

## Iowa Secondary Roads – a forecast

An analysis of trends and potential outcomes from 2017 to 2037.

The following set of graphs and tables portray the results of a twenty year ‘look-ahead’ projection of Iowa population, housing, agricultural production and traffic trends. The goal of the effort was to develop a picture of where things appear to be headed and present them as a basis of debate and discussion.

The model behind the projection was developed by the ICEA Service Bureau using methods previously developed in Iowa Highway Research Board project TR-608. It uses fundamentals like population, corn production, loads per truck to predict traffic loads for earth, granular, hard surface and paved county roads.

Notes	Analysis																																																
<p>Both urban and rural populations will grow, but at different rates</p>	<table border="1"> <caption>Estimated Total Population Data (2017-2037)</caption> <thead> <tr> <th>Year</th> <th>Urban Population</th> <th>Rural Population</th> <th>Total Population</th> </tr> </thead> <tbody> <tr><td>1 (2017)</td><td>2,450,000</td><td>650,000</td><td>3,100,000</td></tr> <tr><td>3</td><td>2,480,000</td><td>670,000</td><td>3,150,000</td></tr> <tr><td>5</td><td>2,510,000</td><td>690,000</td><td>3,200,000</td></tr> <tr><td>7</td><td>2,540,000</td><td>710,000</td><td>3,250,000</td></tr> <tr><td>9</td><td>2,570,000</td><td>730,000</td><td>3,300,000</td></tr> <tr><td>11</td><td>2,600,000</td><td>750,000</td><td>3,350,000</td></tr> <tr><td>13</td><td>2,630,000</td><td>770,000</td><td>3,400,000</td></tr> <tr><td>15</td><td>2,660,000</td><td>790,000</td><td>3,450,000</td></tr> <tr><td>17</td><td>2,690,000</td><td>810,000</td><td>3,500,000</td></tr> <tr><td>19</td><td>2,720,000</td><td>830,000</td><td>3,550,000</td></tr> <tr><td>21 (2037)</td><td>2,750,000</td><td>850,000</td><td>3,600,000</td></tr> </tbody> </table>	Year	Urban Population	Rural Population	Total Population	1 (2017)	2,450,000	650,000	3,100,000	3	2,480,000	670,000	3,150,000	5	2,510,000	690,000	3,200,000	7	2,540,000	710,000	3,250,000	9	2,570,000	730,000	3,300,000	11	2,600,000	750,000	3,350,000	13	2,630,000	770,000	3,400,000	15	2,660,000	790,000	3,450,000	17	2,690,000	810,000	3,500,000	19	2,720,000	830,000	3,550,000	21 (2037)	2,750,000	850,000	3,600,000
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<p>The mix of farmsteads and rural residences will shift.</p> <p>There will be fewer but larger farmsteads.</p> <p>The number of rural residences will increase but not by enough to prevent an overall decline in rural households.</p>	<table border="1"> <caption>Estimated Rural Household Data (2017-2037)</caption> <thead> <tr> <th>Year</th> <th>Residences</th> <th>Farmsteads</th> <th>Total Rural Households</th> </tr> </thead> <tbody> <tr><td>1 (2017)</td><td>255,000</td><td>80,000</td><td>335,000</td></tr> <tr><td>3</td><td>258,000</td><td>78,000</td><td>336,000</td></tr> <tr><td>5</td><td>261,000</td><td>76,000</td><td>337,000</td></tr> <tr><td>7</td><td>264,000</td><td>74,000</td><td>338,000</td></tr> <tr><td>9</td><td>267,000</td><td>72,000</td><td>339,000</td></tr> <tr><td>11</td><td>270,000</td><td>70,000</td><td>340,000</td></tr> <tr><td>13</td><td>273,000</td><td>68,000</td><td>341,000</td></tr> <tr><td>15</td><td>276,000</td><td>66,000</td><td>342,000</td></tr> <tr><td>17</td><td>279,000</td><td>64,000</td><td>343,000</td></tr> <tr><td>19</td><td>282,000</td><td>62,000</td><td>344,000</td></tr> <tr><td>21 (2037)</td><td>285,000</td><td>60,000</td><td>345,000</td></tr> </tbody> </table>	Year	Residences	Farmsteads	Total Rural Households	1 (2017)	255,000	80,000	335,000	3	258,000	78,000	336,000	5	261,000	76,000	337,000	7	264,000	74,000	338,000	9	267,000	72,000	339,000	11	270,000	70,000	340,000	13	273,000	68,000	341,000	15	276,000	66,000	342,000	17	279,000	64,000	343,000	19	282,000	62,000	344,000	21 (2037)	285,000	60,000	345,000
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Agricultural production will increase.

Ag-industry yield growth will lead to substantial increases in harvests.

