



MEMORANDUM

Date: April 20, 2018

To: The Honorable Chairman and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator 

Re: **Highway User Revenue Fund Bond Program Benefits**

It should be clear that the 1997 voter-authorized Highway User Revenue Fund (HURF) bond debt to provide significant additional mobility for transportation capacity, primarily in the northwest, has been hugely successful in accomplishing the mobility goal. Attached is a summary of the 1997 Bond expenditures by Board of Supervisor District, as well as an analysis of the congestion benefits achieved by the program. This summary is from the 2017 Status Report-1997 Transportation HURF Bond Program, which was shared with the Board of Supervisors on September 25, 2017. Traffic volume counts taken before and after the program show that traffic congestion was reduced by 43 percent on the twenty-four projects that widened existing two and four lane arterial roadways to four and six lanes.

It should also be obvious that we are on the downward side of debt retirement. If program authorizations were for \$350 million of bonding and approximately \$80 million remains outstanding, it is clear through our continuing payments, we have retired approximately 74 percent of the authorized debt to date. It should be clear in reviewing our future debt payments that it will drop off dramatically.

CHH/anc

Attachment

c: Tom Burke, Deputy County Administrator for Administration
Carmine DeBonis, Jr., Deputy County Administrator for Public Works
Keith Dommer, Director, Finance and Risk Management
Ana Olivares, Director, Transportation Department

Expenditures by District

The 1997 HURF Bond Program has spent \$129,740,668 in Supervisor District 1, or 52% of the total \$250,163,627 spent in all districts. This is more than all other districts combined⁵. This is partly due to the fact that District 1 has more arterial roadway miles than other districts, but also due to growth and development in the northwest which created the need for roadway reconstruction and expansion. The total amount and percentage of total is shown below:

District	HURF Bond Expenditures	Percent of Total
1	\$ 129,740,688	52%
2	\$ 40,254,991	16%
3	\$ 31,303,773	13%
4	\$ 29,508,901	12%
5	\$ 19,355,274	8%
Total	\$ 250,163,627	100%

Congestion Benefits

The 1997 HURF Bond Program rebuilt outdated and undersized roadways that were costing time, money and congestion-related air pollution. Twenty-four of the original fifty-six projects widened existing two- and four-lane arterial roadways to four- and six-lanes⁶. Twenty more projects reconstructed roadways and improved safety, drainage, facilities for bicycles and pedestrians, and other community-prioritized needs⁷. Seven projects were retired and seven projects are currently in design or construction. Traffic counts taken before and after the program show that traffic congestion was reduced by 43% on the twenty-four selected roadways, despite traffic volumes increasing by 32%. For this report, traffic congestion is considered the ratio of traffic volume to roadway capacity. When the traffic volume exceeds the capacity, the roadway is said to be congested and has a volume-to-capacity (v/c) ratio greater than 1.0.

The selected capacity-widening projects were typically two-lanes wide and were very congested with an average v/c ratio of 1.18. Seventeen of these roadways had v/c ratios that ranged from 1.02 to 1.95 v/c (see Figure 4). To illustrate this congestion, River Road from First Avenue to Campbell Avenue (DOT-1) had 29,025 vehicles per day (vpd) using a two-lane roadway that was only designed to handle 14,900 vehicles⁸. Figure 4 on the following page lists these roadways, 1997 traffic volumes, number of through lanes, traffic capacities, and volume-to-capacity ratios. The average traffic volume for these roadways was 20,773 vpd for roadways designed to handle less than 18,000 vpd. Note the number of highlighted roadways with v/c near or over 1.0.

⁵ Expenditures on projects that spanned two or more districts were divided equally between those districts for this analysis even though the geographic boundaries may be somewhat different.

⁶ River Road between La Canada Drive and Thornydale Road provided significant new capacity, but was not included in this analysis because there are no "before" traffic counts to compare against.

⁷ Some of these projects added center-turn lanes, medians, intersection turn lanes, and paved shoulders which do provide capacity benefits are not measured in this analysis.

