, additional excavation of the bluff and retaining walls up to 45 feet in height would be required and the Kolliner Park property would be impacted. The existing roadway width would approximately double, adding paved surface to the bluff.

These impacts would affect all viewer groups (business neighbors, residential neighbors, tourists, commuters, and recreational neighbors) that could see the Wisconsin bluff. Recreationalists adjacent to the bluff and riverbank users in the vicinity of the bridge would be affected. The removal of vegetation would reduce the natural harmony of the Wisconsin bluff and riverfront. Tourists crossing from Minnesota into Wisconsin would also be visually affected and sensitive to the disruption of natural harmony. Commuters would most likely be neutral to the loss of vegetation. Mitigation of the adverse impacts would rely on the degree of revegetation needed and the extent that clearing could be avoided during construction.

7.5.1.4 Viewshed 4: Stillwater Municipal Barge Facility Property – Proposed Park (Alternative D)

Visual impacts on the proposed park on the Stillwater Municipal Barge Facility property would be extensive. Fill into the Stillwater Municipal Barge Facility property would require retaining walls anticipated as high as 45 feet. Terracing of retaining walls may reduce the visual impact, but would require additional Stillwater Municipal Barge Facility property. Views to the river

Figure 7-42 – Minnesota Bluff Cross Section – Alternative D (11x17 – b/w)

BACK

Figure 7-43 – Wisconsin Bluff Cross Section – Alternative D (11x17 – b/w)

BACK

would be obstructed or compromised by the presence of the bridge and ramp structures consuming the Stillwater Municipal Barge Facility property. The bridge and ramp structures would reduce the park user's sense of natural harmony, a result of the dominating scale of the bridge. The bridge structure and interchange would occupy the northern half of the Stillwater Municipal Barge Facility property, restricting park development and greatly impacting user access. Location of the bridge and ramp structures would also restrict vehicular access into the park from the north, severely limiting access to the south end of the property. Expanding TH 95 to four lanes would occupy the park property from its southerly limits to the interchange. The bridge and ramp structures would be the dominant elements to viewers looking north in the park along the St. Croix River.

7.5.1.5 Viewshed 5: St. Croix Overlook (Alternative D)

Visual impacts on the St. Croix Overlook would depend greatly on the maintenance strategy pursued for the area. Currently, minimal views of the river are afforded by the overlook as a result of overgrown vegetation. Under current conditions, the bridge would most likely not be visible from the overlook. In addition to the overgrown vegetation of the overlook, the primary existing views are of the Xcel King Power Plant, the wastewater treatment plant and the Sunnyside Marina and Condominiums. These three elements, combined with the overgrown vegetation, minimize the potential for the overlook to afford a visual experience dominated by natural harmony. If a vegetative clearing program were pursued, the bridge would become visible and visual impacts would occur. (However, vegetative clearing would also provide additional views to the River.) The impacts may be beneficial or adverse, depending upon the individual viewer. The view of the Lift Bridge would be altered or compromised due to the close proximity of the new Alternative D Bridge. Some viewers may feel the new bridge is appropriate and provides an additional element to the cultural order of the existing scene. If the bridge were seen as an adverse impact, selective cutting of vegetation (leaving vegetation to the north) would minimize the adverse impacts without dramatically restricting the perceived scenic qualities of the overlook.

7.5.2 Visual Corridors (Alternative D)

7.5.2.1 Visual Corridor 1: Views Traveling along the St. Croix River (Alternative D)

There are many different visual experiences as one travels the St. Croix River. Four perspective sketches of the river corridor are illustrated in Figures 7-44, 7-45, 7-46, and 7-47 in an attempt to compare visual impacts of each bridge type considered for the Alternative D Bridge. The degree of visual impact would be closely tied to the distance one is from the bridge. Individuals near the bridge would be more adversely affected than individuals a considerable distance away from the bridge. Visual impacts from the perspective of a recreationalist in the northern segment of the river (Figure 7-9) would be influenced by the approaching historic elements of downtown Stillwater. The bend upstream from the Lift Bridge in the St. Croix River allows Stillwater to become visible before the Alternative D bridge comes into view. As a result of the existing transition from natural to urban as one moves from north to south, visual impacts would be

