CKS LLC

September 18, 2006

Diego Mulligan
New Village Institute
159D Calle Ojo Feliz
Santa Fe, New Mexico 87505

Dear Mr. Mulligan:

Subject: Estimate of potential energy savings in gallons of gasoline for residents of Oshara Village

In accordance with your request, I have calculated the potential energy savings in gallons of gasoline that residents of Oshara Village might realize by using all of the energy savings options available. The calculation compares the driving patterns of Oshara residents to average New Mexico drivers. The following summarizes my findings:

Introduction

In undertaking this analysis, I utilized information published by the United States Department of Transportation (USDOT) regarding driving patterns of typical Americans as well as information you provided to me regarding amenities available to Oshara residents.

I have made assumptions regarding the reduction in driving that would occur for Oshara residents who chose to utilizing facilities within Oshara Village or within close proximity to the development which would eliminate typical trips by average motorists. My assumptions are noted within the analysis.

Excerpts from referenced materials as well as my calculations are included in the appendix.

(continued on next page)

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Typical American Driving Patterns

The typical American resident drove their automobile an average of 12,557 miles during 2001[1]. Typical New Mexico motorists drove their automobile an average of 12,329 miles during 2004[2]. For the purpose of this analysis, the miles driven by typical New Mexico motorists were used since this produces more conservative results.

Typical Americans travel for many purposes. The following table depicts the various types of trips by purpose:

Proportion of Trips by Purpose for a Typical American[3]	
Trip Purpose	**Proportion of Total Trips (%)**
Work	14.8
Work related	2.9
Family/personal business	44.6
School/church	9.8
Social/recreational	27.1
Other	0.8
Total	100.0

Applying these proportions to the annual mileage driven by typical New Mexico motorists results in mileage by purpose as depicted in the table on the following page:

(continued on next page)

[1] *Highlights of the 2001 National Household Travel Survey*, USDOT, Bureau or Transportation Statistics, Washington, DC, 2003. The 12,557 number in the text was derived by taking the average annual total of 14,500 miles per vehicle as reported on page 2 in the document and applying the proportion of trips taken by passenger vehicle (86.6%) as reported in Table A-10 in Appendix A, page 21.
[2] *Highway Statistics 2004: Providing information to address major transportation issues facing the Nation*, Federal Highway Administration, Washington, DC 2004, Table PS-1.
[3] *Highlights of the 2001 National Household Travel Survey*, USDOT, Bureau of Transportation Statistics, Washington, DC, 2003, Table A-11.

Annual Mileage by Purpose for a Typical New Mexico Motorist[4]	
Trip Purpose	**Miles by Purpose**
Work	1,825
Work related	358
Family/personal business	5,499
School/church	1,208
Social/recreational	3,340
Other	99
Total	12,329

The fuel efficiency for the typical American automobile was 22.4 miles per gallon in 2004[5]. Fuel efficiency numbers for automobiles are not yet available for 2005 and 2006, so the 2004 figure was used in the analysis. By using the 2004 automobile fuel efficiency and the average annual mileage for New Mexico motorists (12,329), I determined that the average number of gallons of gasoline used per year for a typical New Mexico motorist equates to just over 550 gallons (550.4).

Reductions in Driving Available to Typical Oshara Residents

I have calculated the potential reduction in driving that would result for a typical Oshara resident who utilizes all of the energy savings options available to residents of Oshara. A typical resident of Oshara is one:

- who lives and works in Oshara, thus eliminating home to work commuting trips (the analysis assumes 100% of work commute trips are eliminated),
- whose children attend the Regional Catholic and Christian Academy schools across Richards Avenue from Oshara or the Santa Fe Community College south of Oshara, thus eliminating school related trips (the analysis assumes 100% of school related trips are eliminated, and that 83% of the combined school/church related trips are eliminated),
- who conducts the majority of their shopping activities (grocery, general retail, etc.) at retail establishments located within Oshara, thus eliminating the majority of shopping related trips (the analysis assumes 80% of shopping trips occur onsite),
- who conducts the majority of their personal business activities (doctor visits, real estate services, accounting services, etc.) at businesses located within

[4] Calculation performed in this analysis (see appendices for details).
[5] *National Transportation Statistics 2006*, Table 4-11, USDOT.

Oshara, thus eliminating the majority of personal business related trips (the analysis assumes 80% of personal business trips occur onsite),
- who utilizes the health and wellness facilities available at the Santa Fe Community College, thus eliminating a portion of recreational related trips (the analysis assumes 10% of social and recreational trips occur onsite),
- who walks or rides a bicycle to locations either in Oshara or in close proximity to their home (such as the adjacent schools, college, etc.),
- who drives a hybrid vehicle to reach destinations for driving activities that cannot be eliminated as described above (hybrids enjoy better gas mileage than the typical American automobile).

The analysis specifically acknowledges and accounts for the fact that only a portion of the trips undertaken by typical Americans could be eliminated for Oshara residents, and that other trips still must occur in order for individuals to enjoy a full and complete human experience. Trips that are assumed to be needed by Oshara residents include:

- work related trips, such as meeting with clients, etc, (the analysis assumes 100% of work related trips occur offsite),
- family and personal business trips to locations not located within Oshara, such as shopping, professional services, healthcare, etc. (the analysis assumes 20% of these trips occur offsite),
- attendance of religious services (although Santa Marie de la Paz Catholic Church is located across Richards Avenue, it is recognized that people associate with many religious denominations which are not in close proximity to Oshara) (the analysis assumes that 17% of the combined school/church related trips occur offsite),
- social and recreational activities (the analysis assumes 90% of social and recreational activities occur offsite).

Applying these reductions, I have determined that a typical Oshara resident will drive approximately travel for many purposes. The table on the following page depicts the various types of trips by purpose:

(continued on next page)

Annual Mileage by Purpose for a Typical Oshara Resident[6]	
Trip Purpose	**Miles by Purpose**
Work	0
Work related	358
Family/personal business	1,100
School/church	205
Social/recreational	3,006
Other	99
Total	4,768

Annual Savings of Gasoline for a Typical Oshara Resident

As stated above, one of the energy savings options assumed for a typical Oshara resident is the use of a hybrid (gas/electric) automobile for their driving. For the purpose of this analysis, I have assumed that a Toyota Prius vehicle will be used. The fuel efficiency for Prius vehicles have been estimated by the Environmental Protection Agency for 2006 to obtain the following mileage: 60/51/55 (mpg city/highway/combined). You have indicated to me that your driving experience with the Prius you own reflects that it obtains between 44-52 mpg for your combined driving. Therefore, for the purpose of determining potential gasoline savings for a typical Oshara resident I have used the lowest mileage number, or 44 mpg, which is conservative.

