



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Traffic Monitoring Section
100 North Senate Avenue
Room N955 I.G.C.N.
Indianapolis, Indiana 46204-2216 (317) 233-3690 FAX: (317) 232-5478

Mitchell E. Daniels, Jr., Governor
Michael W. Reed, Commissioner

ANNUAL AVERAGE DAILY TRAFFIC (AADT) ESTIMATES

The Indiana Department of Transportation (INDOT), through its Traffic Monitoring Section, collects, summarizes and interprets information on the traffic traveling on the state's highway system. The data is used to assess transportation needs, system performance and to develop highway planning and programming recommendations. Traffic data also plays a very important role in route planning and in the design of highway projects.

To collect this information, the Department operates two traffic monitoring systems:

1. A Statewide Traffic Monitoring System consisting of 110 permanent continuous count stations that collect volume, speed and vehicle classification data 24 hours per day, 365 days per year. Fifty of these sites also utilize weigh-in motion (WIM) technology to collect continuous truck weight data. These sites are located throughout the state to monitor overall traffic trends. Information from these counters is used to determine ANNUAL TRAFFIC GROWTH trends as well as develop AXLE, WEEKDAY and SEASONAL adjustment factors used with the state's coverage count program to determine estimates of annual average daily traffic (AADT).
2. The statewide coverage count program utilizes portable pneumatic road-tubes traffic counters to collect 48 hour traffic counts on all State Highway System traffic sections and in rural and small urban areas on all highway performance monitoring sections (HPMS). The coverage count program operates on a three-year cycle, counting one-third of all sections annually, or approximately 10,000 of the 30,000 count sites. Whereever possible, portable classifiers are used so that approximately 65% of all coverage counts collected are classification counts. Additional counts are taken within this program to support specific state projects. Traffic counting operations are primarily done by INDOT forces, consultant contracts or through contracts with the Metropolitan Planning Organizations (MPOs) through a data partnership program.

ADJUSTMENT FACTORS

Adjustment factors are necessary to convert an Average Daily Traffic (ADT) volume into an Annual Average Daily Traffic (AADT) estimate. Depending on the type of counter, the seasonal period of the setting, multiple factors may be necessary. These include axle, weekday and seasonal adjustment factors. For the 2/3's of the system not counted in the current year, the previously derived AADTs can be adjusted to the current year by utilizing the annual growth factors.

AXLE ADJUSTMENT FACTORS

There are times when portable classifiers cannot be set due to number of lanes or the lack of free-flow speeds. In these cases, portable traffic counters utilizing single pneumatic road-tubes stretched across a lane or roadway are used. These types of counters register two axle impacts as one vehicle so when vehicles with three or more axles cross the road-tube they will be counted as multiple vehicles. Whenever possible axle adjustment factors should be developed from vehicle classification counters set on the same route within the vicinity of the axle counter and during the same relative time period. If this is not possible then the use of these Axle Adjustment factors applied by factor groups (FG) and month are considered acceptable.

WEEKDAY ADJUSTMENT FACTORS

The purpose of these factors is to normalize the variability of traffic counts that exists between counts taken during the weekday, Friday, Saturdays and/or Sundays. In developing the weekday factors we found no significant statistical difference in the Monday through Thursday trends and for this reason combine these into a weekday factor. This is further justified as counts taken for INDOT will usually span a Monday through Wednesday or a Tuesday through Thursday count period.

SEASONAL (MONTHLY) ADJUSTMENT FACTORS

Seasonal or monthly adjustment factors convert average daily traffic (ADT) to annual average daily traffic (AADT). Observed traffic volumes at a location often vary from month to month with higher summer traffic volumes and lower winter traffic volumes. To compare traffic volume data collected in different months, seasonal adjustment factors must be applied. The ADT is multiplied by the seasonal factor to obtain the AADT value. The continuous counter sites are grouped into five major factor groups. Currently there are two urban factor groups and three rural factor groups which are based on grouped functional classifications.