minimized. Also, due to the close proximity of the Alternative D bridge to the Lift Bridge, the Lift Bridge is viewed first and the Alternative D bridge becomes a backdrop seen above the Lift Bridge. The full view of the Alternative D bridge would be seen looking south within the river triangle formed by the existing Lift Bridge alignment and the Alternative D alignment. The “steel thru trusses” bridge type would present the most continuous dominant visual form against the sky. The “steel bow string truss with haunched girders” and “concrete thru arch with concrete arches” bridge types would present a somewhat less dominant image due to the single thru truss that rises above the bridge deck. The “concrete arches” bridge type is the least visually dominant against the sky as no structural forms rise above the bridge deck. However, views to any of the four considered bridge types from the river triangle will present the bridge deck as an immediate and dominant element within the view. Also, all four bridge types introduce approximately seven piers into the river, presenting a more visually obstructed river corridor to the viewer. Additionally, the bridge access and exit ramps introduce river and land piers, further obstructing views from the river. A similar experience exists in the southern segment of the river. Again, the scenery gradually changes from a natural setting to an urban setting as the Xcel King Power Plant and associated power lines become visible. However, the view of the Lift Bridge is obscured by the Alternative D bridge as one approaches from the south. This is due to the close proximity of the Alternative D Bridge to the Lift Bridge. The visual effect associated with the urban elements of the river is increased by the presence of Sunnyside Marina and Condominiums, wastewater treatment plant, single-family residential homes on both the Wisconsin and Minnesota bluffs, and a variety of other constructed elements. However, it is the overlaying profiles of the closely spaced Alternative D Bridge and Lift Bridge that may most adversely affect the existing visual quality associated with recreationalists on this section of the St. Croix River. Also, river users would see a three-level interchange at the river’s edge and 45-foot retaining walls running the length of the park.

As one approaches the new bridge, the scale of the impact increases and becomes more intrusive. The bridge restricts views to distant scenery, natural or man-made, and the bridge becomes the dominant element of the scene. The bridge piers and spans are more immediate to the viewer. The piers and spans of the bridge entrance and exit ramps further complicate the view. Some viewers may consider the Alternative D Bridge as a visual obstruction of the Lift Bridge. The views of the vegetated shoreline, both the Wisconsin and Minnesota sides, are important from the river. Depending upon the amount of vegetation that is cleared or replaced, the natural harmony may be preserved, minimizing the visual effects of the bridge.

7.5.2.2 Visual Corridor 2: Views Traveling along the Project Corridor (Alternative D)

The visual experience of the project corridor would vary from the existing situation, and visual impacts would depend upon the viewer’s individual perception and the choice of construction materials. Traveling east along TH 36 from TH 5 to Beach Road, the current visual experience is one of an urban commercial/industrial corridor broken by three signalized at-grade intersections. This would be altered in construction to present a corridor of grade-separated intersections with bridges crossing over TH 36 at Washington Avenue, Greeley Avenue

Figure 7-44 – View from St. Croix River – Alternative D 3-350’ Steel Thru Trusses Bridge Type (8.5x11 – b/w)

**Figure 7-45 – View from St. Croix River – Alternative D 500' Steel Bow String with 5-250'
Flush Haunched Concrete Box Girders Bridge Type (8.5x11 – b/w)**

Figure 7-46 – View from St. Croix River – Alternative D 7-250' Concrete Arches Bridge Type (8.5x11 – b/w)

Figure 7-47 – View from St. Croix River – Alternative D 500' Concrete Thru Arch with 5-250' Concrete Deck Arches Bridge Type (8.5x11 – b/w)

(CSAH 66), Osgood Avenue CR 24 and Beach Road. The visual impact would occur with the addition of bridges and highway related structures including pavement, median barriers, retaining walls, fencing, railings and corridor lighting. Visual effects created by conflicts with views of commercial and man-made elements adjacent to the corridor could be minimized by choice of construction material and designing visually complementary highway elements. This includes highway barrier, fencing, retaining walls and lighting design. Corridor plantings could further minimize adverse visual effects. The view along TH 36 as one passes under Osgood Avenue would be “framed” by the Osgood Bridge, the river valley view revealing itself.

Visual impacts would primarily occur in the immediate area of the Alternative D bridge crossing and the two interchange areas. The infrastructure and highway design elements associated with the bridge crossing would adversely affect the visual quality of the approach into downtown Stillwater. Tourists may be affected by the amount of highway-related infrastructure as they approach an historic setting and would be most responsive to highway elements that respond to an historic setting.

Visual effects created by conflicts with views from the bridge to river corridor could be considered in selection of bridge “type” and design of bridge elements. The “steel thru trusses” bridge type introduces bridge elements (diagonal truss members) that interrupt views from the bridge while passing under the three thru-trusses. The “steel bow string truss with haunched girders” and “concrete thru arch with concrete arches” bridge types interrupt views from the bridge within the 500-foot main spans, the approach spans not interrupting the views above the bridge’s railing/barrier. The “concrete arches” bridge type is the least disruptive of views from the bridge of the bridge types considered for Alternative D as no structural members interrupt views above the bridge’s railing/barrier for the length of the bridge.

