



Larimer County Analysis – Technical Memorandum No. 9 Traffic Impact Study

Prepared for:
Larimer County

Prepared by:
**Northern Integrated Supply Project
Water Activity Enterprise**

February 2020

MEMORANDUM

Northern Integrated Supply Project
Glade Reservoir
Traffic Impact Study

B&V Project Number 403758
B&V File 188754/34.3000
February 14, 2020

To: Larimer County Planning Department
From: Tim Engemoen and Mike Johnson, Black & Veatch

Introduction

This technical memorandum is written in support of Larimer County Planning Department's 1041 Permit for the Glade Unit construction, and documents short- and long-term impacts of vehicular traffic associated with this new development. In addition to this memorandum, please reference the Technical Memorandum describing the traffic impacts for the proposed NISP delivery pipelines.

Project Background

The Northern Integrated Supply Project (NISP) will provide a new raw water supply to several municipal water providers in Northern Colorado. NISP includes the following facilities located in Larimer County: the Glade Unit; the Glade Pump Station; raw water distribution piping; and the relocation of U.S. Highway 287. The Glade Unit features the Glade Reservoir Dam, which is an earthen embankment that will impound an off-channel reservoir complete with the hydraulic structures required by the State Engineer's Office: the High Level Outlet Works (HLOW); Low Level Outlet Works (LLOW); and spillway. Glade Reservoir Dam is located just to the north of the junction of U.S Highway 287 and State Highway 14, about 10 miles northwest of Fort Collins. The Glade Unit includes an expansion of the existing Poudre Valley Canal (PVC) and a new forebay constructed downstream of the dam at an elevation that will allow delivery of water from the PVC by gravity. A Control Gate structure will be constructed to control flow to the existing portion of the PVC downstream of the forebay. The existing PVC Diversion Structure will be demolished and rebuilt to allow increased diversion of flow from the Poudre River. A portion of the existing Munroe Gravity Canal alignment will be inundated by Glade Reservoir, this open canal will be replaced by the Munroe Canal Bypass (MCB), a conduit and several control structures that will convey flow beneath the reservoir. The Glade Unit also includes: the Glade Pump Station, which will pump water from the forebay into Glade Reservoir; the Electrical/Control building that will distribute power throughout the site and provide control of the various hydraulic features; the Surge Building that will house surge tanks to protect the pump station discharge conduit; and numerous buried conduits with control valve vaults that connect these facilities. Raw water will be conveyed off site via several buried conduits that are discussed in separate reports. The Glade Unit will include recreational amenities for the general public, including a Visitor Center, campgrounds, a boat ramp, trails and restroom facilities.

Glade Reservoir will submerge a portion of the existing U.S. Highway 287 alignment which will be relocated to the east of the reservoir. An existing power transmission line and several power distribution lines will be inundated by the reservoir which will be relocated as part of the Glade Unit construction. A general location map of the Glade Unit facilities is presented on Figure 1.

