

Wickersham Ranch Road Long Term Improvement Plan

2019 Plan Update

Owner Wickersham Ranch Road Association

Project 2019 Long Term Improvement Plan Update

DTA Project # n/a

Date 5/1/19

The following outlines key long-term maintenance needs for the Wickersham Ranch Road. This is an update to the original Needs Analysis done in 2001 (which was in turn updated in 2010) and which was the basis for the Master Plan that we have been working on since 2002.

This is a planned update that was going to occur in 2020 but has been accelerated in response to the damage that occurred as a result of the February 26 storm.

Background

The project needs for the Wickersham Road represent several categories of work that address both long-term improvement goals, immediate maintenance needs and immediate responses to emergencies such as the February storms this year.

The logical approach to any long-term management plan is to balance regular recurring maintenance with long-term improvement projects in such a way that regular maintenance needs decrease while permanent improvements are accomplished incrementally. This approach allows us to operate on a reasonable budget while addressing both current and long-term needs.

In fact, we have neither the resources nor the inclination to do “everything” in one year. The cost could exceed \$250,000 at a time and would include projects of low priority that can be easily spread over many years. Additionally, much of the work we do is recurring in nature as all portions of the road degrade from regular use and the impacts of weather. No road improvements of any kind (even the Interstate Highway System) are permanent. The only semi-permanent work we do on the ranch road is outsloping / geometry mods and proper culvert installation. These can last many decades with minimal annual maintenance.

For perspective there are no public works departments that do “everything” and then wait for it all to wear out at the same time. Maintenance and upgrades are always spread out evenly so that resources are used on a regular and predictable basis, and so that the maintenance / upgrade needs of various facilities range from “none” to “time to fix.”

This approach has been the basis for the Program for the last 18 years and has resulted in substantial improvements to most of road as well as a very high level of durability during extreme weather. Now when we have extreme weather events, the majority of the road is passable immediately, there are very few spots that remain wet and swampy for more than a few days, and the overall stability of the road surface is dramatically improved from conditions in 1998.

There are still improvements to be done and the original Program is only about 70% complete. Additionally, long-term maintenance needs, such as rock renovation and intermittent grading, will always be present.

But the Wickersham Ranch Road is well along in the process of transformation from an annual maintenance nightmare to a durable rural road that requires less frequent maintenance and allows us to deal with both improvements and emergencies in a far more effective manner.

Program History

1998 As of 1998 the condition of the Wickersham Road was somewhat different than it is today:

- The road included 83 culverts, 60 of which were substandard, either because of size, placement or deterioration. Many consisted of steel well casing and most were undersized (12" where 24" was required). In several cases, there were multiple culverts where a single larger one was required.
- Most road cross grades were reversed, in-sloped and generally graded like a highway rather than a rural road. This generated higher surface damage in winter as well as ditch erosion or ditch failure. Many sections held standing water for days after a storm.
- Few sections of the road had permanent rock (except where it was native to the subgrade) and notable portions of the road were impassable in winter conditions. That is why Snot Hill is named Snot Hill.
- Portions of the road were entrenched, many edges had berms that trapped water and the road was deeply rutted along wheel tracks in many areas.
- There were numerous locations where bank deterioration below the road, coupled with surface water concentration at key points, was generating head cuts that threaten road failure in large storms.
- Most stream crossings had geometry issues that posed a high risk of road failure should the culvert become blocked and the drainage overflow across the road.
- The Tombs Creek Bridge exhibited bank erosion from the stream bed up to the west end of the bridge. It was apparent that this would continue to the point of bridge failure. The bank above the bridge on the west end also generated regular slides that blocked drainage near the bridge.
- Snot Hill was nearly impassable during storms and exhibited numerous grade and drainage conditions that threatened road failure.
- Natural drainages on the east side of Tombs Creek near the bridge had been interrupted by the original construction of the road and were generating a substantial erosion problem just downstream from the bridge.
- About that time a substantial portion of the road was rocked along the last three miles of the road on the ridges (mostly portions of the original Wickersham Ranch Road from mile 8 - mile 12). While this has proven valuable over the long-term it was not part of an overall plan that may have addressed other priorities first.