ANNUAL GROWTH FACTORS

As not all road sections are counted each year, there are times when previous years AADTs will need to be factored in order to estimate current year values. Annual Growth Factors are used in these situations and are developed by comparisons of previous years AADTs at INDOT's 110 continuous counting telemetry sites and averaged for the five factor groups.

Contact Information:

Kirk B. Mangold, Program Director
Traffic Monitoring Section
Indiana Department of Transportation
100 N. Senate Avenue N955 IGCN
Indianapolis, IN 46204
317-233-3690

kmangold@indot.IN.gov

2008 AVERAGE AXLE ADJUSTMENT FACTORS *

Urban - Interstate (11)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	0.764	0.756	0.770	0.758	0.764	0.784	0.776	0.768	0.772	0.800	0.830	0.806

Urban - Freeways and Expressways (12) Principal Arterials (14)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	0.932	0.930	0.932	0.924	0.920	0.918	0.918	0.928	0.926	0.932	0.938	0.950

Urban - Minor Arterials (16), Collectors (17), Locals (19)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	0.914	0.890	0.922	0.892	0.828	0.826	0.820	0.802	0.808	0.828	0.878	0.944

Rural - Interstate (01)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	0.700	0.706	0.722	0.706	0.724	0.730	0.752	0.742	0.724	0.718	0.732	0.742

Rural - Principal Arterials (02), Minor Arterials (06)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	0.824	0.860	0.854	0.832	0.842	0.858	0.846	0.842	0.834	0.836	0.848	0.854

Rural - Major Collectors (07), Minor Collectors (08), Locals (09)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	0.836	0.798	0.800	0.782	0.842	0.862	0.874	0.876	0.864	0.894	0.894	0.878

*Axle Adjustment Factors are applied to counts taken with portable counters utilizing a single pneumatic road tube. This type of counter registers two axle impacts as one vehicle. The axle factor is used to account for vehicle types having more than two axles, typically trucks with three or more axles.

2008 WEEKDAY FACTORS

Urban - Interstate (11), Freeways and Expressways (12)													
	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Weekdays	0.954	0.948	0.946	0.949	0.955	0.965	0.954	0.944	0.968	0.957	0.959	0.948	0.962
Friday	0.874	0.838	0.875	0.875	0.859	0.849	0.873	0.944	0.863	0.854	0.861	0.897	0.899
Saturday	1.154	1.175	1.119	1.181	1.166	1.139	1.172	1.193	1.133	1.167	1.159	1.158	1.089
Sunday	1.310	1.419	1.409	1.314	1.324	1.303	1.281	1.211	1.260	1.323	1.302	1.309	1.268

Urban - Principal Arterials (14), Minor Arterials (16), Collectors (17), Locals (19)													
	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Weekdays	0.948	0.958	0.947	0.936	0.948	0.957	0.932	0.923	0.954	0.960	0.955	0.947	0.953
Friday	0.879	0.840	0.893	0.901	0.874	0.853	0.888	0.953	0.870	0.859	0.862	0.878	0.879
Saturday	1.111	1.103	1.070	1.129	1.108	1.096	1.160	1.162	1.114	1.089	1.104	1.111	1.087
Sunday	1.409	1.458	1.456	1.421	1.406	1.414	1.423	1.366	1.364	1.403	1.393	1.415	1.391

Rural - Interstate (01)													
	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Weekdays	1.008	0.979	0.983	0.997	1.007	1.014	1.019	1.012	1.032	1.012	1.028	1.006	1.007
Friday	0.858	0.837	0.860	0.855	0.830	0.826	0.849	0.913	0.837	0.835	0.837	0.913	0.907
Saturday	1.098	1.142	1.092	1.155	1.126	1.095	1.088	1.123	1.059	1.114	1.097	1.076	1.009
Sunday	1.079	1.216	1.203	1.089	1.092	1.095	1.045	0.966	1.037	1.069	1.020	1.036	1.085

