

603 Snow River West Channel

The existing bridge has 357 separate concrete repairs on the deck driving surface. Of those repairs over half are between 1-2 sq. ft. and of those, over half of them are greater than 2 sq. ft.

We are talking about a significant portion of the deck has repairs dating back 5+ years. With many in close proximity to one another, linked together by other repairs. A variety of materials has been used with varying results. Left long enough I am confident that all will fail, due to the composition of the existing surface. We did not chain drag checking for delamination, but using deck failure as an indicator we are confident delamination is significant.

This bridge also has an obsolete curb and railing system. It has a concrete step curb 6" high with a 16" wide setback to a concrete barrier wall.

The curbing issues has been addressed on many Alaska bridges by moving the railing out towards the driving surface. Which brings with it negative consequences: narrowing the useful area of the bridge. Adding gross weight to the structure by the additional weight of added post and railing. Also the area between the new railing and existing concrete barrier wall fills up with winter use road sand that is nearly impossible to remove. Leaving that build up in place allows moisture and chlorides to not only add load to the structure, but makes a great mixture for corrosion and chloride infiltration for the concrete.

On the top of the concrete barrier wall are obsolete aluminum brackets holding a horizontal 3"x4" aluminum rectangular tube railing. Which on this bridge has been damaged in numerous locations.

From a maintenance standpoint we would like to see the step curb, concrete barrier, and of course the aluminum railing removed and retrofit with new standard steel box tube railing. In doing this the deck drain scuppers could be eliminated, which often cause water to be trapped on bridge surfaces during winter rain and thaws while scuppers are ice filled and frozen. Scuppers often become clogged with winter sand building out from the curbing as well.

Expansion joints also need completely rehabilitated including approach headers on both near and far ends. For maintenance preference new expansions should be fit with gland joint seals with a welded sliding plate. I will also take this opportunity to state, for maintenance purposes, that when building any joint the elevation should be .5" lower than deck wear surface. There may be a little tire thump post construction, but long before the surface will be replaced this will equal out as surface wears. With the surface elevation slightly higher than the joint plate it will be somewhat protected from snow removal equipment.

605 Snow River Center Channel

By the numbers:

There are 1364 concrete repairs on the deck driving surface. The majority of these are greater than 1 sq. ft. in area. Many of the repairs now have repairs.

Not to be redundant, the similar conditions and concerns listed above on #603 are present on this structure as well. But on a somewhat greater scale because of the additional length and complexity of this structure with added spans, each with expansion joint. Seven total, with one at each end. So along with the need to hydro demolish existing deck and replace with suitable long wearing product. All of these joints need rehabilitation as well. Also the same curb and barrier wall system with the same issues.

607 Victor Creek

This structure is unique in its 198' length it has 4 different size and style steel girders. The longest span with the deepest girders has 1"+ sag. The girders and bearings all have surface rust, heavier near the bottom. Some laminar rusting at and near bearings.

The driving surface is 24' wide inside curbs. Curb and railing consist of 9" high x 14" wide concrete curbing and "W" railings fastened to outside of the curb on steel I posts. The curbing is in very used condition with spalling concrete and exposed reinforcement.

The deck is worn with heavy abrasion, there are 30 concrete repairs, 3 open 6" core holes, and exposed reinforcement steel.

There are wooden timbers before the concrete approach headers. Timbers and concrete headers in poor to very poor condition.

Expansion joints have failed and sections of the steel fixtures are missing from being torn out.

I feel that this structure does not fit the highway system that it serves, and believe that no amount of maintenance or rehab will bring it to that standard.

Respectfully submitted

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Central Region Bridge Maintenance