



Traffic Calming Update

by the
Municipality of Anchorage—Traffic Engineering Division

December 2013

Community Council Edition

Issue: 3



In This Issue

Neighborhood Traffic Calming Update

Why Do People Speed?

Neighborhood Traffic Calming Update

At the beginning of the summer, we set the ambitious goal of completing 100 traffic calming studies before the onset of snow. Thanks to the hard work of the data team, we managed to complete 150!

Over the next two months, this information will be sent out to the individual Community Council's so that they may determine whether or not to support traffic calming on those streets that qualified. The Community Council's may also find it useful to prioritize these projects in their areas.

For all new individual traffic calming requests, we are requiring Community Council endorsement prior to us initiating any activities. This should enable us to focus limited resources to the areas that would most benefit, as well as enable the Council's and their political leaders to gauge the demand for the program, and advocate for the program to be funded in a manner that is consistent with the demand.

We have been received some phone calls about relocated speed hump signs. All speed humps will eventually have signs adjacent to them, as opposed to 100 feet in front of them. This has been determined to be necessary because it makes it easier for both drivers and Street Maintenance crews to locate them in the winter.

Contact Us

Please direct all traffic calming correspondence to:

Tim Myland
Municipality of Anchorage
Traffic Engineering Div.
4700 Elmore Road
Anchorage, AK 99503

907-343-8470
mylandtd@muni.org

Why Do People Speed?

In order to successfully slow down traffic, one must first understand why people choose the speed at which they drive. The speed at which people choose to drive is based upon their perception of the built environment.

This concept is well understood by traffic engineers and guides their decision making when designing high speed rural and suburban thoroughfares according to AASHTO standards. They adjust various design criteria to ensure that traffic flows at a minimum desired rate of speed, referred to as the design speed of the roadway. Historically, many traffic engineers have mistakenly applied this prescriptive highway design methodology to urban roads, which has had a negative impact to many American cities.

Posted speed limits have almost no impact on vehicle speeds, but rather are more of a legal tool for enforcement of violations. In fact, speed limits are typically set based upon observing how fast people choose to drive on a roadway and modified such that the vast majority of drivers remain in legal compliance. If most people are found to be driving over the speed limit, a “speed trap” is found to exist, which is illegal in most states.

So, rules and regulations are not an effective way of slowing people down. Fortunately, there are design adjustments that are effective in slowing people down. These design adjustments tilt the balance away from aggressive driving, and towards defensive driving.

When designers, community stakeholders, and politicians understand these factors, the likelihood of a successful, cost effective traffic calming project are substantially increased. The most successful traffic calming projects will occur when community stakeholders and engineers are willing to acknowledge and/or adjust a number of these factors. So what are they?

High Speed Road



Wide “Street”

Street Width

People tend to drive faster on wide roads than they do on narrow ones. The wide road is more forgiving of driver error, thus giving the motorist increased confidence to drive faster. Narrow roads require motorists to be more aware of their surroundings, and are less forgiving of high speed driver error, thus people respond by driving slowly.

Many street improvement projects seek to widen the street. This is often justified by “increased safety” (for high speed drivers). However, the needs of pedestrians, bicyclists, children, and the elderly are often not considered in this safety analysis.

Low Speed Road



*Narrow Street
Clarendon Street
Boston, MA*

High Speed Road



Freshly Paved Street

Pavement Smoothness

People drive faster on smooth surfaces than they do on rough surfaces. In some rare cases, rough surfaces have intentionally been installed. Such treatments are highly expensive and only feasible in dense areas with high economic output.

Hardly anyone would choose to allow an asphalt pavement to deteriorate and fill with potholes in order to calm traffic. However, this factor should be considered in anticipation to a repaving project. Replacing a poor quality pavement with a fresh pavement will lead to an increase in vehicle speeds. On a street that already is bordering on having speeding problems, a repaving project could solidify those problems. On such streets, this effect should be anticipated and traffic calming incorporated into the repaving project.

Horizontal Cross-Section

People drive faster on roads that have a cleared horizontal cross-section than they do on roads with a built up horizontal cross-section. For high speed roadways, it is often desirable to remove roadside trees and to require large front yard setbacks to encourage safe (at high speed) travel.

With a cleared cross-section people intuit less risk at higher speeds, presumably because the consequences of skidding off the road are reduced. Additionally, they have visual “certainty” that there are no animals or people that might suddenly dart out into the roadway.

On a road that is confined by tall buildings with minimal setbacks, or alternatively by street trees, people drive defensively because of the potential consequences of driving off of the road. Additionally, there is a degree of uncertainty about who or what may suddenly dart out into the road. Therefore, people instinctively drive more slowly.

Low Speed Road



*Cobblestone Street
Main Street
Nantucket, MA*



Street with Failed Pavement



*Wide Open Cross-Section
Lincoln Highway at
Bonneville Salt Flats, UT*



*Street Confined by Buildings
Sutter Street
San Francisco, CA*



*Street Confined by Street Trees
Sheldon Jackson Street
Anchorage, AK*

High Speed Road



*Large Blocks
Salt Lake City, UT*

Block Length and Unimpeded Block Length

Large block layouts encourage higher speed driving than smaller block layouts. Small block layouts reduce the number of cars on the road because they are more conducive to pedestrian activity. Large block layouts tend to require larger, higher speed roads since the frequency of roads and the distance to crossings is reduced, further discouraging pedestrian activity. Once a city has been developed, this is unlikely to change.