By applying the 44 mpg for the Prius to the average annual mileage driven by a typical Oshara resident (4,768), I determined that the average number of gallons of gasoline used per year for a typical Oshara resident equates to just over 108 gallons (108.4).

Therefore, the potential annual gasoline savings for a typical Oshara resident who utilizes all of the energy savings options available within Oshara is the difference between the gasoline used annually by a typical New Mexico driver (550 gallons) and that used by a typical Oshara resident (108 gallons) or 442 gallons.

If a resident of Oshara takes advantage of all the energy savings and travel savings opportunities including the Toyota Prius, the net savings in the use of gasoline is 80% (80.4), with a driver using only 20% (19.6) of the gasoline of a typical New Mexico driver.

[6] Calculation performed in this analysis (see appendices for details).

If you have any questions, please contact me.

Sincerely,

9/18/06

Craig Watts, P.E.
Member

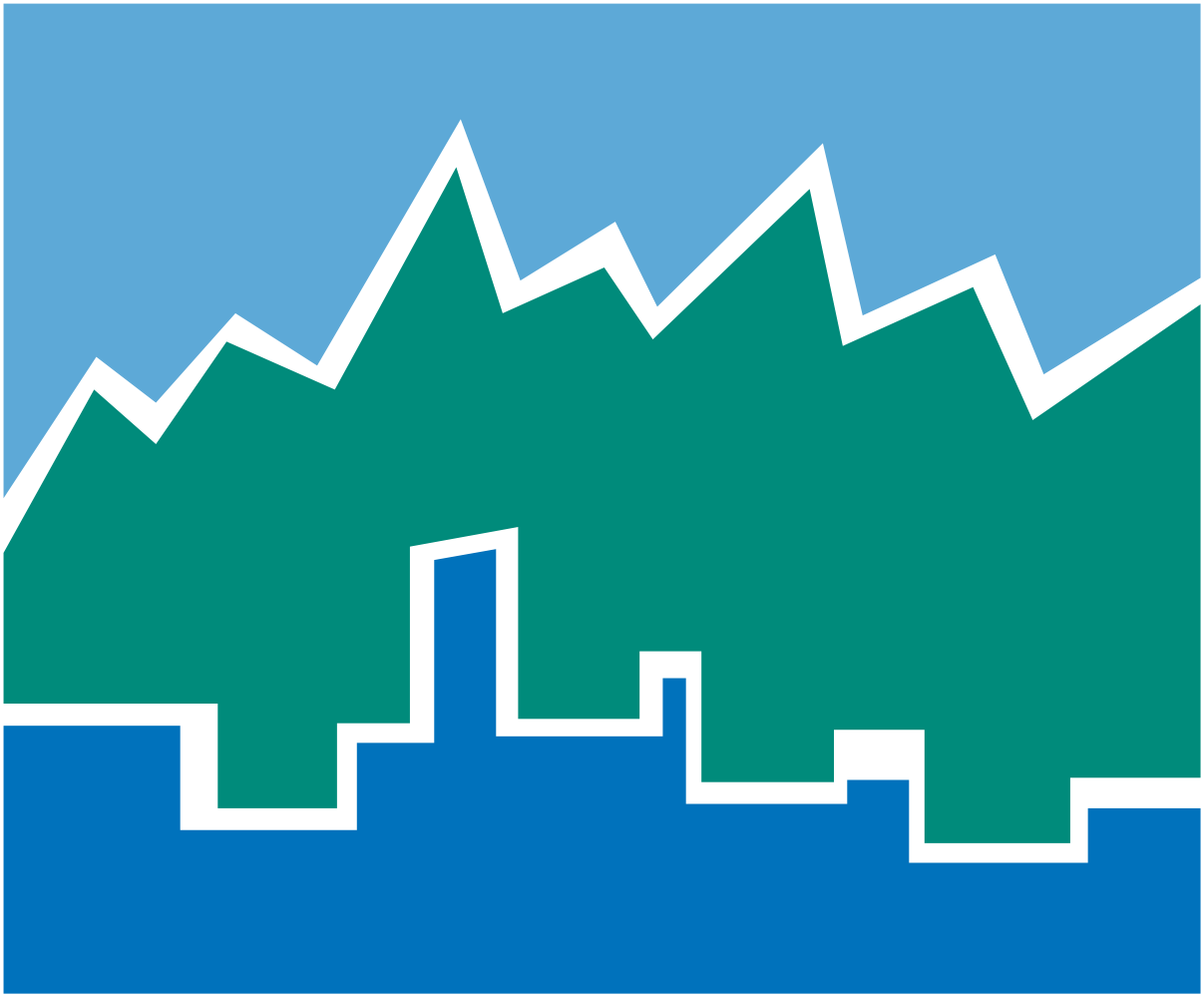
Attachments (appendices)

Appendix A

Excerpts from

Highlights of the 2001 National Household Travel Survey
(USDOT, Bureau or Transportation Statistics, Washington, DC, 2003)

NHTS



Highlights of the 2001 National Household Travel Survey

U.S. Department of Transportation

Bureau of Transportation Statistics

Executive Summary

BACKGROUND

The 2001 National Household Travel Survey (NHTS) is the first comprehensive household survey of both daily and long-distance travel, allowing for analysis of the full continuum of personal travel by Americans. This report highlights the breadth of topics covered by the survey, the different kinds of analyses possible using the data gathered, and the unique features of these data.

In addition to providing the first comprehensive look at travel by Americans, the 2001 NHTS also incorporates additional enhancements to the previous survey designs (see box A). For example, long-distance travel was expanded to include trips as short as 50 miles and, for the first time, includes trips made for the purpose of commuting to work—often overlooked segments of personal long-distance travel. The survey also introduces the first look at the daily travel characteristics of children under the age of five years.

Box A
About the 2001 NHTS

This survey updates information gathered by two prior survey series—the Nationwide Personal Transportation Survey (NPTS) conducted in 1969, 1977, 1983, 1990, and 1995 and the American Travel Survey (ATS) conducted in 1977 and 1995. The final NPTS, sponsored by the Federal Highway Administration, primarily focused on daily travel, with an abbreviated long-distance component. The 1995 ATS, sponsored by the Bureau of Transportation Statistics, provided a detailed look at long-distance travel defined as trips of 100 miles or more from home.

Furthermore, specific questions and probes were added to capture biking and walking trips—trips thought to be underrepresented in prior surveys. As a result of the changes to trip definitions, population coverage, and survey methodology, a limited amount of direct comparisons can be made between data from the 1995 surveys and the data from the 2001 NHTS, as presented in this report.