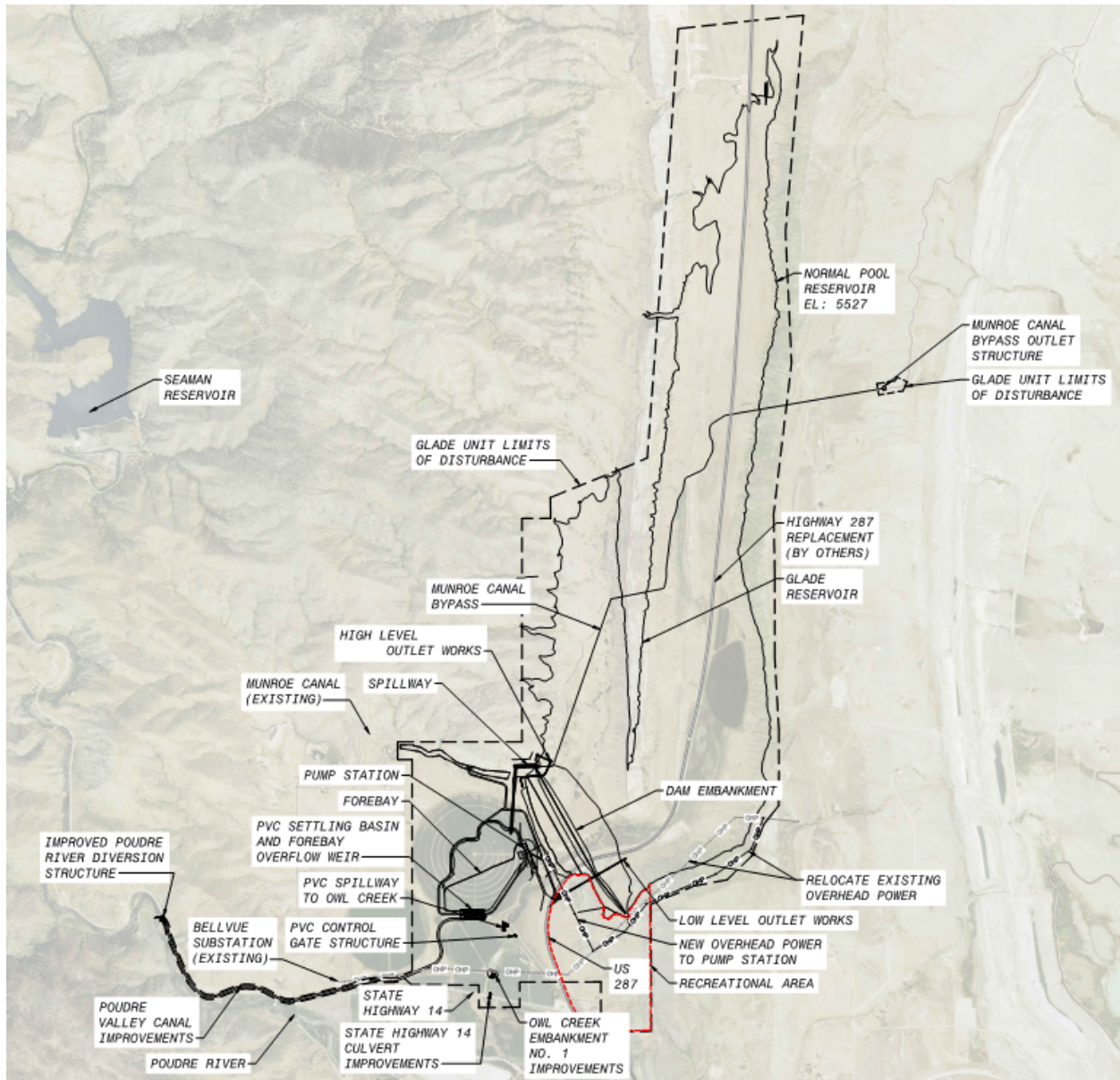


Figure 1 - Glade Unit Overview

Traffic Impacts During Construction

The Final Environmental Impact Statement (FEIS) for the Northern Integrated Supply Project, dated July 2018, includes a detailed discussion concerning the traffic impacts during the construction of this project

in Section 4.13.3. Due to the length of the document, it has not been included in the appendix of the report but should be referenced for further details.

To summarize the findings in the FEIS, most of the construction-related traffic would be associated with workers accessing the construction site. It was estimated there would be an average of 786 trips per day throughout construction for the workers and deliveries. There will be an estimated peak of 1,572 trips during the summer and a low of 393 trips during the winter. It was noted that the volume of predicted daily construction traffic would have a major impact on State Highway 14, increasing daily volumes by 50% on an average day and 100% on a peak summer day.

A portion of the construction related traffic will be related to hauling aggregate material to the site. The exact quantities of imported material are not currently known as it will be dependent on the results of additional geotechnical investigations. The desire will be to produce as much of the material on site as possible, but if insufficient high-quality material is found onsite, imported material will be required. Any imported material will be hauled to the site using regional highways without the need to route traffic on, or cause impacts to, county roads.

Construction of the Glade Unit will also inundate a 7-mile segment of the existing U.S. Highway 287 between Ted's Place and Larimer County Road (LCR) 68. Larimer County doesn't include highway relocations in their 1041 regulations, so additional information on this relocation is not included in this memo and instead will be evaluated per Larimer County requirements in a separate land application process.

In addition to the increased traffic volume caused by construction activities, there will also be some temporary impacts to local roadways caused by construction activities. These impacts would be mitigated as described in the FEIS by developing traffic control plans and final roadway designs that minimize impacts on traffic and meet requirements of the agency responsible for the impacted roadway.

Traffic Impacts After Construction

The largest impact to local traffic after construction is complete will be related to recreational activities at the Glade Reservoir site. Like the impacts during construction, the post-construction impacts are discussed in the FEIS document (Section 4.13.3) which should be referenced for additional details that are not included in this memo. To summarize the findings of the FEIS, proposed public recreation at the Glade Reservoir is predicted to be about 379,000 visitor days annually which would increase traffic volume on area roads seasonally. On a weekend in the peak summer season, it is estimated that reservoir use would increase average daily traffic volumes on U.S. Highway 287 from 15,600 to 16,750 representing an increase of 8 percent. Of the additional vehicles, it is estimated that 30 percent would be RVs/campers or vehicles with boat trailers. If the increased recreation traffic was coming from State Highway 14, average daily traffic volumes would increase from 1,500 to 2,150, representing a net increase of 45 percent. It is anticipated that recreation trips would be split between U.S. Highway 287 and State Highway 14 corridors which would reduce the maximum effect to each.

A more detailed evaluation of recreation traffic can be completed in association with the future Recreation Development Plan when traffic generation and associated impacts can be more accurately assessed.

In addition to the recreational traffic, Northern Water staff will need to periodically access all the structures associated with this project for operation and maintenance. Those routine visits will also vary seasonally, with increased visits required when the Pump Station is operated during the spring runoff and reduced visits the remainder of the year. The average number of visits are anticipated to be on the order of several times a week and should not cause any noticeable increase in traffic volume.

Conclusion

The construction of the Glade Unit will cause impacts to traffic during the construction phase and post-construction. Most of the impacts during construction will be increased traffic volume from the construction workers and delivery trucks. These temporary impacts to roadways caused by construction activities will be mitigated by developing traffic control plans and final roadway designs that minimize impacts on traffic and meet local requirements. Most of the post-construction impacts will be due to increased traffic visiting the recreational facilities associated with Glade Reservoir. Chapter 4.13.3 of the FEIS describes these traffic impacts in greater detail.