⁸ Roadway capacity numbers are derived from Florida Dept. of Transportation, Generalized Annual Average Daily Volumes for Florida's Urbanized Areas, Table 1, 12/18/12.

By 2017, the selected capacity roadways were rebuilt to four- and six-lanes wide. As a result, traffic congestion eased, travel times improved, and mobility was enhanced. As shown in Figure 5, the average volume-to-capacity ratio dropped 43% from 1.18 to 0.67 from 1997 to 2017. All but three projects now have v/c ratios below 1.0. Had the 1997 HURF Bond Program not occurred, the selected capacity roadways would have become severely congested with an average v/c ratio of 1.54. Three segments of River Road have experienced such traffic growth over the last twenty years that v/c ratios are above 1.0 today despite being widened to four lanes. This suggests the need for potentially widening portions of River Road to six lanes in the future. The 1997 HURF Bond Program enabled Pima County to more than double the average roadway capacity from 17,917 vpd in 1997 to 40,197 vpd in 2017.

Figure 4: 1997 Traffic Volumes and Capacities

	Bond Number	Project Name	1997 Volume	thru lanes	1997 Capacity⁹	1997 Vol/Cap
1	DOT-01	River Road: First Avenue to Campbell Avenue	29,025	3	14,900	1.95
2	DOT-02	Sunrise Drive: Swan Road to Craycroft Road	28,671	2	14,900	1.92
3	DOT-03	River Road: La Cholla Blvd. to La Canada Dre	16,460	2	14,900	1.10
4	DOT-04	River Road: Campbell Ave to Alvernon Way	26,514	3	14,900	1.78
5	DOT-05	Alvernon Way: Ft. Lowell Rd to River Rd	16,012	2	14,900	1.07
6	DOT-06	Magee Road: La Cañada Drive to Oracle Road	16,535	2	14,900	1.11
7	DOT-09	Skyline Drive: Chula Vista to Campbell Ave	42,634	4	33,000	1.29
8	DOT-10	La Canada Dr: Ina Rd to Lambert Lane	15,918	2	14,900	1.07
9	DOT-12	Country Club Road: 36th Street to Milbur Ave	7,800	2	14,900	0.52
10	DOT-13	Ajo Way: Country Club to Alvernon Way	28,057	4	33,000	0.85
11	DOT-14	Wetmore/Ruthrauff Rd: La Cholla-Fairview Rd	20,885	2	14,900	1.40
12	DOT-17	Valencia Rd: Mark Rd to Camino de la Tierra	17,406	2	14,900	1.17
13	DOT-18	Cortaro Farms Rd: UPRR to Camino de Oeste	13,924	2	14,900	0.93
14	DOT-20	La Cholla Blvd: River Rd to Ruthrauff Rd	18,104	2	14,900	1.22
15	DOT-21	Thornydale Road: Orange Grove to Ina	23,664	3	14,900	1.59
16	DOT-22	Thornydale: Ina to Cortaro Farms	23,531	3	14,900	1.58
17	DOT-29	Houghton Rd: Irvington to Valencia (Tucson)	10,500	2	14,900	0.70
18	DOT-31	Tanque Verde Rd: Cat. Hwy to Houghton Rd	9,742	2	14,900	0.65
19	DOT-39	Valencia Road: I-19 to S. 12th Ave (Tucson)	33,700	4	33,000	1.02
20	DOT-44	Orange Grove Rd: Thornydale Rd to Corona Rd	16,819	2	14,900	1.13
21	DOT-45	La Cholla Blvd: River Road to Magee Road	24,142	2	14,900	1.62
22	DOT-46	Craycroft: River Road to Sunrise Drive	17,956	2	14,900	1.21
23	DOT-49	Valencia Road: Mission Rd. to Interstate 19	32,460	4	33,000	0.98
24	DOT-55	Golf Links Rd: Bonanza Ave to Houghton Rd	8,100	2	14,900	0.54
AVERAGE			20,773	2.5	17,917	1.18

⁹ Roadway capacity numbers are derived from Florida Dept. of Transportation, Generalized Annual Average Daily Volumes for Florida's Urbanized Areas, Table 1, 12/18/12.