The construction of interchange areas in Minnesota and Wisconsin would alter the existing visual scene. In Minnesota, the TH 95 and TH 36 interchange would require substantial grading (earth-movement) and alteration of the existing alignment. Lanes of pavement would be added, some vegetation would be removed, and the roadway would require retaining walls that may be viewed as obtrusive to the existing scene. These structural elements are extensive in scale and would dominate the visual scene as travelers approached downtown Stillwater.

In Wisconsin, the proposed interchange areas have the potential for diminished visual quality. The existing visual scene would be altered from one that contains some urban characteristics to one of increased road infrastructure. The highway interchange within Wisconsin would add substantially to the existing roadway pavement and to the presence of road facilities within the area. Also, the lack of existing vegetation to buffer visual sight lines would increase the potential for adverse visual impacts. Existing views would be altered by the construction of Alternative D and would result in a diminished visual quality. Views entering Wisconsin would consist largely of retaining walls and pavement, resulting in a substantial change from the existing vegetated corridor.

7.5.3 Step 5: Summary of Potential Visual Impacts (Alternative D)

Potential impacts on the visual quality of the St. Croix River and the river valley could result from the construction of Alternative D that would disturb the natural harmony, cultural order, or design quality of the existing scene. In general, impacts would be related to the scale and extent of the Alternative D Bridge and approach roadways and to the personal preference of the viewer.

Impacts on natural harmony would mostly result from the removal of vegetation and the disruption of views up and down the river corridor. (Revegetation and landscaping guidelines would be developed prior to construction. A landscape plan would be developed from these guidelines and implemented as part of the project.) Recreationalists and river users would be most affected, particularly as one approaches the river bridge. The multi-level interchange at the Stillwater end of the river bridge would be highly visible from the river. The enclosed, triangular river space formed by the configuration of the Alternative D Bridge with the Lift Bridge impacts views from the river. Residents of the area would be aware of a visual impact on natural harmony to the extent they perceive the bridge as replacing natural elements of the Riverway or competing with natural elements of the river valley. Planned riverfront park property of the City of Stillwater is impacted by the construction of high retaining walls, bridge piers and overhead ramp structures. Residents would sense an adverse visual impact if they perceive that the bridge becomes a dominant element of the river corridor. The Alternative D Bridge and Stillwater Interchange, owing to their proximity to downtown Stillwater and the Lift Bridge, visual complexity, and physical impact to planned riverfront park property, would dominate the riverfront and river immediately south of the Lift Bridge.

Impacts on cultural order generally would relate to the individual's personal preference for how the design of the bridge fits with the existing quality of the scene. The Alternative D Bridge and Stillwater interchange dramatically alters the appearance of the riverfront and river near the Lift Bridge. Individuals who strongly value the historic character of the Stillwater area might perceive an adverse visual impact, whereas those individuals who perceive the bridge as enhancing or creating a new cultural order might perceive a beneficial visual impact.

Design impacts also relate to individual preference. Individuals most likely to be affected by changes to the design quality of the corridor are travelers. Impacts would be judged to the extent that the function of the roadway either enhances or detracts from the visual quality of the scene. In this regard, the degree of congestion, the availability of visual landmarks, and the experience of the corridor would be the most important factors in determining visual effects. The Alternative D Bridge and Stillwater interchange modifies the visual experience of travelers on TH 95, the river bridge approach, and views to the Lift Bridge and downtown Stillwater.

7.5.4 Step 6: Mitigation of Visual Impacts (Alternative D)

The Alternative D alignment and bridge design reflect intentional efforts to avoid or minimize visual effects to the project area, particularly in regard to the Lower St. Croix National Scenic Riverway.

7.5.4.1 Minimization of Visual Impacts Through the Designs of the Alternative D Bridge

The designs of the Alternative D bridge types were selected to provide a complementary fit with the surrounding landscape and visual setting of the Stillwater area. Specifically, the bridge designs attempt to complement the character of downtown Stillwater and the natural features of the St. Croix River valley. Specific elements addressing these issues were described in the introduction to Section 7.5.

7.5.4.2 Proposed Mitigation For Visual Impacts (Alternative D)

Beyond the specific mitigation discussed in Section 7.5.4.1, potential mitigation items applicable to all Build Alternatives are described in Chapter 14. Upon identification of a Preferred Alternative, a mitigation package, appropriate to the level of impacts, will be identified by the lead agencies from the list of mitigation items as well as additional mitigation items identified by agencies or the public during the SDEIS comment period. Additional potential impacts associated with the mitigation package items for the Preferred Alternative will be presented in the Supplemental Final EIS.

7.6 ALTERNATIVE E

The following section describes the visual impacts on each of the view sheds and visual corridors that would result from construction of Alternative E.