2001 2001 Goals

In 2000, as a result of two Steering Committee meetings and the circulation of a goals survey to all Owners, the following general goals were established. These goals were intended to inform decisions about road maintenance for the foreseeable future and were embedded in the initial Long-Term Improvement Plan.

- Maintain the road as a rural, rustic road.
- Maintain for access and egress only. The road will not be maintained for safety or comfort.
- Maintain Serviceable Road for entire year.
- Maintain Serviceable Road during inclement weather.
- Comply with State and Local Standards regarding Water Quality. Includes long-term reduction in sediment load produced by the road in compliance with Gualala MDTL Standards (not currently established).
- Ensure that impacts to the road caused by Ag/Commercial Use are mitigated by the Ag/Commercial Users.
- Maintain Road to current capacities. Increase in capacity should reflect usage needs of the majority of the Owners.
- Maintain the road at a reasonable cost by balancing work with available resources.

2001 Long Term Master Plan

In 2001, the Road Association began assembling a Long-Term Management Plan that was intended to balance annual maintenance with the accomplishment of long-term improvements that would, in turn, reduce regular maintenance needs. That plan identified the following needs and resulting strategies:

2001 Needs Outline

- The Ranch Road is approximately 12 miles long. Of that, nearly 8 miles of road required some change to road geometry, primarily out sloping, coupled with berm removal.
- Of the 12 miles there were also about 9 miles that needed permanent rock applications (including the portions rocked on the ridge at about that time).
- There were no rolling dips along the road and approximately 100 have been identified as necessary over the years.
- There were approximately 45 culverts that required full replacement due to various failures. Some were immediate threats; others were less critical.
- There were approximately 15 culverts that needed modifications, mostly related to shotguns and bank failure.
- There were 5 large stream crossings that required large culverts. Two of these had multiple small culverts, one had mismatched culverts and one was failing simply from age.
- Many stream crossings required some geometry changes to the road. These included the need for critical dips, rock armor and slope changes to reduce the effects of culvert failure during high loads.
- Snot Hill required substantial rework to stabilize ditches, culvert outfalls and outslope to prevent water from traveling along the steepest portions.

2001 Long Term Strategy

In response to the needs above, and reflecting the goals of making long-term improvements to the road that would reduce regular maintenance, the following strategy was adopted:

2001 Long Term Strategy

	Strategy	What We Did
Priority 1	Reduce regular maintenance to the bare minimum so that we accumulate funds for larger long-term projects.	<p>We scaled back things like comfort grading, seasonal water bar installation and removal, and other minor maintenance task so that reserves would build up.</p> <p>This meant we had “layover” years where we performed almost no maintenance and saved our money for a larger project the following year. The larger projects could be more comprehensive and would more effectively use dollars by reducing the impacts of mobilization.</p>
Priority 1a	Respond to emergencies in a balanced way... but make sure the road remains open.	<p>A key part of the program included a balanced approach to emergencies.</p> <p>When the slip occurred at 6.9 we chose to watch and see how it stabilized before considering a major repair. In fact, it did stabilize and has not posed a problem since.</p> <p>On the other hand, when the culver at 6.6 failed, it required immediate response. Even there we made minimal repairs to get through winter and then did the major replacement later in summer when stream impacts (and thus costs) would be lower.</p>
Priority 2	Make the road surface more waterproof. This includes outsloping, berm removal, rock where necessary and, later, dips.	<p>We started an aggressive program of road surface changes so that water that used to flow along the road or stand on the road for long periods now flowed off to the sides as soon as possible.</p> <p>The long stretches of mud that used to exist for days or weeks after storms are now virtually gone.</p> <p>Where we used to grade the whole road every year, we now grade selected stretches of the road every 4 – 8 years, depending on particular locations and surface materials.</p>
Priority 3	Get the drainage structures in shape. This meant replacing undersized and poorly configured culverts, adding critical dips to prevent road failures when overflows occurred, and armoring backs, basins and road surfaces at crossing.	<p>After much of the road surface was adjusted for better long-term performance, we shifted to replacing culverts. Some were done immediately as they represented high risks of failure. Other were done in various groups over the years.</p> <p>We have now replaced all of the highest risk culverts and are continuing to work on the lower risk ones.</p>
Priority 4	Rock the Road	<p>Rock application has been done at various times depending on the nature of a road project in a given year. In some cases, roads were just graded</p>

