

Impact Threshold Curve

The purpose of an impact threshold curve is to provide one tool to help determine whether the "secondary" or unintentional impacts of Neighborhood Traffic Management Program (NTMP) projects are acceptable. These impacts are frequently in the form of increased traffic on adjacent, non-project, Local Service streets. Impact limitations are expressed as a curve because the level of impact that is considered acceptable will vary, depending on the characteristics of the street being impacted by the NTMP project.

Among the benefits of employing an impact threshold curve are:

- a) residents of adjacent non-project streets are provided with some assurance that traffic problems on one Local Service street will not be solved by simply shifting the problem to other Local Service streets;
- b) the curve can be translated into a table where the impact limit on any given street can be quickly and easily identified; and
- c) the impact curve provides a quantifiable and objective standard for measuring the success or failure of a project.

The Citizen Advisory Committee recommended that the following guidelines be followed in establishing numeric impact limitations on non-project local service streets.

1. The standard impact curve for NTMP projects should be expressed in terms of **total traffic volume**, i.e., vehicles per day (vpd). The parameters of the curve should be:

- a) It should have a **floor** of at least **150 vehicles per day**. In other words, an increase of up to 150 vehicles per day as a result of an NTMP project is acceptable on any street⁽¹⁾, regardless of its prior volume.
- b) The curve should have a **ceiling** of no more than **400 vpd**, i.e., no increase of more than 400 vpd on any Local Service street.
- c) The **resulting traffic volume** on any local service street should not exceed 3,000 vpd.

Using a spreadsheet and a set of formulas, these parameters have been used to establish a standard NTMP Impact Threshold Curve. [This curve is shown below.](#)

2. Because of the margin of error inherent in the collection of traffic volume data due to machine error and daily volume fluctuation, the curve should be presented as a wide band or range rather than a specific line. This allows the error margin to be accommodated within the range.

Therefore, two supplementary curves, one on either side of the standard curve, should be shown along with the standard curve. These "margin of error" curves should be plus or minus 50 vehicles per day or 10 percent of the measured pre-test volume, whichever is greater.

The "standard" curve then becomes the "median" curve within a range. An increase in traffic volume that falls between the median curve and the lower curve would *probably* be acceptable. An increase that falls between the median and the upper curve would *possibly* be acceptable. An increase that falls above the upper curve would clearly *not* be acceptable.

3. The standard impact curve may be modified for application to a particular NTMP project based on consideration of the following:

- a) The ratio of local to non-local traffic on the project street and adjacent streets.
- b) The percentage of the rerouted traffic that is local vs. non-local.
- c) The pre-existing traffic volume on the project street.
- d) The proximity of arterial routes that can absorb rerouted traffic.

e) Peak hour volumes.

f) Truck traffic.

Modifications to the "standard" or "median" impact curve would automatically result in adjustments to the upper and lower "margin of error" curves.

An impact threshold curve is only one tool for judging whether a project's impact on adjacent streets is acceptable. In a sense, the curve describes impact goals for the project. An increase in traffic volume that exceeds the impact threshold described by the curve is not necessarily fatal for a project, unless the project traffic committee has chosen to make that commitment. Other, more qualitative criteria should also be used to help determine whether a project's secondary or unintended impacts are acceptable.

NTMP Impact Threshold Curve

Describes Acceptable Traffic Volume Increases on Non-Project Streets

CAC/TEC Recommendations April 24, 1991

Set Parameters

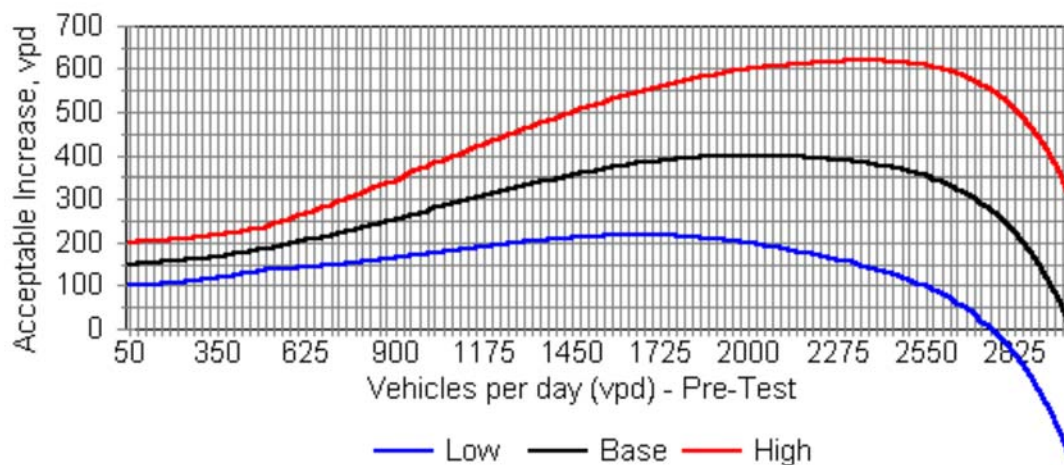
CEILING 400 (Peak Increase) at: 2,000 Pre-Test Volume

FLOOR 150 (Floor Increase) at 0 Pre-Test Volume

COLLAPSE 1,123 Exponent Factor for Tail End of Base Curve (Set this parameter at bottom of spread sheet.)