Alternative E incorporates a number of design elements to minimize the visual impacts of the project. These improvements include:

- An alignment of the new crossing near existing downtown Stillwater structures, including the Lift Bridge, thus concentrating bridge structures in a more developed section of the St. Croix River;
- Minimizing the number of piers and the apparent mass of the structural components of the new crossing for each bridge type considered, decreasing visual impacts on the Lower St. Croix National Scenic Riverway; and
- Incorporation of traditional-style bridge designs for the three bridge types considered for Alternative E, increasing compatibility with downtown Stillwater and the Lift Bridge.

Bridge Aesthetics for Alternative E

The river bridge types considered for Alternative E are widely varied in terms of appearance of structural form, bridge elements and details relating to aesthetic characteristics. Aesthetic characteristics of the bridge are those that are perceived by both the viewers and users of the bridge. They may generate a positive, neutral or negative “subjective” response on the part of viewers or users. While the determination of appropriate aesthetics for the Alternative E river bridge is highly subjective as it relates to the perception of viewers and users, the bridge types can be compared objectively with regard to their structural elements and potential visual impacts.

“Steel Thru Trusses” Bridge Type (Figure 7-48) – A series of four 350-foot steel thru-trusses are located above the deck of this bridge type. Thus the structural elements of the trusses are highly visible to viewers and users on the bridge. Viewed from off the bridge, the trusses would present a visually “active” silhouette form when viewed against the sky, bluffs or downtown Stillwater structures. Although the steel thru trusses correspond in bridge type to the nearby Lift Bridge, the diagonal truss members would be considerably heavier in appearance than the Lift Bridge trusses. This would present a heavier silhouette and structural look to viewers and users both off and on the bridge. Viewers on the bridge also see details of the trusses at close range. The trusses present a continuous structure overhead, and interrupt views along the sides of the bridge for most of the crossing. Thus, the scale, proportion, materials and coloration of the bridge trusses become important characteristics in viewers’ visual perception of the bridge. Steel truss spans, however, are usually painted in medium to dark colors to visually minimize their scale. Additionally, dark colored steel spans are frequently favored to “fit” into both natural and man-made surroundings. Bridge railings and barriers, while visible to bridge users, are secondary to the highly visible bridge trusses. The bridge piers, concrete in material, present a wide variety of design opportunities for appearance. The viewer’s perception of the piers for the “steel thru trusses” bridge type will be based on an appropriate visual balance with the heavy trusses. Also, the piers will be seen at close range, both from land and water, making pier details and pier surface treatment important visual elements.

“Bowstring Trusses” Bridge Type (Figure 7-49) – This bridge type features four 350-foot long bowstring trusses located above the deck of the bridge. These structural trusses are highly visible to viewers and users on the bridge. The trusses, as viewed from off the bridge, would present a visually “active” silhouette form when viewed against the sky, bluffs or downtown Stillwater structures. Viewers on the bridge see the details of the trusses at close range. The trusses form a nearly continuous overhead structure and interrupt views along the sides of the bridge for most of the crossing. Thus, the scale, proportion, materials and coloration of the bridge trusses become important characteristics in viewers’ visual perception of the bridge. Steel bowstring truss spans are usually painted in medium to dark colors to visually minimize their scale. Dark colored steel spans are frequently favored to “fit” into both natural and man-made surroundings by minimizing color contrast. Bridge railings and barriers, while visible to bridge users, are secondary to the highly visible bowstring trusses. The bridge piers, concrete in material, present a wide variety of design opportunities for appearance. The viewer’s perception of the piers for the “bowstring trusses” bridge type will be based on an appropriate visual balance with the heavy trusses. Piers will be seen at close range, both from land and water, making pier details and pier surface treatment important visual elements.

“Thru Arch with Haunched Girders” Bridge Type (Figure 7-50) – A series of four 250-foot haunched (slightly arched) concrete girders, and a single 500-foot “main span” bow string truss, spans the river with this bridge type. The bow string truss is a “thru arch” (located above the bridge deck) so that bridge users travel through this truss. The main span bow string truss is a highly visible element of the bridge for users and viewers. Viewed from off the bridge, the steel bow string truss presents a dramatic arched silhouette form when viewed against the sky, bluffs or downtown Stillwater structures. Viewers on the bridge would see details of the steel bow string truss at close range. The bow string truss presents an overhead structure and slightly

Figure 7-48 – Alternative E – 4-350' Steel Thru Trusses Bridge Type (8.5x11 – b/w)

Figure 7-49 – Alternative E – 4-350' Bow String Trusses Bridge Type (8.5x11 – b/w)

Figure 7-50 – Alternative E – 500’ Main Span Thru Arch with 4-250’ Flush Haunched Concrete Box Girders Bridge Type (8.5x11 – b/w)

interrupts the view from the sides of the bridge for 500 feet of the 1,750-foot river crossing. The remainder of the crossing has no structural elements above the bridge deck. Viewers and users on the bridge would see barriers, railings and light poles, these elements being visually important in their detail design, surface treatments and coloration. The bow string truss is of steel which would contrast in coloration to the haunched concrete girders. Thus, the lighter colored concrete girders would present a stronger color contrast against the river bluffs than the steel span. The change in materials, form, and structure of the spans for this bridge type would visually emphasize the bow string truss. The scale, proportion, treatment of the steel and coloration of the bow string truss become important characteristics in viewers' perception of the bridge. The concrete bridge piers for the concrete haunched girders would appear integral to the structure.