Within the 2001 NHTS, daily and long-distance travel do not have the same definition. While each includes travel by all modes and for all purposes, trips captured in daily travel are reported for one specific day referred to as the "travel day." Travel made from one address to another is reported as a separate trip; therefore, a trip does not have to originate from home and, in fact, home-to-home journeys made during the day are reported as multiple trips with varying originating locations. Conversely, long-distance trips are defined as trips of at least 50 miles to the furthest destination—originating from home—and include the return component of the trip as well as any overnight stops and stops made to change transportation modes. Long-distance trips were collected during a specific 4-week period, known as the "travel period." It is also important to note that trips of 50 miles or more away from home made during the travel day are potentially included both in daily and long-distance travel; however, the way in which

NOTE: Tables with an "A"prefix (Tables A1, A2, etc.) can be found in Appendix A.

the trips are reported differs in definition, details collected, and estimated distance traveled.

The objective of this report is to answer the questions of *who* is traveling in the nation, and *how, why, when* and *where* they are traveling—both on a daily basis and on longer distance trips. Consequently, this report is divided into three main areas:

- travel-related characteristics of households and individuals in the United States,
- characteristics of daily trips taken in the nation, and
- characteristics of long-distance trips made domestically (and to other countries).

RESULTS

The 2001 NHTS data demonstrate a widespread prevalence of drivers and personal vehicles in the nation. Nationwide, about 88 percent of persons 15 years or older are reported as drivers (table A-1). While the mean number of vehicles owned or available to U.S. households is 1.9 personal vehicles, on average those households have 1.8 drivers (table A-2). Only 8 percent of households report not having a vehicle available for regular use (table A-4). Not surprisingly, the dominant mode of transportation for both daily and long-distance travel is by personal vehicle. The majority of daily trips, 87 percent, were taken by personal vehicle (table A-10). Similarly, 90 percent of long-distance trips of 50 miles or more away from home were made in personal vehicles (table 4 on p. 14).

Daily Travel

Results from the 2001 NHTS show that daily travel in the United States totaled about 4 trillion miles (table A-8), an average of 14,500 miles per person annually. On a daily basis, Americans averaged 4 trips per day, totaling on average 40 miles of travel—most of it (35 miles) in a personal vehicle. While there were no significant differences between men and women in the number of daily trips taken,[1] there were differences based on age. The total number of trips peaked among the traditional working population ages 25 to 54 (4.6 daily trips) (table A-9). Children under the age of five made the fewest daily trips, but still averaged 3.2 trips per day. Individuals 65 years or older averaged 3.4 trips per day.

While the majority of daily trips were taken in personal vehicles, walking trips accounted for the next highest percentage at almost 9 percent of all trips (table A-10). Trips by transit and by school bus each represented approximately 2 percent of daily trips taken in 2001.

The largest portion of daily trips, 45 percent, was made for family and personal reasons, such as shopping and running errands (table A-11). Another 27 percent were made for social and recreational purposes, and 15 percent were made for commuting to work.

Long-Distance Travel

In 2001, Americans took about 2.6 billion long-distance trips of 50 miles or more, totaling over 1.3 trillion personal miles of long-distance travel (table A-22). The vast majority of these trips (98 percent) were to destinations within the United States, with 62 percent of all long-distance trips to destinations within the traveler's home state (table 5 on p. 15).

The majority of long-distance travel was made by men, accounting for 57 percent of all long-distance trips (table 3 on p. 12). Over half, or 57 percent, of all long-distance trips were taken by persons living in households with total household income of $50,000 or more (table A-19). Nearly two-thirds of all long-distance trips were made by persons aged 25 to 64 (table A-21).

Approximately 9 out of 10 long-distance trips were taken by personal vehicle. Trips by airplane accounted for the largest mode share of the remaining trips, representing over 7 percent of all long-distance trips in 2001. Travel by bus accounted for 2 percent of these trips, and train trips represented less than 1 percent of long-distance travel. Not surprisingly, the mode of transportation was strongly influenced by the distance of the trip. Personal vehicles were used for over 97 percent of all trips of less than 300 roundtrip miles, while nearly three-quarters of trips over 2,000 roundtrip miles were made by airplane (table 4 on p. 14).

[1] Although there are no significant differences between men and women in number of daily trips taken, differences do exist in the length and duration of trip.

Table A-8

Total Daily Trips and Total Miles Traveled in Daily Trips, in Billions

	Total trips*	SE	Total miles**	SE
All person trips	411	1.9	4,012	44.9
Person trips by personal vehicle	356	1.9	3,552	41.3
Vehicle trips	235	1.4	2,298	24.4

* In order to correctly calculate miles per trip, denominators of 403, 350, and 233 billion trips were used for all person trips, personal vehicle person trips, and vehicle trips respectively because not all cases had reported mile values associated with them.
** The total mileage represents daily household-based travel and therefore does not reflect a total of all passenger miles of travel in the United States. It does not include a) vehicle mileage from nondaily long-distance trips, b) noncommuting occupational trips (e.g., taxi cab driving), and c) is also subject to a small amount of nonresponse in trip mileage reporting by survey respondents.

NOTE: SE = standard error.

SOURCE: The 2001 National Household Travel Survey, daily trip file, U.S. Department of Transportation.

Table A-9

Mean Number of Trips by All Persons by Sex, Age, Driver Status, Worker Status, and Medical Condition

(see Figure 5 in text)

	Mean	SE
All persons	4.1	0.02
Sex		
Male	4.1	0.02
Female	4.1	0.02
Age		
Less than 5 years	3.2	0.05
5-14 years	3.5	0.04
15-19 years	4.0	0.06
20-24 years	4.1	0.07
25-54 years	4.6	0.02
55-64 years	4.1	0.05
65 years and older	3.4	0.04
Driver status*		
Yes, a driver	4.5	0.02
Not a driver	2.6	0.04
Employment status*		
Employed	4.5	0.02
Not employed	3.7	0.03
Medical condition*		
Medical condition limits travel	2.8	0.06
No medical condition limiting travel	4.4	0.02

*Asked of persons age 15 and older.

NOTE: SE = standard error.

SOURCE: The 2001 National Household Travel Survey, person file, U.S. Department of Transportation.

Table A-10

Distribution of Trips by Mode of Transportation, in Percent

(see Figure 6 in text)

	Percent	SE
Personal vehicle (PV)	86.6	0.18
PV-single occupant	37.6	0.25
PV-multiple occupants	48.9	0.28
Transit	1.5	0.06
School bus	1.7	0.05
Walk	8.6	0.13
Other	1.7	0.07
Total	100.0	

NOTE: SE = standard error.