Acceptable Increases in Traffic Volume

on Non Project Streets



Pre-Test Volume	Base Sine Curve	Acceptable Net Increase			Net Increase in Percent		
		Low	Base	High	Low	Base	High
50	150	100	150	200	200%	300%	400%
100	152	102	152	202	102%	152%	202%
125	152	102	152	202	82%	122%	162%
150	153	103	153	203	69%	102%	136%

175	155	105	155	205	60%	88%	117%
200	156	106	156	206	53%	78%	103%
225	158	108	158	208	48%	70%	92%
250	160	110	160	210	44%	64%	84%
275	161	111	161	211	41%	59%	77%
300	164	114	164	214	38%	55%	71%
325	166	116	166	216	36%	51%	66%
350	168	118	168	218	34%	48%	62%
375	171	121	171	221	32%	46%	59%
400	174	124	174	224	31%	43%	56%
425	177	127	177	227	30%	42%	53%
450	180	130	180	230	29%	40%	51%
475	183	133	183	233	28%	39%	49%
500	187	137	187	237	27%	37%	47%
525	190	138	190	243	26%	36%	46%
550	194	139	194	249	25%	35%	45%
575	198	140	198	255	24%	34%	44%
600	202	142	202	262	24%	34%	44%
625	206	143	206	268	23%	33%	43%
650	210	145	210	275	22%	32%	42%
675	214	146	214	281	22%	32%	42%
700	218	148	218	288	21%	31%	41%
725	223	150	223	295	21%	31%	41%
750	227	152	227	302	20%	30%	40%
775	232	154	232	309	20%	30%	40%
800	236	156	236	316	20%	30%	40%
825	241	159	241	324	19%	29%	39%
850	246	161	246	331	19%	29%	39%
875	251	163	251	338	19%	29%	39%
900	255	165	255	345	18%	28%	38%
925	260	168	260	353	18%	28%	38%
950	265	170	265	360	18%	28%	38%
975	270	173	270	368	18%	28%	38%

1000	275	175	275	375	18%	28%	38%
1025	280	177	280	382	17%	27%	37%
1050	285	180	285	390	17%	27%	37%
1075	290	182	290	397	17%	27%	37%
1100	295	185	295	405	17%	27%	37%
1125	299	187	299	412	17%	27%	37%
1150	304	189	304	419	16%	26%	36%
1175	309	191	309	426	16%	26%	36%
1200	314	194	314	434	16%	26%	36%
1225	318	196	318	441	16%	26%	36%
1250	323	198	323	448	16%	26%	36%
1275	327	200	327	455	16%	26%	36%
1300	332	202	332	462	16%	26%	36%
1325	336	204	336	469	15%	25%	35%
1350	340	205	340	475	15%	25%	35%
1375	344	207	344	482	15%	25%	35%
1400	348	208	348	488	15%	25%	35%
1425	352	210	352	495	15%	25%	35%
1450	356	211	356	501	15%	25%	35%
1475	360	212	360	507	14%	24%	34%
1500	363	213	363	513	14%	24%	34%
1525	367	214	367	519	14%	24%	34%
1550	370	215	370	525	14%	24%	34%
1575	373	216	373	531	14%	24%	34%
1600	376	216	376	536	14%	24%	34%
1625	379	216	379	541	13%	23%	33%
1650	382	217	382	547	13%	23%	33%
1675	384	217	384	552	13%	23%	33%
1700	386	216	386	556	13%	23%	33%
1725	389	216	389	561	13%	23%	33%
1750	390	215	390	565	12%	22%	32%
1775	392	215	392	570	12%	22%	32%
1800	394	214	394	574	12%	22%	32%

1825	395	213	395	578	12%	22%	32%
1850	397	212	397	582	11%	21%	31%
1875	398	210	398	585	11%	21%	31%
1900	398	208	398	588	11%	21%	31%
1925	399	207	399	592	11%	21%	31%
1950	400	205	400	595	10%	20%	30%
1975	400	202	400	597	10%	20%	30%
2000	400	200	400	600	10%	20%	30%
2025	400	197	400	602	10%	20%	30%
2050	400	195	400	605	9%	19%	29%
2075	399	192	399	607	9%	19%	29%
2100	398	188	398	608	9%	19%	29%
2125	398	185	398	610	9%	19%	29%
2150	397	182	397	612	8%	18%	28%
2175	395	178	396	613	8%	18%	28%
2200	394	175	395	615	8%	18%	28%
2225	392	171	394	616	8%	18%	28%
2250	390	167	392	617	7%	17%	27%
2275	389	163	391	618	7%	17%	27%
2300	386	159	389	619	7%	17%	27%
2325	384	155	387	620	7%	17%	27%
2350	382	150	385	620	6%	16%	26%
2375	379	145	383	620	6%	16%	26%
2400	376	140	380	620	6%	16%	26%
2425	373	134	377	619	6%	16%	26%
2450	370	128	373	618	5%	15%	25%
2475	367	122	370	617	5%	15%	25%
2500	363	115	365	615	5%	15%	25%
2525	360	108	360	613	4%	14%	24%
2550	356	100	355	610	4%	14%	24%
2575	352	91	349	606	4%	14%	24%
2600	348	82	342	602	3%	13%	23%
2625	344	72	334	597	3%	13%	23%

2650	340	61	326	591	2%	12%	22%
2675	336	49	316	584	2%	12%	22%
2700	332	35	305	575	1%	11%	21%
2725	327	20	293	565	1%	11%	21%
2750	323	4	279	554	0%	10%	20%
2775	318	-14	264	541	-0%	10%	20%
2800	314	-33	247	527	-1%	9%	19%
2825	309	-55	227	510	-2%	8%	18%
2850	304	-80	205	490	-3%	7%	17%
2875	299	-107	181	468	-4%	6%	16%
2900	295	-137	153	443	-5%	5%	15%
2925	290	-170	122	415	-6%	4%	14%
2950	285	-207	88	383	-7%	3%	13%
2975	280	-249	49	346	-8%	2%	12%
3000	275	-295	5	305	-10%	0%	10%

Exponent Factor = 1.123 For collapsing

1. Subject to the restriction in guideline "c)"