The visual transition and balance of the steel bow string truss and concrete piers will be important to viewers' of the bridge.

7.6.1 Critical Viewsheds (Alternative E)

7.6.1.1 Viewshed 1: Historic Downtown Stillwater (Alternative E)

The Alternative E Bridge would be visible from many parts of downtown Stillwater. Lowell Park, which sits along the western bank of the St. Croix River in the downtown area, provides a viewing point to the St. Croix River for tourists, business neighbors and patrons of downtown businesses. Figure 7-14 depicts the current view of the St. Croix River looking to the south from Lowell Park. Figure 7-51 illustrates the effects to this view resulting from the Alternative E "steel thru trusses" bridge type. Figure 7-52 illustrates the "bowstring trusses" bridge type. Figure 7-53 illustrates the "thru arch with haunched girders" bridge type.

The Alternative E Bridge would interrupt the view from Lowell Park and other downtown points by adding a large physical element to the river corridor. The impacts could be perceived as adverse by tourists, residential neighbors, business neighbors and patrons of downtown businesses due to the scale and dominating presence of the bridge. An enclosed space, limiting views, would be created with the Lift Bridge on one side and the new bridge on the other. The "bowstring trusses" bridge type is the most visually dominant of the bridge types considered due to the height and number of trusses that obstruct the view of the Wisconsin bluff line. The "steel thru trusses" bridge type also obstructs the same view, although the trusses are somewhat lower. The "thru arch with haunched girders" bridge type is the least obtrusive with just a single thru arch located above the deck of the bridge. The three bridge types introduce the same number of piers, approximately six or seven, into the river and view. The access and exit ramps on the Stillwater end of the bridge contribute additional river and land piers to the view, increasing the visual complexity of the overall structure.

All three of the bridge types considered for Alternative E contain materials and design elements found in historic structures throughout the downtown area. These include the use of steel and concrete materials as well as arches and traditional truss forms.

Figure 7-51 – View from Lowell Park – Alternative E 4-350’ Steel Thru Trusses Bridge Type (8.5x11 – b/w)

Figure 7-52 – View from Lowell Park – 4-350’ Bow String Trusses Bridge Type (8.5x11 – b/w)

Figure 7-53 – View from Lowell Park – Alternative E Flush Haunched Concrete Girders (4@250') with “Main Span” 500' Bow String Truss Bridge Type (8.5x11 – b/w)

7.6.1.2 Viewshed 2: The Minnesota Bluff and TH 95/TH 36 (Alternative E)

Visual impacts on the Minnesota bluff resulting from the construction of the Alternative E Bridge would vary according to viewer group and individual preferences within viewer groups (see Figure 7-54).

From the perspective of residential neighbors, negative visual impacts would result from the increased lanes of pavement and bridge structure, a decrease in vegetation, and the closer proximity of the roadway to the river.

Negative visual impacts may be experienced by recreational neighbors and river users. The eastbound bridge exiting from TH 95 would increase the visibility of the bridge approach, structures, walls, piers and bridge access ramps, although not as pronounced as Alternative D.

Due to the expansion of the Minnesota approach to four lanes, fill into the Stillwater Municipal Barge Facility property would require retaining walls anticipated as high as 45 feet. Although terracing of the retaining walls may reduce the visual impact, additional Stillwater Municipal Barge Facility property would then be required.

Visual impacts on travelers would also vary. Adverse visual impacts would result from increased pavement and reduced views from TH 95 to the surrounding landscape in the vicinity of the bridge. The travelers' experience of entering downtown Stillwater would be altered as individuals pass under the bridge structure as well as viewing the bridge access and exit ramps.

Disruption to the Minnesota bluff along the west side of TH 36 would be minimal. Reclamation of some land currently paved as TH 36 (approximately 3.5 acres) would allow opportunities for revegetation, providing a better visual background for river recreational users. Revegetation of the reclaimed area may also enhance the natural harmony of the bluff area by concentrating vegetation along the most visible elements of the bluff from the Riverway

In summary, the Minnesota interchange area has the potential for detrimental and beneficial visual impacts on the Minnesota bluff area. Additional lanes of pavement would be added, and a loss of vegetation would result in reduced visual quality to residential neighbors and other individuals with preference for trees and vegetative buffering. Also, areas within the proposed interchange are planned as sedimentation ponds, which would limit the extent of revegetation. The revegetation of the reclaimed area may result in a positive visual impact on recreational users.