SOURCE: The 2001 National Household Travel Survey, daily trip file, U.S. Department of Transportation.

Table A-11

Distribution of Trips by Trip Purpose, in Percent

(see Figure 7 in text)

	Percent	SE
Work	14.8	0.12
Work-related	2.9	0.08
Family/personal business	44.6	0.22
School/church	9.8	0.11
Social/recreational	27.1	0.21
Other	0.8	0.03
Total	100.0	

NOTE: SE = standard error.

SOURCE: The 2001 National Household Travel Survey, daily trip file, U.S. Department of Transportation.

Appendix B

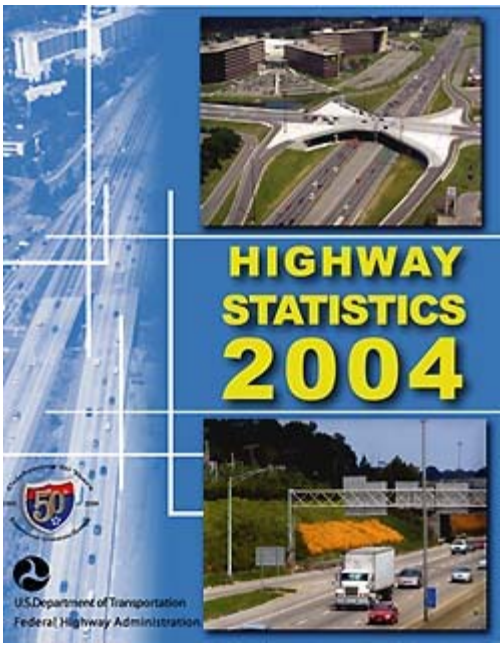
Excerpts from

Highway Statistics 2004
(FHWA, Washington, DC, 2004)

Highway Statistics 2004

"Providing information to address major transportation issues facing the Nation."