Application of rock to majority of road surface, and to specific areas such as corners and stream crossings.

and rock application was delayed. In some cases, roads were rock while being graded.

Priority 5 Major Projects:

Identify major projects that may absorb several years' worth of resources or may require a Supplemental Assessment.

Major Projects have included:

- Bridge replacement at Tombs Creek
- Culvert replacement at Mile 6.x
- Restructuring the road at the back ranch (Mile 10-11)

Pending Projects include:

- Culvert replacement at Mile 4
- Upper Snot Hill reconfiguration

Of course, the actual projects have been blended in response to the availability of vendors, appropriate tool kits and immediate needs of each season. In some cases, culverts were done before road surfaces were changed because drainage needs were more critical than outcropping. In some cases, grade changes and rock application were combined.

Each year the Road Committee selected the projects exhibiting the highest need for action. This meant in any given year we worked on the worst sections of the road, meaning circumstances that posed the highest risk of failure or the highest risk of generating excessive costs later on if issues were not addressed.

This meant that the following year a different area would become the worst section of the road. In fact, every year there is a section of the road that is the worst section but it can change from year to year as we move through work. If all work imagined were completed, simple wear and tear would eventually generate a new "worst" section of the road.

It also means that in any given year there is a section of the road that looks worse than others. New Owners often point those out and wonder why we haven't done anything. Once they become familiar with the ongoing nature of this task, they recognize that work is being done all the time.

The main goal of the Program is to use our resources to perform substantial projects that do not require repeating for as long as possible. Any time we spend the same money for the same task year after year we are wasting money.

Since 2001 Since 2001 the following general improvements have been made. These are reflective of the initial strategy and have been accomplished while addressing regular maintenance needs, as well as a number of emergency projects.

Refer to the Project Log for detailed list of all projects.

Long Term Improvement Program Completion Outline

Category	Needs	Completed	Notes
Outslope, Berm Removal	8 miles	7 miles	<p>Most of the road drains well, such that it is passable during storms at all locations, relatively dry and hard within 24 hours after rains and there are very few swampy spots left.</p> <p>In 2001 there were areas that would be sloppy all winter long and some that were impassable during and right after rains.</p> <p>Those areas now require grading to correct tire ruts at frequencies ranging from 4 – 8 years.</p>
Initial Rock Application	9 miles	5 miles	<p>The worst sections of the road that required rock have been rocked but several lengths remain. Remaining sections are Mile 0 – 2 and various locations along 2 Mile Hill.</p> <p>The sections that have been rocked require periodic rock renovation, meaning either rework of existing rock or addition of rock, at frequencies ranging from 5 – 15 years.</p> <p>Mid-Snot Hill is due for rock renovation soon as well as the first section we rocked at Lower Snot Hill.</p>
Culvert Replacement	45	26	<p>The worst culverts along the entire road have been replaced. (Of course, that means remaining ones are now the worst.) Of 85 culverts on the road, 51 of them now perform adequately, including 3 of the four large culverts that have been replaced.</p> <p>Most of the remaining ones were scheduled to be replaced over the last three years but problems with vendors and several emergency projects have delayed that.</p> <p>Please note that many of the culverts that clogged in the Feb. storm were new culverts that were clogged with high debris flows and overwhelmed by high water flows. Many overflowed but did not fail. Once cleaned they were fully functional.</p>
Large Culvert Replacement	4	3	<p>Of the five large stream crossings, four required culvert replacements. Two were done as regular maintenance and the large one on Snot Hill was done in response to failure.</p> <p>The remaining one was the one that clogged in the Feb. storm at Mile 4.x.</p>
Culvert Modifications	15	4	<p>This refer to culverts that are set too high and include shot gun outlets or culverts with poorly configured basins.</p>