Rural - Principal Arterials (02), Minor Arterials (06)													
	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Weekdays	0.968	0.957	0.948	0.942	0.958	0.986	0.975	0.974	0.995	0.979	0.983	0.958	0.955
Friday	0.875	0.832	0.882	0.896	0.867	0.848	0.878	0.933	0.857	0.856	0.856	0.889	0.907
Saturday	1.077	1.110	1.075	1.147	1.101	1.051	1.066	1.084	1.044	1.052	1.047	1.089	1.059
Sunday	1.321	1.452	1.461	1.353	1.361	1.293	1.266	1.188	1.221	1.309	1.281	1.327	1.336

Rural - Major Collectors (07), Minor Collectors (08), Locals (09)													
	Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Weekdays	0.960	0.948	0.949	0.938	0.953	0.985	0.971	0.952	0.976	0.972	0.974	0.951	0.953
Friday	0.891	0.836	0.906	0.931	0.879	0.861	0.885	0.951	0.877	0.878	0.876	0.909	0.905
Saturday	1.076	1.150	1.096	1.151	1.098	1.038	1.046	1.076	1.050	1.037	1.039	1.078	1.055
Sunday	1.332	1.467	1.382	1.337	1.363	1.274	1.306	1.258	1.265	1.318	1.298	1.351	1.364

Note: Weekday factors are used to normalize the variability of traffic counts that exists between counts taken on the Weekdays, Friday, Saturday and or Sunday.

SEASONAL ADJUSTMENT FACTORS BY FUNCTIONAL CLASSIFICATION 2004-2008

Urban - Interstate (11), Freeways and Expressways (12)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	1.092	1.071	1.006	0.980	0.971	0.964	0.960	0.934	1.001	0.988	1.036	1.059
2007	1.088	1.114	1.008	0.985	0.972	0.946	0.944	0.939	0.984	0.977	1.014	1.088
2006	1.111	1.069	1.032	0.999	0.971	0.944	0.963	0.959	0.978	0.983	1.014	1.048
2005	1.155	1.067	1.031	1.001	0.969	0.931	0.931	0.932	0.996	0.982	1.002	1.059
2004	1.186	1.086	1.049	1.004	0.997	0.920	0.951	0.938	0.966	0.978	1.009	1.065
5 YR AVG	1.126	1.081	1.025	0.994	0.976	0.941	0.950	0.940	0.985	0.982	1.015	1.064

Urban - Principal Arterials (14), Minor Arterials (16), Collectors (17), Locals (19)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	1.056	1.023	1.008	0.957	1.018	1.020	1.039	0.972	0.959	0.955	1.007	1.062
2007	1.063	1.074	0.970	0.967	0.952	0.968	0.993	0.967	0.991	0.987	1.037	1.088
2006	1.067	1.019	1.023	0.985	0.975	0.952	0.984	0.966	0.983	0.971	1.019	1.027
2005	1.095	1.008	1.039	0.975	0.982	0.944	0.957	0.956	0.990	0.987	1.039	1.089
2004	1.114	1.016	1.004	0.972	0.971	0.941	0.989	0.972	0.961	0.976	1.032	1.062
5 YR AVG	1.079	1.028	1.009	0.971	0.980	0.965	0.992	0.967	0.977	0.975	1.027	1.066

Rural - Interstate (01)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	1.179	1.157	1.025	1.015	0.960	0.910	0.883	0.889	0.999	0.982	1.005	1.120
2007	1.164	1.183	1.048	1.004	0.961	0.908	0.897	0.898	0.971	0.957	0.978	1.100
2006	1.177	1.131	1.048	1.012	0.973	0.909	0.906	0.912	0.985	0.975	0.997	1.078
2005	1.222	1.120	1.044	1.021	0.961	0.900	0.878	0.905	1.002	0.985	0.999	1.087
2004	1.246	1.126	1.040	0.984	0.992	0.912	0.895	0.896	0.959	0.982	1.011	1.114
5 YR AVG	1.198	1.143	1.041	1.007	0.969	0.908	0.892	0.900	0.983	0.976	0.998	1.100