Office of Highway Policy Information - Federal Highway Administration



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SELECTED MEASURES FOR IDENTIFYING PEER STATES

OCTOBER 2005

TABLE PS-1
SHEET 1 OF 2

STATE	GENERAL MEASURES											TRAVEL MEASURES						
	2004 NET LAND AREA 1/ (SQUARE MILES)			2004 POPULATION 1/				2003 PERSONAL INCOME 2/		2001 GROSS STATE PRODUCT 2/		ANNUAL VEHICLE-MILES OF TRAVEL (MILLIONS)					LANE-MILES	
												RURAL		URBAN		TOTAL		
	RURAL	URBAN	PERCENT URBAN	RURAL (1,000)	URBAN (1,000)	PERCENT URBAN	TOTAL PER SQUARE MILE	AMOUNT (BILLIONS OF DOLLARS)	PER CAPITA	AMOUNT (BILLIONS OF DOLLARS)	PER CAPITA	ANNUAL VMT	PERCENT TRUCKS 3/	ANNUAL VMT	PERCENT TRUCKS 3/	PER CAPITA	RURAL	URBAN
Alabama	47,545	3,199	6.3	2,097	2,470	54.1	90	119	26,338	122	27,299	30,077	7.9%	28,958	4.6%	12,926	151,160	46,732
Alaska	570,954	997	0.2	250	404	61.8	1	22	33,568	29	45,741	2,442	14.9%	2,548	6.0%	7,630	24,011	4,589
Arizona	111,027	2,608	2.3	1,041	4,703	81.9	51	150	26,838	161	30,337	17,382	23.1%	39,954	12.8%	9,982	75,021	49,933
Arkansas	51,260	808	1.6	1,431	1,305	47.7	53	66	24,289	68	25,232	19,941	19.1%	11,707	10.2%	11,567	177,557	23,389
California	146,589	9,370	6.0	3,120	33,149	91.4	233	1,198	33,749	1,359	39,277	66,710	15.7%	262,207	7.1%	9,069	174,384	204,051
Colorado	101,252	2,466	2.4	1,073	3,528	76.7	44	156	34,283	174	39,269	14,910	12.6%	30,981	5.3%	9,974	139,669	41,323
Connecticut	2,773	2,072	42.8	381	3,103	89.1	719	150	43,173	166	48,326	3,969	8.0%	27,639	6.7%	9,072	12,486	32,609
Delaware	1,625	329	16.8	184	644	77.8	424	27	32,810	41	51,443	2,694	11.6%	6,607	9.6%	11,233	6,667	6,452
Dist. of Columbia	-	61	100.0	-	554	100.0	9,082	27	48,342	65	113,240	-	-	3,742	6.7%	6,755	-	3,529
Florida	44,389	9,538	17.7	2,019	15,498	88.5	325	518	30,446	492	30,049	36,297	15.0%	160,147	7.9%	11,214	86,830	174,789
Georgia	48,241	9,665	16.7	2,245	6,645	74.7	154	256	29,442	300	35,689	43,995	14.7%	68,625	9.8%	12,668	165,665	80,682
Hawaii	5,778	645	10.0	316	935	74.7	195	39	30,913	44	35,860	2,844	4.1%	6,881	2.8%	7,774	4,417	4,980
Idaho	82,109	638	0.8	619	748	54.7	17	35	25,911	37	28,009	8,973	19.2%	5,756	12.1%	10,775	86,623	9,981
Illinois	51,565	4,019	7.2	2,829	9,884	77.7	229	426	33,690	476	38,019	31,648	17.9%	77,487	8.5%	8,585	205,783	84,127
Indiana 9/	33,774	2,093	5.8	2,096	3,449	62.2	155	178	28,783	190	31,010	37,136	16.9%	35,577	9.9%	13,113	151,705	44,087
Iowa	54,718	1,151	2.1	1,185	1,792	60.2	53	86	29,043	91	31,037	19,195	13.4%	12,343	7.6%	10,594	209,289	24,967
Kansas	80,547	1,268	1.5	901	1,756	66.1	32	82	29,935	87	32,198	15,092	19.4%	14,080	4.3%	10,979	250,713	24,426
Kentucky	38,248	1,480	3.7	1,859	2,287	55.2	104	108	26,252	120	29,491	27,351	17.0%	19,971	9.7%	11,414	134,386	26,330
Louisiana	40,223	3,339	7.7	1,387	3,198	69.7	105	117	26,100	149	33,333	21,603	18.4%	23,004	11.9%	9,729	94,642	33,462
Maine	30,344	518	1.7	801	513	39.0	43	38	28,831	37	28,816	11,174	9.2%	3,774	6.0%	11,376	41,492	5,640
Maryland	7,972	1,802	18.4	761	4,797	86.3	569	206	37,331	195	36,205	13,803	13.6%	41,481	7.9%	9,947	29,016	38,638
Massachusetts	3,989	3,851	49.1	564	5,853	91.2	818	256	39,815	288	44,993	4,145	4.9%	50,626	4.9%	8,535	16,158	59,420
Michigan	52,295	4,509	7.9	2,539	7,542	74.8	177	307	30,439	321	32,081	32,065	10.4%	71,261	7.1%	10,250	176,385	80,859
Minnesota	77,085	2,525	3.2	1,258	3,834	75.3	64	174	34,443	188	37,713	27,712	9.9%	28,858	6.3%	11,110	234,688	36,244
Mississippi	44,900	2,007	4.3	1,644	1,258	43.3	62	68	23,448	67	23,427	24,114	16.4%	15,317	11.4%	13,588	130,170	23,246
Missouri	66,631	2,255	3.3	2,106	3,726	63.9	85	167	29,252	182	32,287	31,512	16.3%	37,482	9.4%	11,830	219,208	40,599
Montana	145,232	320	0.2	488	437	47.2	6	24	25,920	23	25,414	8,627	13.2%	2,580	4.6%	12,116	135,923	5,854
Nebraska	76,354	518	0.7	586	1,107	65.4	22	54	30,758	57	33,140	11,486	19.5%	7,685	5.4%	11,324	176,461	12,992
Nevada 9/	108,963	863	0.8	920	1,321	58.9	20	70	31,266	79	37,655	5,994	23.9%	13,360	4.7%	8,636	57,820	13,625
New Hampshire 9/	8,317	651	7.3	665	575	46.4	138	45	34,702	47	37,331	7,976	8.1%	5,240	6.4%	10,658	25,813	6,414
New Jersey	3,616	3,801	51.2	455	8,244	94.8	1,173	349	40,427	365	42,886	7,024	10.1%	65,820	9.6%	8,374	14,401	68,389
New Mexico	120,712	644	0.5	769	1,173	60.4	16	48	25,541	55	30,038	13,314	25.1%	10,628	10.3%	12,329	115,888	18,183
New York	41,751	5,463	11.6	3,333	15,825	82.6	406	702	36,574	827	43,335	39,430	11.3%	98,468	5.3%	7,198	147,541	92,626
North Carolina	45,481	3,230	6.6	4,177	4,369	51.1	175	237	28,235	276	33,634	47,183	12.6%	48,720	9.1%	11,222	161,093	54,615
North Dakota	68,709	267	0.4	299	335	52.8	9	19	29,204	19	29,827	5,614	18.6%	1,980	6.4%	11,978	171,631	4,061
Ohio	35,377	5,571	13.6	2,307	9,152	79.9	280	342	29,944	374	32,836	37,824	18.0%	73,830	8.4%	9,744	164,515	100,358
Oklahoma	66,467	2,200	3.2	1,321	2,132	61.7	50	94	26,656	94	27,089	22,428	22.7%	24,015	8.6%	13,450	199,369	33,931
Oregon	94,779	1,218	1.3	988	2,606	72.5	37	104	29,340	120	34,552	16,519	16.6%	19,079	7.1%	9,905	108,989	26,557
Pennsylvania	39,370	5,447	12.2	2,823	9,583	77.2	277	396	31,998	408	33,163	39,175	16.2%	68,895	8.1%	8,711	156,143	95,128
Rhode Island	438	607	58.1	57	1,023	94.7	1,033	34	31,916	37	34,906	881	6.6%	7,592	3.8%	7,845	2,523	11,017
South Carolina	28,665	1,445	4.8	1,796	2,401	57.2	139	108	26,132	115	28,311	32,089	12.2%	17,462	8.7%	11,806	114,995	24,187
South Dakota	75,635	250	0.3	410	354	46.3	10	22	29,234	24	31,662	6,597	16.7%	2,187	7.0%	11,497	164,052	5,391
Tennessee	38,152	3,065	7.4	1,600	4,300	72.9	143	166	28,455	183	31,832	29,610	17.1%	41,333	8.5%	12,024	139,565	48,002
Texas	250,769	11,028	4.2	6,662	15,829	70.4	86	650	29,372	764	35,749	82,087	19.7%	148,921	7.2%	10,271	454,939	191,308
Utah	80,234	1,910	2.3	295	2,115	87.8	29	59	24,977	70	30,715	7,320	26.7%	17,376	11.4%	10,247	66,427	22,861
Vermont	9,021	229	2.5	385	236	38.0	67	19	30,740	19	30,995	5,843	10.4%	2,012	6.3%	12,649	26,612	2,925
Virginia	35,482	4,112	10.4	2,043	5,405	72.6	188	249	33,671	273	37,932	30,598	12.7%	48,279	5.4%	10,590	105,808	49,158
Washington	64,158	2,386	3.6	1,266	5,036	79.9	95	204	33,332	223	37,210	16,238	16.3%	39,435	7.9%	8,834	123,903	45,689
West Virginia	23,506	572	2.4	1,029	834	44.8	77	44	24,379	42	23,320	14,775	14.5%	5,527	13.3%	10,897	69,249	6,946
Wisconsin	52,675	1,635	3.0	2,314	3,816	62.3	113	169	30,898	177	32,741	28,252	9.3%	32,147	7.5%	9,853	186,105	48,315
Wyoming	96,608	492	0.5	211	290	57.9	5	16	32,808	20	40,486	6,580	29.3%	2,681	11.9%	18,485	51,776	5,539
U.S. Total	3,406,304	131,137	3.7	71,905	222,073	75.5	83	9,200	31,632	10,140	35,539	1,070,248	15.6%	1,892,265	7.7%	10,077	6,139,666	2,199,155
Puerto Rico	1,453	1,972	57.6	181	3,715	95.4	1,138					1,288	5.9%	18,216	5.5%	5,006	6,511	26,951
Grand Total	3,407,757	133,109	3.8	72,086	225,788	75.8	84					1,071,536	15.6%	1,910,481	7.7%	10,011	6,146,177	2,226,106