Unimpeded block length refers to the length of an individual street between stop or signal controlled intersections. When this distance is high, people drive faster because they have more of a chance to build up speed. It is not recommended to add a stop sign or signalized intersection in order to reduce this length, however, a neighborhood traffic circle could be highly effective.

Low Speed Road



*Small Blocks
Portland, OR*



*Large Unimpeded Block Length
Nunaka Drive
At Nunaka Valley
Anchorage, AK*



*Small Unimpeded Block Length
Acheson Lane
At Nunaka Valley
Anchorage, AK*

High Speed Road



Straight Road

Curvature

The degree of curvature on a road effects the chosen operating speed of the motorist. In fact, the design speed of any highway is correlated to the radii of its sharpest curves. The reason for this is two-fold. For one, the motorist physically feels an increase in force on their body when rounding a curve, increasing their sense of discomfort. This discomfort is minimized at slower speeds. Secondly, any degree of curvature reduces the sight distance of the motorist, increasing their level of caution, and leading them to slow down.

It is often challenging to add curvature within the confines of an existing linear right of way, but in some instances it may be possible.

In modern suburban design, straight road segments are often minimized and curved road segments required in order to naturally encourage low speeds.

Pedestrian and Bicyclist Presence

Motorists select slower operating speeds when sharing the road with pedestrians and bicyclists. To some extent, dedicated infrastructure can be added to encourage pedestrians and bicyclists to feel safer on our streets. However, land use decisions are often of greater importance in influencing pedestrian and bicyclist activity. For example, the road at the left has a dedicated sidewalk available that goes unused because poor urban planning has created an area that is hostile and burdensome to pedestrians.

Low Speed Road



*Curved Road
Lombard Street
San Francisco, CA*



*Pedestrian Unfriendly
Development with Box Stores and
Strip Malls
Huntsville, AL*



*Pedestrian Friendly Development
Times Square
New York, NY*

High Speed Road



Endless Sight Lines

Sight Distance

Sight distance impacts motorist operating speed by affecting the level of uncertainty on the part of the driver. High speed roadways often specify substantial vegetation clearing and land re-grading so that the motorist can have the confidence needed to drive fast.

On roads where low speeds are desired, clearing and re-grading should be minimized to the maximum extent practicable. On an existing road, lush landscaping could be added to the roadside or inside a neighborhood traffic circle to reduce excessive sight distances. Obstructed sight lines lead to defensive driving and thus lower vehicle speeds.

On-Street Parking Utilization

On-street parking spaces are beneficial from a traffic calming perspective, provided the spaces are actually being used. Parked cars narrow the available paved width of the road, and the visual width of the corridor, both of which slow motorists down. Additionally, parked cars protect pedestrians from the actions of reckless drivers.

However, streets with many unused on-street parking spaces function as wide streets lacking in any vertical confinement, leading to high vehicle speeds. This is on top of the fact that they are a wasteful use of potentially valuable land, expensive to maintain, and increase stormwater related problems.

The best designed neighborhood streets will provide an amount of parking suitable for the typical anticipated usage. Infrequently utilized on-street parking should be removed and replaced with landscaping as resources allow.

Low Speed Road



Limited Sight Lines



*Low On-Street Parking
Utilization
Fall River, MA*



*High On-Street Parking
Utilization
Charlotte, NC*

High Speed Road



*Suburban Sprawl
Anytown, USA*



*Suburban Sprawl
Anytown, USA*



*Suburban Sprawl
Las Vegas, NV*

Land Use

Although most transportation professionals can honestly claim that they have been given no direct role in land use decisions, every transportation project influences land use by incentivizing or discouraging certain forms of development. For example, creation of new and/or expanded high speed arterial roads generally subsidize the type of development seen to the left.

In the absence of heavy government investment in highway and arterial road construction, the type of development seen to the right is what naturally tends to occur. If deficit fueled transportation spending on large highway projects is reduced in the future, as many are predicting, communities will begin to revert to their most economically efficient state, which is walkable, mixed-use urban surrounded by rural.

Every person has an internal time clock, or a travel budget. This is about 1 hour, give or take a few minutes. Interestingly, anthropologists have discovered that this has remained relatively constant throughout human history. This is called Marchetti's Constant and understanding of it could be used to solve speeding problems created by land use issues.

Those who live far away from frequent destinations such as work, school, shopping, etc. may be in violation of Marchetti's Constant, whereby in an attempt to restore balance, they may be more prone to speed, run red lights, and commit other traffic crimes. In an excessively residential area like those on the left, one solution could be to loosen restrictive zoning rules to allow limited commerce, such as a corner store or daycare. This could reduce the total number of vehicle trips as well as reduce the daily travel burden of the individual, leading to fewer traffic violations.

Low Speed Road



*Church Street Marketplace
Burlington, VT*



*NW 23rd Ave
Portland, OR*



*Davis Square
Somerville, MA*