7.6.1.3 Viewshed 3: The Wisconsin Bluff (Alternative E)

Visual impacts on the Wisconsin bluff resulting from the Alternative E bridge are demonstrated in Figure 7-55. The visual impacts and scale of the impacts would be extensive. As a result of expansion of the Wisconsin approach, additional excavation of the bluff and retaining walls up to 45 feet in height would be required and the Kolliner Park property would be impacted. The existing roadway width would approximately double, adding paved surface to the bluff.

Figure 7-54 – Minnesota Bluff Cross Section – Alternative E (11x17 – b/w)

BACK

Figure 7-55 – Wisconsin Bluff Cross Section – Alternative E (11x17 – b/w)

BACK

These impacts would affect all viewer groups (business neighbors, residential neighbors, tourists, commuters, and recreational neighbors) that could see the Wisconsin bluff. Recreationalists adjacent to the bluff and riverbank users in the vicinity of the bridge would be affected. The removal of vegetation would reduce the natural harmony of the Wisconsin bluff and riverfront. Tourists crossing from Minnesota into Wisconsin would also be visually affected and sensitive to the disruption of natural harmony. Commuters would most likely be neutral to the loss of vegetation. Business owners could be adversely affected to the extent that the bluff clearing and bridge are visible from their establishment. Mitigation of the adverse impacts would rely on the degree of revegetation needed and the extent that clearing could be avoided during construction.

7.6.1.4 Viewshed 4: Stillwater Municipal Barge Facility Property – Proposed Park (Alternative E)

Visual impacts on the proposed park on the Stillwater Municipal Barge Facility property would be extensive. Fill into the Stillwater Municipal Barge Facility property would require retaining walls anticipated as high as 60 feet. Terracing of retaining walls may reduce the visual impact, but would require additional Stillwater Municipal Barge Facility property. Views to the river would be obstructed or compromised by the presence of the bridge within Stillwater Municipal Barge Facility property. The bridge would reduce the park user's sense of natural harmony, a result of the dominating scale of the bridge. In some instances, the bridge infrastructure would be directly overhead. The bridge location would also restrict vehicular access into the park from the north, limiting access to the south end of the property. The bridge would be the dominant element to viewers looking north in the park along the St. Croix River.

7.6.1.5 Viewshed 5: St. Croix Overlook (Alternative E)

Visual impacts on the St. Croix Overlook would depend greatly on the maintenance strategy pursued for the area. Currently, minimal views of the river are afforded by the overlook as a result of overgrown vegetation. Under current conditions, the bridge would most likely not be visible from the overlook. In addition to the overgrown vegetation of the overlook, the primary existing views are of the Xcel King Power Plant and the Sunnyside Marina and Condominiums. These two elements, combined with the overgrown vegetation, minimize the potential for the overlook to afford a visual experience dominated by natural harmony. If a vegetative clearing program were pursued, the bridge would become visible and visual impacts would occur. (However, vegetative clearing would also provide additional views to the river.) The impacts may be beneficial or adverse, depending upon the individual viewer. The view of the Lift Bridge would be altered or compromised due to the close proximity of the new Alternative E bridge. Some viewers may feel the new bridge is appropriate and provides an additional element to the cultural order of the existing scene. If the bridge were seen as an adverse impact, selective cutting of vegetation (leaving vegetation to the north) would minimize the adverse impacts without dramatically restricting the perceived scenic qualities of the overlook.

7.6.2 Visual Corridors (Alternative E)

7.6.2.1 Visual Corridor 1: Views Traveling along the St. Croix River (Alternative E)

There are many different visual experiences as one travels the St. Croix River. Three perspective sketches of the river corridor are illustrated in Figures 7-56, 7-57, and 7-58 in an attempt to compare visual impacts of each bridge type considered for the Alternative E bridge. The degree of visual impact would be closely tied to the distance one is from the bridge. Individuals near the bridge would be more adversely affected than individuals a considerable distance away from the bridge. Visual impacts from the perspective of a recreationalist in the northern segment of the river (Figure 7-9) would be influenced by the approaching historic elements of downtown Stillwater. The bend in the St. Croix River allows Stillwater to become visible before the Alternative E bridge comes into view. As a result of the existing transition from natural to urban as one moves from north to south, visual impacts would be minimized. Also, due to the close proximity of the Alternative E bridge to the Lift Bridge, the Lift Bridge is viewed first and the Alternative E bridge becomes a backdrop to the Lift Bridge, seen above the Lift Bridge. The full view of the Alternative E bridge would be seen looking south within the river triangle formed by the existing Lift Bridge alignment and the Alternative E alignment. The “steel thru trusses” and the “bowstring trusses” bridge types would present the most continuous dominant visual forms against the sky. The “thru arch with haunched girders” bridge type would present a somewhat less dominant image due to the single thru truss that rises above the bridge deck. However, views to any of the three considered bridge types from the river triangle will present the bridge deck as an immediate and dominant element within the view. Also, all three bridge types introduce approximately six or seven piers into the river, presenting a more visually obstructed river corridor to the viewer. Additionally, the access ramp contributes both river and land piers to the scene. A similar experience exists in the southern segment of the river (Figure 7-9).