SELECTED MEASURES FOR IDENTIFYING PEER STATES

OCTOBER 2005

STATE	STATE HIGHWAY AGENCY-OWNED ROADWAY SYSTEM MEASURES 4/																			
	RURAL							URBAN							RURAL AND URBAN					
	MILES	LANE-MILES 6/	DVMT 7/	AADT/ LANE 8/	PERCENT OF STATEWIDE TOTAL RURAL 5/ MILES	PERCENT OF STATEWIDE TOTAL RURAL 5/ LANE-MILES	PERCENT OF STATEWIDE TOTAL RURAL 5/ DVMT	MILES	LANE-MILES 6/	DVMT 7/	AADT/ LANE 8/	PERCENT OF STATEWIDE TOTAL URBAN 5/ MILES	PERCENT OF STATEWIDE TOTAL URBAN 5/ LANE-MILES	PERCENT OF STATEWIDE TOTAL URBAN 5/ DVMT	MILES	LANE-MILES 6/	DVMT 7/	AADT/ LANE 8/	PERCENT OF STATEWIDE TOTAL 5/ MILES	PERCENT OF STATEWIDE TOTAL 5/ LANE-MILES	PERCENT OF STATEWIDE TOTAL 5/ DVMT
Alabama	9,589	22,411	49,581	2,212	13.0	14.8	60.3	1,991	6,829	44,685	6,543	9.3	14.6	56.5	11,580	29,240	94,266	3,224	12.1	14.8	58.4
Alaska	5,062	10,114	5,357	530	42.1	42.1	80.3	574	1,491	5,498	3,688	27.4	32.5	79.0	5,636	11,605	10,855	935	39.9	40.6	79.6
Arizona	5,878	14,630	38,165	2,609	16.3	19.5	80.4	938	3,819	41,085	10,758	4.3	7.6	37.6	6,816	18,449	79,250	4,296	11.7	14.8	50.6
Arkansas	15,038	32,178	45,922	1,427	17.1	18.1	84.3	1,380	4,247	22,237	5,236	12.7	18.2	69.5	16,418	36,425	68,159	1,871	16.7	18.1	78.8
California	11,380	29,449	135,482	4,601	13.6	16.9	74.3	3,829	21,073	367,376	17,433	4.4	10.3	51.3	15,209	50,522	502,858	9,953	9.0	13.4	56.0
Colorado	7,693	17,789	31,285	1,759	11.2	12.7	76.8	1,420	5,262	43,641	8,294	7.7	12.7	51.6	9,113	23,051	74,926	3,250	10.5	12.7	59.8
Connecticut	1,288	2,788	8,138	2,919	21.0	22.3	75.1	2,430	6,989	57,423	8,216	16.2	21.4	76.0	3,718	9,777	65,561	6,706	17.6	21.7	75.9
Delaware	3,013	6,322	7,196	1,138	94.7	94.8	97.8	2,190	5,099	16,809	3,297	76.6	79.0	93.1	5,203	11,421	24,005	2,102	86.1	87.1	94.5
Dist. of Columbia	-	-	-	-	-	-	-	1,392	3,277	9,560	2,917	92.8	92.8	93.5	1,392	3,277	9,560	2,917	92.8	92.8	93.5
Florida	5,988	16,241	66,674	4,105	14.5	18.7	67.2	6,059	25,025	227,254	9,081	7.7	14.3	51.9	12,047	41,266	293,928	7,123	10.1	15.8	54.8
Georgia	13,969	32,604	74,570	2,287	17.4	19.7	62.0	3,974	14,181	118,411	8,350	10.9	17.6	63.2	17,943	46,785	192,981	4,125	15.3	19.0	62.7
Hawaii	675	1,404	5,260	3,746	30.9	31.8	67.7	265	1,028	10,601	10,313	12.4	20.6	56.4	940	2,432	15,861	6,522	21.8	25.9	59.7
Idaho	4,623	10,849	15,747	1,451	10.9	12.5	64.2	328	1,141	6,767	5,931	7.1	11.4	43.0	4,951	11,990	22,514	1,878	10.5	12.4	55.9
Illinois	11,474	26,383	58,987	2,236	11.4	12.8	68.2	4,649	15,440	113,099	7,325	12.4	18.4	53.4	16,123	41,823	172,086	4,115	11.6	14.4	57.7
Indiana 9/	9,534	22,773	77,732	3,413	12.9	15.0	76.6	1,652	5,542	43,210	7,797	8.0	12.6	44.5	11,186	28,315	120,942	4,271	11.8	14.5	60.9
Iowa	7,922	19,145	36,606	1,912	7.7	9.1	69.8	959	3,528	16,646	4,718	8.8	14.1	49.4	8,881	22,673	53,252	2,349	7.8	9.7	61.8
Kansas	9,724	21,457	28,362	1,322	7.8	8.6	68.8	651	2,448	16,413	6,705	6.0	10.0	42.7	10,375	23,905	44,775	1,873	7.7	8.7	56.2
Kentucky	25,090	53,793	66,485	1,236	38.4	40.0	89.0	2,419	7,148	44,985	6,293	20.2	27.1	82.4	27,509	60,941	111,470	1,829	35.6	37.9	86.2
Louisiana	13,858	30,074	51,562	1,714	30.0	31.8	87.4	2,838	8,321	50,304	6,045	19.2	24.9	80.0	16,696	38,395	101,866	2,653	27.4	30.0	83.6
Maine	7,669	16,616	26,867	1,617	38.1	40.0	88.0	819	1,993	8,760	4,395	31.0	35.3	84.9	8,488	18,609	35,627	1,914	37.3	39.5	87.2
Maryland	3,096	7,240	27,755	3,834	22.2	25.0	73.6	2,040	7,384	75,684	10,250	12.1	19.1	66.8	5,136	14,624	103,439	7,073	16.7	21.6	68.5
Massachusetts	706	1,628	5,300	3,255	8.9	10.1	46.8	2,135	7,085	69,764	9,847	7.7	11.9	50.4	2,841	8,713	75,064	8,615	7.9	11.5	50.2
Michigan	7,124	16,896	63,303	3,747	8.2	9.6	72.3	2,596	10,682	96,648	9,048	7.3	13.2	49.6	9,720	27,578	159,951	5,800	7.9	10.7	56.7
Minnesota	10,708	24,724	55,181	2,232	9.3	10.5	72.9	1,125	4,263	42,908	10,065	6.9	11.8	54.4	11,833	28,987	98,089	3,384	9.0	10.7	63.5
Mississippi	9,560	22,234	42,225	1,899	15.1	17.1	64.1	1,327	4,163	23,502	5,646	12.5	17.9	56.2	10,887	26,397	65,727	2,490	14.7	17.2	61.0