Category	Needs	Completed	Notes
			We have cut or modified several of these and added downspouts to two of them, but most are not critical. Several will be upgraded to replacement because of the likely increase in larger storm flows.
Bridge Replacement	1	1	Yeah... we all know about the bridge.
Minor Projects			There have been numerous minor projects that addressed slips, bank erosion, ditch cleaning and other minor changes to many sections of the road.
Silva Ranch Timber Plan			The Silva Timber Plan also resulted in improvements to the road on the Silva Ranch. Improvements included outslope and dip installing, rock application, and culvert replacement (included in our total).

2019 Needs Update

Since many of the needs identified in the original program have been addressed, this update will recommend addressing the following needs in order of importance, including repairs necessary as a result of the February storm.

In most cases, these needs are the same as identified in the original program and we are just getting to them now. The primary difference is that we have completed substantial work in redesigning the Wickersham Ranch Road and can now shift resources to completion of originally identified projects as well as new needs that have arisen.

We are also in a good position to properly maintain the road in a “long-term” manner. Rather than go back to grading the road every year, we should focus on renovating long-term projects, including rock renovation, grade repairs at key areas and continued improvement of drainage structures.

The outline below recommends priorities for various types of needs present on the road. These can be used to help determine which projects are considered for immediate implementation.

At current revenue levels based on Regular Dues, likely completion dates are shown as well. These dates can be accelerated with Supplemental Assessments.

2019 Needs Update

	Category	Description	Completion w/ Regular Dues
Priority 1a	2019 Storm Recovery	<p>Make repairs to critical damage resulting from the February storm.</p> <p>Make repairs to prior problems that were exacerbated by Feb storm (head cuts, bank failures, ditch failures).</p>	2020
Priority 1b	2017-2019 Projects Gap	<p>Catch up on key gaps in project completion resulting from vendor performance for 2017 and 2018.</p> <p>This includes Rolling Dip installs, continued culvert replacement, and rock at selected corners.</p>	2021-2022
Priority 2	2020 Winter Prep	<p>Address key risks for next winter based on likely increased storm intensity.</p> <p>This will include items not addressed in Priority 1 such as:</p> <ul style="list-style-type: none"> • Selected culvert replacement where existing is undersized. • Selected basin armor and reconfiguration. • Selected dips and outslope to limit water flow along road / ruts. 	2022
Priority 3	Continue Long-Term Improvements	<ul style="list-style-type: none"> • Complete outsloping, rock application, and dips at remaining sections of road. • Renovate previously completed sections where needed. • Complete culvert replacement. 	2023-2027
Priority 4	Comfort, Appearance Projects	<p>Address non-critical grading and “comfort” projects: aesthetics, tree trimming, etc.</p>	2028

Implementation Strategy

Normally, implementation of projects addressing the above priorities would be worked into the regular annual project list and we would proceed as usual to identify work, coordinate that work with selected vendors and manage actual projects as they occur. At the current revenue levels generated by regular dues, likely completions of the work outlined above would take many years and put us at higher risk of ongoing road failures.

Instead we are recommending an aggressive approach to make repairs and correct several long-term conditions that were escalated this year. There are several key factors present this year that support a more aggressive approach:

Remaining Damage from February Storms While we have addressed the worst problems generated by the February storms, we still have several non-critical problems to address, as well as a number of existing conditions that were made worse by the storms.