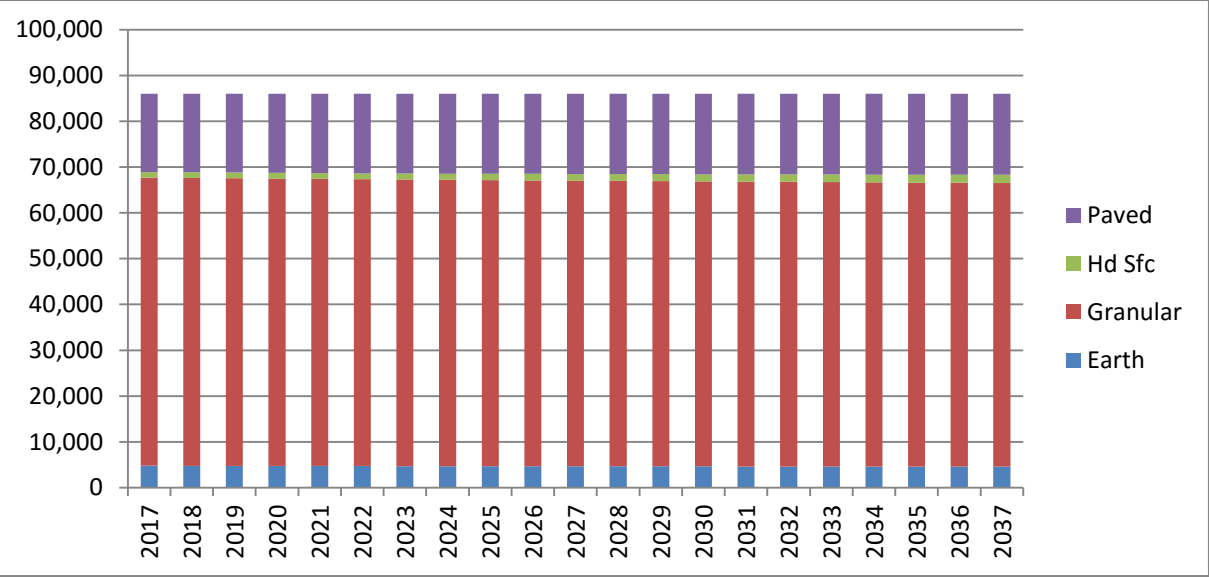
Item	CORN	BU-BEANS	HD-HOGS	HD-CATTLE	KB-POULTRY
Year	<i>Bushels</i>	<i>Bushels</i>	<i>Head</i>	<i>Head</i>	<i>1000's</i>
2017	2,546,606,500	448,393,800	20,441,715	2,750,429	71,924
2037	3,782,043,087	568,863,560	33,496,130	3,038,937	96,871
	149%	127%	164%	110%	135%
	102.0%	101.2%	102.5%	100.5%	101.5%

Traffic on county roads will both grow and change, shifting more to paved roads, but will some increase on gravel, too.

	<i>Earth</i>	<i>Granular</i>	<i>Hard Surface</i>	<i>Paved Road</i>
Year	<i>VPD (Avg)</i>	<i>VPD (Avg)</i>	<i>VPD (Avg)</i>	<i>VPD (Avg)</i>
2017	11	44	190	591
2037	10	47	178	662
Change	-6%	7%	-7%	12%
Per year	-0.3%	0.3%	-0.3%	0.6%

System configuration won't change much.

Although the expected traffic growth will support maintaining an extensive network, total miles will slowly decline.



Bridges

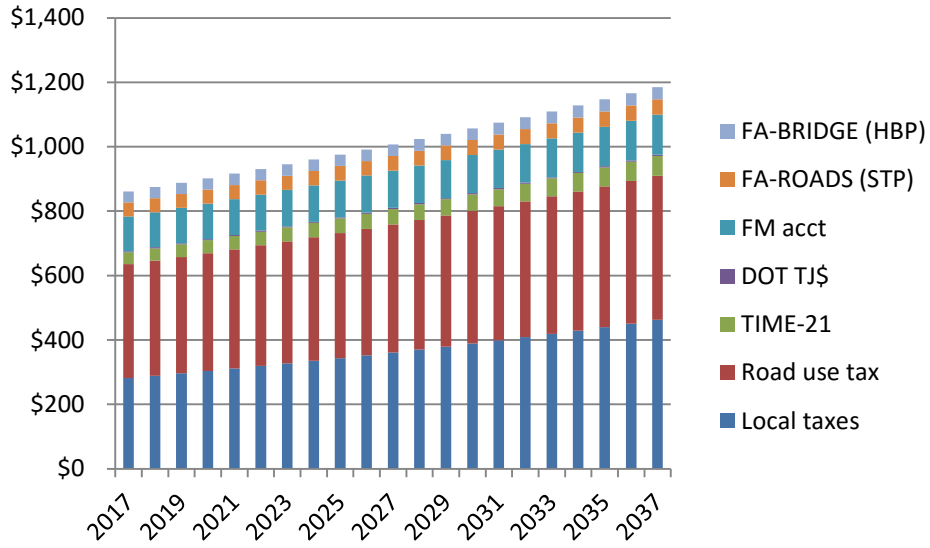
Low use structures on earth and granular roads will get closed.

Surface Class	Earth	Granular	Hd Sfc	Paved	
Year	<i>SqFt</i>	<i>SqFt</i>	<i>SqFt</i>	<i>SqFt</i>	<i>Total</i>
2017	1,653,741	22,385,580	516,851	12,310,969	36,867,141
2037	1,157,066	18,842,609	637,082	13,780,835	34,417,592
	-30%	-16%	23%	12%	-7%

The remaining structures will become longer (for flood conveyance) and wider (for safety and to accommodate ever larger farm equipment).

Funding will grow over time

As the chart shows, revenues come from a variety of sources, but property tax and road use tax remain the primary resources.



But it won't keep up with cost inflation

The 2016 fuel tax increase achieves near parity with needs for a short while, and then the long term problem of costs inflating faster than revenue growth will return.