Figure 5: 2017 Traffic Volumes and Capacities

	Bond Number	Project Name	2017 Volume	thru lanes	2017 Capacity¹⁰	2017 Vol/Cap	% change	2017 V/C if not built
1	DOT-01	River Road: First Avenue to Campbell Avenue	43,714	4	33,000	1.32	51%	2.93
2	DOT-02	Sunrise Drive: Swan Road to Craycroft Road	31,318	4	33,000	0.95	9%	2.10
3	DOT-03	River Road: La Cholla Blvd. to La Canada Dre	35,703	4	33,000	1.08	117%	2.40
4	DOT-04	River Road: Campbell Ave to Alvernon Way	38,214	4	33,000	1.16	44%	2.56
5	DOT-05	Alvernon Way: Ft. Lowell Rd to River Rd (Dodge)	17,022	4	33,000	0.52	6%	1.14
6	DOT-06	Magee Road: La Cañada Drive to Oracle Road	13,858	4	33,000	0.42	-16%	0.93
7	DOT-09	Skyline Drive: Chula Vista to Campbell Ave	44,690	6	53,910	0.83	5%	1.35
8	DOT-10	La Canada Dr: Ina Rd to Lambert Lane	28,780	4	33,000	0.87	81%	1.93
9	DOT-12	Country Club Road: 36th Street to Milbur Ave	6,843	4	33,000	0.21	-12%	0.46
10	DOT-13	Ajo Way: Country Club to Alvernon Way	26,939	6	53,910	0.50	-4%	0.82
11	DOT-14	Wetmore/Ruthrauff Rd: La Cholla-Fairview Rd	24,147	4	33,000	0.73	16%	1.62
12	DOT-17	Valencia Rd: Mark Rd to Camino de la Tierra	26,227	5	35,720	0.73	51%	1.76
13	DOT-18	Cortaro Farms Rd: UPRR to Camino de Oeste	14,645	4	33,000	0.44	5%	0.98
14	DOT-20	La Cholla Blvd: River Rd to Ruthrauff Rd	19,578	6	53,910	0.36	8%	1.31
15	DOT-21	Thornydale Road: Orange Grove to Ina	32,407	6	53,910	0.60	37%	2.17
16	DOT-22	Thornydale: Ina to Cortaro Farms	27,569	4	33,000	0.84	17%	1.85
17	DOT-29	Houghton Rd: Irvington to Valencia (Tucson)	15,823	6	53,910	0.29	51%	1.06
18	DOT-31	Tanque Verde Rd: Cat. Hwy to Houghton Rd	13,366	4	33,000	0.41	37%	0.90
19	DOT-39	Valencia Road: I-19 to S. 12th Ave (Tucson)	41,763	6	53,910	0.77	24%	1.27
20	DOT-44	Orange Grove Rd: Thornydale Rd to Corona Rd	23,406	5	35,720	0.66	39%	1.57
21	DOT-45	La Cholla Blvd: River Road to Magee Road	29,612	6	53,910	0.55	23%	1.99
22	DOT-46	Craycroft: River Road to Sunrise Drive	22,647	4	33,000	0.69	26%	1.52
23	DOT-49	Valencia Road: Mission Rd. to Interstate 19	38,275	6	53,910	0.71	18%	1.16
24	DOT-55	Golf Links Rd: Bonanza Ave to Houghton Rd	18,296	4	33,000	0.55	126%	1.23
AVERAGE			26,452	4.8	40,197	0.67	32%	1.54

¹⁰ Roadway capacity numbers are derived from Florida Dept. of Transportation, Generalized Annual Average Daily Volumes for Florida's Urbanized Areas, Table 1, 12/18/12.