Examples include the numerous head cuts that have been present but were (in some cases) enlarged this year.

These are small problems that are costly to fix and thus have been prioritized at a lower level in previous years.

Back Log of Work from (3) Prior Years Because we had either limited or no effective work in the last three years due to performance issues with vendors, we have a number of projects stacked up that still need attention.

There are a number of projects that were planned for the last three years that will substantially improve road performance in extreme weather in addition to the already improved performance we have seen.

Examples include completion of rolling dips and rock application at corners, large culverts and remaining stretches of road where base materials is substandard, and selected culvert replacement.

Resources are Exhausted The need to address immediate storm damage on an emergency basis required the expenditure of reserves from 2018 and most of the income from 2019.

As we had warned, we will need a Supplemental Assessment this year to pay off current invoices for emergency road work. Refer to 2019 Cost Model for details.

This means we have no resources presently to initiate additional projects until 2020.

Based on these factors we are recommending the following strategy:

Near Term Projects

The following are recommended near term projects listed in general order of recommended priority

Project	Location(s)	Notes	Likely Cost/Budget	Recommended Timing
Emergency Repairs	Mile 4.45 Mile 7.0	Emergency road restoration and culvert restoration	\$20,300	Complete
Surface Grading	Selected: Mile 0 – 6 All: Mile 6.0 – 8.0 Selected: Mile 8.0 - 10	Surface grading at worst parts of the Front Ranch and primarily at Snot Hill to repair both the recent and existing surface wear. This need was exacerbated by erosion at the tire ruts in numerous places, ditch overflow related to the Feb storm, erosion resulting from excessive truck usage in the last two years and the end of service life for portions of the rock surface at various locations. <ul style="list-style-type: none">Requires grading and selected berm removal and compaction.Pursued immediately to take advantage of high moisture in grade.	\$13,000	Complete
Critical Head Cuts / Associated Culvert Replacement	Mile 0.2 – 8.0 + Fetalina Curve	Repairs to all existing head cuts including old ones and several new ones. Since we had minor increases in severity to some of these and substantial increases in a few, and since the intensity of winter storms is likely to continue or increase, there is value in getting these out of the way. Many have been stable and have not posed a threat, partly because other changes to the road have directed water away from these. <ul style="list-style-type: none">Requires rock source at front ranch for efficiency/ Requires Supplemental Assessment as 2019 funds are exhausted/ reserved for emergencies	\$23,000	May 2019
Incidental Road Hardening	Various	Incidental tasks at various locations related to drainage durability and water management. <ul style="list-style-type: none">Ditch corrections, cleaningRolling Dip install at worst casesCritical Dip install at worst cases	\$10,000	Fall 2019

Project	Location(s)	Notes	Likely Cost/Budget	Recommended Timing
Front Ranch Road Hardening	Mile 0 – 1.5	<ul style="list-style-type: none"> Rock at key corners and larger stream crossing, including slope adjustments at large culverts. Aggressive correction of ongoing issues at Front Ranch from Front Gate to Mile 1.5. Includes additional berm removal, aggressive outslope at Joe White Curve, aggressive ditch /sediment basin at Quail Corner, rock application and catch basin renovation at selected culverts. May trigger incidental culvert replacement.	\$10,000	Fall 2019

Resource Development Summary

Below is a summary of resources that are reasonably available. Refer to 2019 Near Term Cost Model for details.

This update does not assume that the WRRRA will be eligible for public funding for road improvements related to water quality and watershed health concerns.

This update does assume a goal of maintaining the current Regular Dues rate and acquiring additional resources when needed via Supplemental Assessments.

This update also does not address the likely changes to the Ag/Commercial Assessment to reflect proportion of use. We are assuming that will have minimal impact on overall resources except that, if anything, it may increase resources by marginal amounts and will be offset by likely needs associated with ag/comm operations on the road.