Rural - Principal Arterials (02), Minor Arterials (06)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	1.160	1.084	1.029	0.966	0.950	0.938	0.932	0.941	0.996	0.989	1.041	1.142
2007	1.121	1.137	1.017	0.993	0.960	0.925	0.946	0.941	0.961	0.964	1.028	1.092
2006	1.087	1.055	1.028	0.991	0.965	0.936	0.963	0.971	0.977	0.994	1.032	1.062
2005	1.164	1.074	1.046	0.988	0.940	0.907	0.921	0.934	0.974	0.985	1.042	1.103
2004	1.198	1.091	1.038	0.987	0.962	0.918	0.917	0.925	0.957	0.992	1.040	1.104
5 YR AVG	1.146	1.088	1.032	0.985	0.955	0.925	0.936	0.942	0.973	0.985	1.037	1.101

Rural - Major Collectors (07), Minor Collectors (08), Locals (09)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2008	1.083	1.093	1.040	0.977	0.956	0.923	0.957	0.957	0.979	0.976	1.038	1.133
2007	1.108	1.119	1.013	0.977	0.927	0.927	0.962	0.948	0.957	0.973	1.043	1.109
2006	1.095	1.060	1.037	0.973	0.946	0.925	0.958	0.960	0.972	0.997	1.029	1.058
2005	1.123	1.066	1.060	0.980	0.958	0.936	0.937	0.928	0.982	0.980	1.032	1.110
2004	1.180	1.081	1.056	0.973	0.941	0.948	0.948	0.966	0.948	0.973	1.016	1.064
5 YR AVG	1.118	1.084	1.041	0.976	0.946	0.932	0.952	0.952	0.968	0.980	1.032	1.095

Note: The seasonal adjustment factors are used to expand average 24-hour volumes to estimated Annual Average Daily Traffic (AADT).

April 2009

ANNUAL GROWTH FACTORS BY FUNCTIONAL CLASS 1999 - 2008

YEAR TO:	YEAR OF COUNT:									
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Urban - Interstate (11), Freeways and Expressways (12)										
1999	-	1.005	0.925	0.894	0.867	0.857	0.835	0.821	0.790	0.807
2000	0.995	-	0.921	0.890	0.863	0.853	0.831	0.817	0.786	0.803
2001	1.081	1.086	-	0.966	0.937	0.926	0.903	0.887	0.853	0.872
2002	1.118	1.124	1.035	-	0.970	0.958	0.934	0.919	0.883	0.902
2003	1.153	1.159	1.067	1.031	-	0.988	0.963	0.947	0.911	0.930
2004	1.167	1.173	1.080	1.043	1.012	-	0.975	0.958	0.922	0.941
2005	1.197	1.203	1.108	1.070	1.038	1.026	-	0.983	0.945	0.966
2006	1.218	1.224	1.127	1.089	1.056	1.043	1.017	-	0.962	0.982
2007	1.266	1.273	1.172	1.132	1.098	1.085	1.058	1.040	-	1.021
2008	1.240	1.246	1.147	1.108	1.075	1.062	1.035	1.018	0.979	-

Urban - Principal Arterials (14), Minor Arterials (16), Collectors (17), Local (19)										
1999	-	0.967	0.937	0.884	0.896	0.907	0.906	0.899	0.911	0.940
2000	1.034	-	0.969	0.914	0.926	0.937	0.936	0.930	0.942	0.972
2001	1.067	1.032	-	0.943	0.956	0.967	0.966	0.960	0.972	1.003
2002	1.131	1.094	1.060	-	1.013	1.025	1.024	1.017	1.031	1.064
2003	1.116	1.080	1.046	0.987	-	1.012	1.011	1.004	1.017	1.050
2004	1.103	1.067	1.034	0.975	0.988	-	0.999	0.992	1.005	1.037
2005	1.104	1.068	1.035	0.976	0.989	1.001	-	0.993	1.006	1.038
2006	1.112	1.075	1.042	0.983	0.996	1.008	1.007	-	1.013	1.046
2007	1.097	1.061	1.028	0.970	0.983	0.995	0.994	0.987	-	1.032
2008	1.063	1.028	0.997	0.940	0.952	0.964	0.963	0.956	0.969	-