Missouri	30,553	65,117	74,947	1,151	28.4	29.7	87.0	1,918	7,496	59,366	7,920	10.5	18.5	58.0	32,471	72,613	134,313	1,850	25.8	27.9	71.3
Montana	7,682	17,958	16,870	939	11.5	13.2	71.6	197	633	2,476	3,911	7.2	10.8	35.1	7,879	18,591	19,346	1,041	11.3	13.1	63.2
Nebraska	9,603	20,994	25,098	1,195	11.0	11.9	80.0	378	1,410	8,597	6,097	6.4	10.9	40.9	9,981	22,404	33,695	1,504	10.7	11.8	64.3
Nevada 9/	4,900	11,095	12,754	1,149	17.3	19.2	77.9	549	2,104	19,493	9,265	9.6	15.4	53.4	5,449	13,199	32,247	2,443	16.0	18.5	61.0
New Hampshire 9/	3,674	7,970	19,197	2,409	29.2	30.9	88.1	440	1,140	8,242	7,230	14.5	17.8	57.6	4,114	9,110	27,439	3,012	26.3	28.3	76.0
New Jersey	454	1,226	8,159	6,655	6.5	8.5	42.5	1,864	7,215	76,598	10,616	6.0	10.5	42.6	2,318	8,441	84,757	10,041	6.1	10.2	42.6
New Mexico	11,042	25,874	30,113	1,164	19.7	22.3	82.8	967	3,399	15,473	4,552	12.2	18.7	53.3	12,009	29,273	45,586	1,557	18.8	21.8	69.7
New York	11,002	24,500	55,226	2,254	15.3	16.6	51.3	4,031	13,584	139,657	10,281	9.8	14.7	51.9	15,033	38,084	194,883	5,117	13.3	15.9	51.7
North Carolina	69,536	144,190	126,503	877	89.2	89.5	98.1	9,335	23,839	101,033	4,238	37.8	43.6	75.9	78,871	168,029	227,536	1,354	76.8	77.9	86.8
North Dakota	7,167	16,101	10,951	680	8.4	9.4	71.4	215	731	2,522	3,450	11.6	18.0	46.6	7,382	16,832	2,522	150	8.5	9.6	12.2
Ohio	14,281	31,927	67,289	2,108	17.8	19.4	65.1	5,026	16,840	124,839	7,413	11.3	16.8	61.9	19,307	48,767	192,128	3,940	15.5	18.4	63.0
Oklahoma	11,083	25,334	41,882	1,653	11.4	12.7	68.3	1,197	4,529	27,203	6,006	7.9	13.3	41.5	12,280	29,863	69,085	2,313	10.9	12.8	54.4
Oregon	6,689	15,313	31,618	2,065	12.5	14.1	70.1	863	2,954	26,704	9,040	7.0	11.1	51.2	7,552	18,267	58,322	3,193	11.5	13.5	60.0
Pennsylvania	28,881	60,920	81,514	1,338	37.9	39.0	76.2	11,009	27,332	141,569	5,180	24.8	28.7	75.2	39,890	88,252	223,083	2,528	33.1	35.1	75.6
Rhode Island	317	702	2,268	3,231	25.8	27.8	94.3	786	2,199	16,545	7,524	15.1	20.0	79.8	1,103	2,901	18,813	6,485	17.2	21.4	81.3
South Carolina	34,588	73,043	82,226	1,126	62.3	63.5	93.8	6,944	16,670	44,643	2,678	65.0	68.9	93.6	41,532	89,713	126,869	1,414	62.7	64.5	93.7
South Dakota	7,607	17,055	13,367	784	9.4	10.4	74.2	244	915	3,291	3,596	10.0	17.0	55.1	7,851	17,970	16,658	927	9.4	10.6	69.4
Tennessee	10,859	25,428	64,010	2,517	16.0	18.2	79.1	2,950	10,292	73,958	7,186	14.0	21.4	65.5	13,809	35,720	137,968	3,862	15.5	19.0	71.2
Texas	68,442	152,365	202,144	1,327	31.1	33.5	90.1	11,182	37,861	261,474	6,906	13.4	19.8	64.3	79,624	190,226	463,618	2,437	26.3	29.4	73.5
Utah	4,802	11,441	16,740	1,463	14.9	17.2	83.7	1,056	3,819	30,835	8,074	10.1	16.7	64.9	5,858	15,260	47,575	3,118	13.7	17.1	70.5
Vermont	2,455	5,574	10,991	1,972	18.9	20.9	68.8	180	473	2,212	4,676	12.9	16.2	40.3	2,635	6,047	13,203	2,183	18.3	20.5	61.5
Virginia	47,996	101,113	82,293	814	95.4	95.6	98.4	9,519	23,191	90,453	3,900	44.8	47.2	68.6	57,515	124,304	172,746	1,390	80.4	80.2	80.2
Washington	5,728	13,170	34,249	2,601	9.4	10.6	77.2	1,318	5,138	55,638	10,829	6.5	11.2	51.6	7,046	18,308	89,887	4,910	8.7	10.8	59.1
West Virginia	32,514	66,491	37,972	571	96.1	96.0	94.1	1,457	3,436	12,323	3,586	45.6	49.5	81.6	33,971	69,927	50,295	719	91.8	91.8	90.7
Wisconsin	9,692	22,040	53,578	2,431	10.6	11.8	69.4	2,120	7,207	45,076	6,254	9.6	14.9	51.3	11,812	29,247	98,654	3,373	10.4	12.5	59.8
Wyoming	6,347	14,375	14,153	985	25.3	27.8	78.7	407	1,209	3,133	2,592	16.0	21.8	42.8	6,754	15,584	17,286	1,109	24.5	27.2	68.3
U.S. Total	648,555	1,431,058	2,239,854	1,565	21.6	23.3	76.6	126,132	403,074	2,966,623	7,360	12.9	18.3	57.4	774,687	1,834,132	5,195,526	2,833	19.5	22.0	64.2
Puerto Rico	1,029	2,170	3,264	1,504	32.2	33.3	92.7	3,526	8,416	42,927	5,101	27.7	31.2	86.3	4,555	10,586	46,191	4,363	28.6	31.6	86.7
Grand Total	649,584	1,433,228	2,243,118	1,565	21.6	23.3	76.6	129,658	411,490	3,009,550	7,314	13.0	18.5	57.7	779,242	1,844,718	5,241,717	2,841	19.5	22.0	64.3