Near Term amounts are projected as follows:

	Notes	Projected Revenue
2019 Regular Dues	Complete collection of 2019 Regular Dues. To be retained for emergencies in 2019	\$ 2,500 remaining
2019 Supplemental Assessment	Immediate Supplemental Assessment for 2019. To be used for Near Term Projects in listed above.	\$ 32,000
2019 Zero Interest Loans	Potential zero interest loans offered by individual owners to accelerate work this year.	\$ 20,000 max
2020 Regular Dues	Collected at regular time: beginning of 2020 To be retained for initiation of regular long-term projects or to repay loans incurred for near-term projects.	\$ 16,000

Long Term Projects / Program Completion

The following are recommended key Long-Term Projects that remain as part of the Long-Term Improvement Plan, as well as emerging Long-Term Maintenance projects that reflect the changing nature of maintenance as the Plan is completed.

We are assuming that as the original program is completed, annual road work will increasingly consist of renovations of prior work and incremental improvements to the road.

Project	Location(s)	Notes	Recommended Timing
Surface Rock Renovation	Snot Hill	<p>Many portions of Snot Hill include rock that is nearing the end of its service life. Some has been in place since 2003 (16 years).</p> <ul style="list-style-type: none"> • Add additional rock where prior rock has thinned, pull waste rock in from edges, include aggressive Critical Dips at culverts and Super Dips on steepest sections. • Pick up various outslopes, berm removals before placing rock. • Selected culvert replacement. 	Fall 2020
Culvert Package	Various	<p>Replace approx. 8 culverts at various locations based on highest needs.</p> <p>Install at proper grade, install critical dips and humps to ensure durability when blocked, and harden road surface.</p>	Fall 2021
Outslope Completion Package	Various	<p>Remaining sections requiring outslope. May include previously addressed sections that require more aggressive changes.</p>	Spring 2021
Rock Completion Package	Various	<p>Final "First Rock" installation at area remaining rock free.</p>	
Large Culvert Replacement	Mile 4.45	<p>The large crossing at 4.45 was compromised in the Feb storm in part because the culvert consists of two pipes that are undersized and easily clogged.</p> <p>The size of the stream requires a substantial culvert at least 72". A small bridge may be worth considering at this location.</p> <p>This location received substantial repair in 2019 and that value should not be wasted. Heavy armor that was applied will still be valuable as part of the replacement or bridge install.</p>	Fall 2022

Project	Location(s)	Notes	Recommended Timing
Back Ranch Reconfiguration	Mile 10 - 11	Correction of deep entrenchment at portions of final stretches of road. Consider relocation to ridge in some place, hard armor at bottom, aggressive water management for long steep slopes.	2022
Culvert Completion Package	Various	<p>Replace approx. 8 culverts at various locations based on highest needs.</p> <p>Install at proper grade, install critical dips and humps to ensure durability when blocked, and harden road surface.</p> <p>Remaining culverts are non-critical and can be addressed as part of regular Long-Term Maintenance over the years.</p>	Fall 2023 - 2024

These, of course, are not all of the remaining projects. There are numerous minor tasks remaining where localized adjustments to the road may make sense.

Additionally, there will be increasing needs for Long-Term Maintenance of sections that were rocked previously. There will always be several rock and surface renovation projects.

Maps

As part of this Update, Improvement Plan Maps are also being updated to reflect all completed work as well as current road and culvert conditions.

Maps will also include actual mileage to the access point for each property to be use in computation of Ag/V=Comm Assessments should they come up. These maps will be available to all Owners.

Conclusion

As stated throughout, this Update was initiated early in response to the 2019 February storm.

Like all Long Term Plans it is a guide for more detailed decision-making by the Road Committee and the Membership over the next 5 – 10 years.

As always, annual work decisions should be made based on a synthesis of immediate needs, long-term needs and the goals embedded in this plan.