

## Gravel Replenishment Deficit on 9MR Roads 1996 - 2018

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This report considers the apparent fact that gravel on Ranch Roads has not historically been replaced as fast as traffic has been wearing it away, and how that conflicts with the CCR requirement that the HOA maintain<sup>1</sup> roads. **Summary:** According to qualified<sup>2</sup> analysis and calculation, at today's prices Ranch roads are in need of \$53,763 worth of gravel replenishment that has not yet been fulfilled throughout our 23 year history. The following information shows how the total figure was arrived at.

I year	II autos per day <sup>3</sup>	III actual spent per year on gravel, w/tx	IV total \$ should have spent on gravel	V real \$ difference that year	VI deficiency/surplus adj. to today's \$
2018	4.983	\$8283	\$12,269	<\$3986>	<\$3986> <sup>4</sup>
2017	4.7565	\$3016	\$6669	<\$3650>	<\$3739>
2016	4.53	\$3955	\$8142	<\$4187>	<\$4380>
2015	4.3035	\$3955	\$7735	<\$3780>	<\$4005>
2014	4.077	\$3955	\$7328	<\$3373>	<\$3578>
2013	3.8505	\$3955	\$6921	<\$2966>	<\$3197>
2012	3.624	\$3955	\$6514	<\$2559>	<\$2799>
2011	3.3975	\$3955	\$6107	<\$2152>	<\$2402>
2010	3.171	\$3955	\$5700	<\$1745>	<\$2009>
2009	2.9445	\$3955	\$5292	<\$1337>	<\$1565>
2008	2.718	\$147	\$4902	<\$4755>	<\$5546>
2007	2.4915	\$130	\$4328	<\$4198>	<\$5084>
2006	2.265	\$115	\$3826	<\$3711>	<\$4622>
2005	2.0385	\$100	\$3335	<\$3235>	<\$3048>
2004	1.812	\$9437 <sup>5</sup>	\$2563	\$6874	\$9137
2003	1.5855	\$73	\$2444	<\$2371>	<\$3236>
2002	1.359	\$62	\$2049	<\$1987>	<\$2773>
2001	1.1325	\$50	\$1680	<\$1630>	<\$2312>
2000	.906	\$39	\$1307	<\$1268>	<\$1849>
1999	.6795	\$28	\$948	<\$920>	<\$1387>
1998	.453	\$19	\$618	<\$599>	<\$923>
1997	.2265	\$10	\$304	<\$294>	<\$460>
1996	0	0	0	0	<u>0</u>
<b>TOTAL GRAVEL DEFICIT</b>					<b>&lt;\$53,763&gt;</b>

- 1 The 9MR CCRs, at Article V, Section 1, require that Ranch roadways are to be at least "maintained". According to recent legal counsel, among other maintenance aspects, the Board is required to at least replenish road gravel as it wears out from road traffic... but what if there's not enough money to do that? Per legal counsel, the Board is required to ask for the necessary funds for gravel replenishment from the Association membership, and if the membership denies funding then that releases the HOA from being legally liable for overcoming the maintenance gravel deficit that currently exists; in other words, no one can sue the HOA for not maintaining replenishment gravel if the membership votes to not fund it.
- 2 Kirk Johnson's relevant qualifications: 25 years professional price estimator in construction and earth work, 7 years of that directly regarding Ranch roads. Brett Coffman's relevant qualifications: 30 years in earthwork and utilities, performing public infrastructure and road construction.
- 3 It is common in civil engineering and municipal reports about road wear to determine total road wear based upon average daily traffic. Once there is a daily traffic level identified for one time period and applied to an amount of road wear observed for that time period then that level of wear can be adjusted as either greater or lesser proportionately according to greater or lesser daily traffic for other time periods. In 2016 this author analyzed and reasonably determined (click [here](#) for that report) that at that time there were "4.53 cars per day driving over all 36 miles of roads", a.k.a. 163.08 total miles driven per day on Ranch roads (4.53 x 36 miles).
- 4 This amount of deficit is currently scheduled and budgeted to be made up in late spring 2019 by installing that amount of gravel, so at the time of this report it had not yet been acted on.
- 5 In 2004 this author conducted the actual installation of this amount of gravel, so I have personal notes about the gravel placement and amounts for that year.

- The **blue** numbers are all the same because they are an average of (8) years' expenditure records for those years, all adding up to the actual total of gravel expenditures for those years. The average was created for earlier Board reports involving assessment raise analysis, so they're conveniently used for this report.
- The **pink** numbers are the 'benchmark' for having determined the Ranch's "autos per day" (APD) traffic level on the Ranch as of 2016. From there all other APDs for each year were extrapolated as discussed at bullet #2 under "Columns Calculation Description" below. Click [here](#) to view the creation of the benchmark calc.

### General History Reflected Above

1. Ranch roads have been being used for 23 years.
2. Actual gravel expenditure records exist for years 2004 and for 2009-2018. There are no official expenditure records for the other years (1997-2003, and 2005-2008), however, either this author or long-time sole road contractor Tim Roberts were witness to or directly involved with the 'missing years' road maintenance and they cumulatively attest that during those years the only gravel placed were small amounts to infill dust spots that happened to show up; in other words, that small amount has been estimated and incorporated into Column II for years 1997-2003 and 2005-2008 (numbers shown in **green**) in a graduated fashion cohering with the traffic rate increase (they all total to \$773.00, which is the cost amount of about (9) truck loads of local pit run at the rates charged during those years).
3. Actual costs per truck load of gravel were between \$85-\$100 from 1997-2003. 2004 represents a specific large placement of replenishment gravel conducted by this author, such average price per load which was \$165. 2009-2016 average prices per truck load were \$223.00. 2017/2018 average prices per truck load were \$175.00 per load. 2018 average price per truck load was \$306.00 per load.

### Columns Calculation Description

- Column I: Total years Ranch roads have been driven.
- Column II: Each entry in the column references from the 'benchmark' of 4.53 APD in 2016. There are 20 years of traffic from 1996 (first year of traffic) to 2016 (20<sup>th</sup> year of traffic). If 100% of traffic rates occurred over 20 years then that means 5% of traffic rate change happened each year ( $5\% \times 20 = 100\%$ ). We do not have measured traffic rates for each year; only for 2016 (the 20<sup>th</sup> year) and for the starting point (1996 = 0 traffic). Therefore, the most reasonable and accurate traffic rate change calculations we can make is to say that from zero in 1996 the rate increased by an even 5% each year all the way up to the benchmark in 2016, and then increased years 2017 and 2018 by 5% each year beyond that.
- Column III: See description at "General History Reflected Above", item #2.
- Column IV: All years are based on starting with 'benchmark' 2016. From there each year was changed by 5% per year to reflect the traffic rate increase/decrease per year. Then that adjusted figure was changed to reflect the actual inflation rate for that year. So the final number reflects the gravel wear for the traffic rate for that year, and the actual cost at that time for gravel.
- Column V: These numbers are Column IV (total \$ should have spent on gravel) minus Column III (actual \$ spent per year on gravel) = Column V (real \$ difference that year).
- Column VI: These numbers are Column V adjusted to today's dollar value (using the official federal inflation calculator), given that it is 'today' that we would have to purchase the gravel to replenish what was neglected in the past. All these numbers add up to the Total Gravel Deficit of \$53,763.00