1/ Source is Highway Performance Monitoring System (HPMS) summary data reported by the States and Bureau of the Census. The split between urban and rural are estimates based on revisions by States and metropolitan planning organizations to the 1990 and 2000 urban boundaries defined by the Bureau of the Census.

2/ Source is U.S. Bureau of Economic Analysis as published in Statistical Abstract of the United States, 2004-2005. Per Capita for Personal Income is based on 2001 population. Per Capita for Gross State Product is based on 2001 population.

3/ Percent Trucks includes combination trucks and single-unit trucks and buses with at least 2 axles and 6 tires. Data are based on estimates (percentages) of trucks and buses reported in HPMS by each State on the sample sections for the arterial and (major) collector functional systems. The U.S. average is weighted on vehicle-miles travelled (VMT). The user is cautioned against applying these values to the total rural and urban VMT since they represent only part of the Nation's highways.

4/ Includes roadways owned by the State highway agency. Excludes roadways owned by State toll, State park and other State agencies.

5/ Statewide totals for miles, lane-miles, and travel are found in tables HM-20, HM-60 and VM-2.

6/ May see differences from prior years; starting in 1999, number of lanes is coded for all systems except rural minor collector and rural/urban local.

7/ DVMT (Daily Vehicle-Miles of Travel) is in thousands.

8/ AADT means Annual Average Daily Traffic. AADT/Lane is a statewide average.

9/ 2003 data used.

Appendix C

Excerpts from

National Transportation Statistics 2006
(USDOT, Bureau or Transportation Statistics, Washington, DC, 2006)

National Transportation Statistics 2006

U.S. Department of Transportation
Research and Innovative Technology Administration
Bureau of Transportation Statistics

Table 4-11: Passenger Car and Motorcycle Fuel Consumption and Travel

	1960	1965	1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Vehicles registered (thousands)																					
Passenger cars	61,671	75,258	89,244	106,706	121,601	127,885	133,700	128,300	126,581	127,327	127,883	128,387	129,728	129,749	131,839	132,432	133,621	137,633	135,921	135,670	136,431
Motorcycles	574	1,382	2,824	4,964	5,694	5,444	4,259	4,177	4,065	3,978	3,757	3,897	3,872	3,826	3,879	4,152	4,346	4,903	5,004	5,370	5,781
Vehicle-miles traveled (millions)																					
Passenger cars	587,000	723,000	917,000	1,034,000	1,112,000	1,247,000	1,408,000	1,358,000	1,372,000	1,375,000	1,406,000	1,438,000	1,469,854	1,502,556	1,549,577	1,569,100	1,600,287	1,628,332	1,658,474	(R) 1,672,079	1,704,982
Motorcycles	[a]	[a]	3,000	5,600	10,200	9,100	9,600	9,200	9,600	9,900	10,200	9,800	9,920	10,081	10,283	10,584	10,469	9,639	9,552	(R) 9,577	10,048
Fuel consumed (million gallons)																					
Passenger cars	41,171	49,723	67,819	74,140	69,982	71,518	69,568	64,317	65,436	67,048	67,874	68,072	69,221	69,892	71,695	73,283	73,065	73,559	75,471	(R) 75,455	76,007
Motorcycles	[a]	[a]	60	113	204	182	191	184	191	198	205	196	198	202	206	212	209	193	191	(R) 192	201
Average miles traveled per vehicle (thousands)																					
Passenger cars	9.5	9.6	10.3	9.7	9.1	9.8	10.5	10.6	10.8	10.8	11.0	11.2	11.3	11.6	11.8	11.8	12.0	12	12.2	(R) 12.3	12.5
Motorcycles	[a]	[a]	1.1	1.1	1.8	1.7	2.3	2.2	2.4	2.5	2.7	2.5	2.6	2.6	2.7	2.5	2.4	2	1.9	(R) 1.8	1.7
Average miles traveled per gallon																					
Passenger cars	14.3	14.5	13.5	13.9	15.9	17.4	20.2	21.1	21.0	20.5	20.7	21.1	21.2	21.5	21.6	21.4	21.9	22.1	22.0	(R) 22.2	22.4
Motorcycles	[a]	[a]	50.0	49.6	50.0	50.0	50.3	50.0	50.3	50.0	49.8	50.0	50.0	50.0	50.0	50.0	50.0	49.9	50.0	(R) 50.0	50.0
Average fuel consumed per vehicle (gallons)																					
Passenger cars	668	661	760	695	576	559	520	501	517	527	531	530	534	539	544	553	547	534	555	(R) 556	557
Motorcycles	[a]	[a]	21	23	36	33	45	44	47	50	55	50	51	53	53	51	48	39	38	(R) 36	35

KEY: R = revised.

[a] Included in passenger car.

NOTES

See table 4-12 for other 2-axle 4-tire vehicles.

Average miles traveled per vehicle, average miles traveled per gallon, average fuel consumed per vehicle are derived by calculation.

SOURCES

Passenger car:

Number registered:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table MV-201.

1995-2004: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

All other categories:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table VM-201A. For 1970-94, the unrevised motorcycle vehicle-miles and fuel consumed are subtracted from the combined passenger car and motorcycle vehicle-miles and fuel consumed from VM-201A.

1995-2004: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Motorcycle:

Number registered:

1960-94: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995,* FHWA-PL-97-009 (Washington, DC: July 1997), table MV-201.

1995-2004: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

All other categories:

1970-85: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1985,* table VM-201A.

1990-2004: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table VM-1.

Appendix D

Calculations of Trip Reductions and Gasoline Savings
for
Typical Oshara Residents
Using All of the Energy Savings Options
Available in Oshara Village

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Sheet 1 of 3
Date: 9/14/06 By: C. Watts

Annual Miles by Trip Purpose for Typ. New Mexican

Purpose	%	Miles
Work	14.8	1825
Work related	2.9	358
Fam/per. bus.	44.6	5499
School/church	9.8	1208
Soc./rec.	27.1	3340
Other	0.8	99
	Σ = 100.0	12,329

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Annual Miles by Trip Purpose for Oshara Resident

Purpose	Typ. N.M. driver (%)	Miles Typ NM driver	Typ. Oshara Resident (%)	Miles Oshara Resident
Work	14.8	1825	-100% = 0	-0-
Work rel.	2.9	358	-0% = 2.9	358
Fam/pers bus	44.6	5499	-80% = 8.9	1100
Sch/church	9.8	1208	-83% = 1.7	205
Soc./rec	27.1	3340	-10% = 24.4	3006
other	0.8	99	-0 = 0	99
	100.0	12,329	N/A	4768

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Gasoline Used (Annually)

Typ. NM Driver

Annual Mileage = 12,329
Avg. MPG = 22.4
⇒ 550.4 gals/yr
use 550

Oshara Resident

Annual Mileage = 4768
Avg. MPG (Prius) = 44
⇒ 108.4 gals/yr
use 108

Difference

NM Driver	550.4	(550)
Oshara Res	108.4	(108)
⇒	442.0	(442)

Prius

Mileage Estimates (mpg city/highway/combined) [3]	60/51/55

Please remember, some vehicles are built with popular option combinations. Not all options are available separately and some options and accessories may not be available in all regions of the country. So please contact your Toyota dealer, who can help locate the vehicle that's right for you.

Some vehicles are shown with available equipment. Seatbelts should be worn at all times. For details on vehicle specifications, standard features and available equipment in your area, contact your Toyota dealer. A vehicle with particular equipment may not be available at the dealership. Ask your Toyota dealer to help locate a specifically equipped vehicle.

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