Again, the scenery gradually changes from a natural setting to an urban setting as the Xcel King Power Plant and associated power lines become visible. However, the view of the Lift Bridge is somewhat obscured by the Alternative E bridge as one approaches from the south. This is due to the close proximity of the Alternative E bridge to the Lift Bridge. The visual effect associated with the urban elements of the river is increased by the presence of Sunnyside Marina and Condominiums, the wastewater treatment plant, single-family residential homes on both the Wisconsin and Minnesota bluffs, and a variety of other constructed elements. However, it is the overlaying profiles of the closely spaced Alternative E bridge and Lift Bridge that may most adversely affect the existing visual quality associated with recreationalists on this section of the St. Croix River.

As one approaches the new bridge, the scale of the impact increases and becomes more intrusive. The bridge restricts views to distant scenery, natural or man-made, and the bridge becomes the dominant element of the scene. Some viewers may consider the Alternative E bridge as a visual obstruction of the Lift Bridge. The views of the vegetated shoreline, both the Wisconsin and Minnesota sides, are important from the river. Depending upon the amount of vegetation that is cleared or replaced, the natural harmony may be preserved, minimizing the visual effects of the bridge.

**Figure 7-56 – View from St. Croix River – Alternative E 4-350’ Steel Thru Trusses Bridge
Type (8.5x11 – b/w)**

**Figure 7-57 – View from St. Croix River – Alternative E 4-350’ Steel Bow String Trusses
Bridge Type (8.5x11 – b/w)**

Figure 7-58 – View from St. Croix River – Alternative E 500' Steel Bowstring Truss with 4-250' Flush Haunched Concrete Box Girders Bridge Type (8.5x11 – b/w)

7.6.2.2 Visual Corridor 2: Views Traveling along the Project Corridor (Alternative E)

The visual experience of the project corridor would vary from the existing situation, and visual impacts would depend upon the viewer's individual perception and the choice of construction materials. Traveling east along TH 36 from County Road 5 to Beach Road, the current visual experience is one of an urban commercial/industrial corridor broken by three signalized at-grade intersections. This would be altered in construction to present a corridor of grade-separated intersections with bridges crossing over TH 36 at Washington Avenue, Greeley Avenue (CSAH 66), Osgood Avenue (CR 24) and Beach Road. The visual impact would occur with the addition of bridges and highway related structures including pavement, median barriers, retaining walls, fencing, railings and corridor lighting. Visual effects created by conflicts with views of commercial and man-made elements adjacent to the corridor could be minimized by choice of construction material and designing visually complementary highway elements. This includes highway barrier, fencing, retaining walls, railings and lighting design. Corridor plantings could further minimize adverse visual effects. The view along TH 36 as one passes under Osgood Avenue would be "framed" by the Osgood Bridge, the river valley view revealing itself.

Visual impacts would primarily occur in the immediate area of the Alternative E bridge crossing and the two interchange areas. The infrastructure and highway design elements associated with the bridge crossing could adversely affect the visual quality of the approach into downtown Stillwater. Tourists may be affected by the amount of highway-related infrastructure as they approach an historic setting and would be most responsive to highway elements that respond to an historic setting. Also, because Alternative E eastbound and westbound traffic are on different alignments (the westbound traffic crossing the existing Lift Bridge and moving south through downtown), the existing visual experience of entering and moving through downtown Stillwater is altered. Construction of the west approach to the new bridge would cause a loss of some vegetation on the bluff and grades would increase nearing the new bridge. The Lift Bridge would carry two lanes of westbound traffic and no eastbound lanes, altering the visual experience for travelers on the bridge. A more congested physical and visual experience for pedestrians in downtown Stillwater would result with three lanes of traffic (one lane northbound and two lanes southbound). The existing streetscape character of downtown Stillwater would also be impacted.