Rural - Interstate (01)										
1999	-	1.044	1.010	0.963	0.959	0.946	0.941	0.934	0.927	0.943
2000	0.958	-	0.968	0.923	0.918	0.906	0.902	0.895	0.888	0.903
2001	0.990	1.033	-	0.953	0.949	0.936	0.932	0.924	0.917	0.933
2002	1.038	1.084	1.049	-	0.995	0.982	0.977	0.970	0.962	0.979
2003	1.043	1.089	1.054	1.005	-	0.987	0.982	0.974	0.967	0.983
2004	1.057	1.103	1.068	1.018	1.013	-	0.995	0.987	0.979	0.996
2005	1.062	1.109	1.073	1.023	1.018	1.005	-	0.992	0.984	1.001
2006	1.071	1.118	1.082	1.031	1.026	1.013	1.008	-	0.992	1.009
2007	1.079	1.127	1.091	1.040	1.034	1.021	1.016	1.008	-	1.017
2008	1.061	1.107	1.072	1.022	1.017	1.004	0.999	0.991	0.983	-

Rural - Principal Arterials (02), Minor Arterials (06)										
1999	-	1.045	1.022	1.009	1.032	1.004	1.005	0.996	0.996	1.047
2000	0.957	-	0.978	0.966	0.988	0.961	0.962	0.953	0.953	1.002
2001	0.978	1.022	-	0.987	1.009	0.982	0.983	0.974	0.974	1.024
2002	0.991	1.035	1.013	-	1.022	0.995	0.996	0.987	0.987	1.038
2003	0.969	1.013	0.991	0.978	-	0.973	0.974	0.965	0.965	1.015
2004	0.996	1.041	1.018	1.005	1.028	-	1.001	0.992	0.992	1.043
2005	0.995	1.040	1.017	1.004	1.027	0.999	-	0.991	0.991	1.042
2006	1.004	1.049	1.027	1.013	1.036	1.008	1.009	-	1.000	1.052
2007	1.004	1.049	1.027	1.013	1.036	1.008	1.009	1.000	-	1.052
2008	0.955	0.998	0.976	0.964	0.985	0.959	0.960	0.951	0.951	-

Rural - Major Collectors (07), Minor Collectors (08), Locals (09)										
1999	-	0.952	0.954	0.934	0.931	0.927	0.939	0.944	0.938	1.003
2000	1.050	-	1.002	0.980	0.978	0.974	0.986	0.991	0.984	1.053
2001	1.048	0.998	-	0.978	0.976	0.972	0.984	0.989	0.983	1.051
2002	1.071	1.020	1.022	-	0.997	0.993	1.006	1.011	1.004	1.074
2003	1.074	1.023	1.025	1.003	-	0.996	1.009	1.014	1.007	1.077
2004	1.078	1.027	1.029	1.007	1.004	-	1.013	1.018	1.011	1.081
2005	1.064	1.014	1.016	0.994	0.991	0.987	-	1.005	0.998	1.067
2006	1.059	1.009	1.011	0.989	0.986	0.982	0.995	-	0.993	1.062
2007	1.067	1.016	1.018	0.996	0.993	0.989	1.002	1.007	-	1.070
2008	0.997	0.950	0.952	0.931	0.928	0.925	0.937	0.942	0.935	-

Note: Factors in this table are used to adjust previous year AADTs to a more current year for similarly classed roads (e.g. to adjust a 2004 urban interstate AADT to a 2007 equivalent, you would multiply the 2004 AADT by 1.085). This table is completely updated and supersedes any previous listing of year-to-year adjustment factors.