Visual effects created by conflicts with views from the bridge to river corridor could be considered in selection of bridge "type" and design of bridge elements. Both the "steel thru trusses" and "bowstring trusses" bridge types introduce bridge elements that nearly continuously interrupt views from the bridge, shoreline to shoreline. The "thru arch with haunched girders" bridge type only interrupts views from the bridge within the 500-foot thru arch main span, the haunched girder spans not interrupting the views above the bridge's railing/barrier.

The construction of interchange areas in Minnesota and Wisconsin would alter the existing visual scene. In Minnesota, the TH 95 and TH 36 interchange would require substantial grading (earth-movement) and alteration of the existing alignment. Lanes of pavement would be added,

some vegetation would be removed, and the roadway would require retaining walls that may be viewed as obtrusive to the existing scene. These structural elements are extensive in scale and would dominate the visual scene as travelers approached downtown Stillwater.

In Wisconsin, the proposed interchange areas have the potential for diminished visual quality. The existing visual scene would be altered from one that contains some urban characteristics to one of increased road infrastructure. The highway interchange within Wisconsin would add substantially to the existing roadway pavement and to the presence of road facilities within the area. Also, the lack of existing vegetation to buffer visual sight lines would increase the potential for adverse visual impacts. Existing views would be altered by the construction of Alternative E and would result in a diminished visual quality due to views of retaining walls and pavement.

7.6.3 Step 5: Summary of Potential Visual Impacts (Alternative E)

Potential impacts on the visual quality of the St. Croix River and the river valley could result from the construction of Alternative E that would disturb the natural harmony, cultural order, or design quality of the existing scene. In general, impacts would be related to the scale and extent of the Alternative E Bridge and approach roadways and to the personal preference of the viewer.

Impacts on natural harmony would mostly result from the removal of vegetation and the disruption of views up and down the river corridor. (Revegetation and landscaping guidelines would be developed prior to construction. A landscape plan would be developed from these guidelines and implemented as part of the project.) Recreationalists and river users would be most affected, particularly as one approaches the river bridge. The multi-level interchange at the Stillwater end of the river bridge would be highly visible from the river. The enclosed, triangular river space formed by the configuration of the Alternative E Bridge with the Lift Bridge impacts views from the river. Residents of the area would be aware of a visual impact on natural harmony to the extent they perceive the bridge as replacing natural elements of the Riverway or competing with natural elements of the river valley. Planned riverfront park property of the City of Stillwater is impacted by the construction of high retaining walls, bridge piers and overhead ramp structures. Residents would sense an adverse visual impact if they perceive that the bridge becomes a dominant element of the river corridor. The Alternative E Bridge and Stillwater Interchange, owing to their proximity to downtown Stillwater and the Lift Bridge, visual complexity, and physical impact to planned riverfront park property, would dominate the riverfront and river immediately south of the Lift Bridge.

Impacts on cultural order generally would relate to the individual's personal preference for how the design of the bridge fits with the existing quality of the scene. The Alternative E Bridge and Stillwater interchange dramatically alters the appearance of the riverfront and river near the Lift Bridge. Individuals who strongly value the historic character of the Stillwater area might perceive an adverse visual impact, whereas those individuals who perceive the bridge as enhancing or creating a new cultural order might perceive a beneficial visual impact.

Design impacts also relate to individual preference. Individuals most likely to be affected by changes to the design quality of the corridor are travelers. Impacts would be judged to the extent

that the function of the roadway either enhances or detracts from the visual quality of the scene. In this regard, the degree of congestion, the availability of visual landmarks, and the experience of the corridor would be the most important factors in determining visual effects. The Alternative E Bridge and Stillwater interchange modifies the visual experience of travelers on TH 95, the river bridge approach, and views to the Lift Bridge and downtown Stillwater.

7.6.4 Step 6: Mitigation of Visual Impacts (Alternative E)

The Alternative E alignment and bridge design reflect intentional efforts to avoid or minimize visual effects to the project area, particularly in regard to the Lower St. Croix National Scenic Riverway.

7.6.4.1 Minimization of Visual Impacts Through the Designs of the Alternative E Bridge

The designs of the Alternative E bridge types were selected to provide a complementary fit with the surrounding landscape and visual setting of the Stillwater area. Specifically, the bridge designs attempt to complement the character of downtown Stillwater and the natural features of the St. Croix River valley. Specific elements addressing these issues were described in the introduction to Section 7.6.

7.6.4.2 Proposed Mitigation For Visual Impacts (Alternative E)

Beyond the specific mitigation discussed in Section 7.6.4.1, potential mitigation items applicable to all Build Alternatives are described in Chapter 14. Upon identification of a Preferred Alternative, a mitigation package, appropriate to the level of impacts, will be identified by the lead agencies from the list of mitigation items as well as additional mitigation items identified by agencies or the public during the SDEIS comment period. Additional potential impacts associated with the mitigation package items for the Preferred Alternative will be presented in the Supplemental Final EIS.