# DOT Policy and Procedure 05.05.020

## Purpose
This formalizes the policy and procedure (P&P) of the department on establishing speed zones and setting safe and uniform speed limits.

## Policy
It is the policy of the department to establish speed limits in accordance with applicable statutes and regulations.

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## Chapter
- **Design and Construction**
- **Section**: Highways

## Approval
[Signature]

## Integrity · Excellence · Respect
Alaska’s Speed Limit Policy

- Contained in DOT Policy and Procedure (P&P) 05.05.020, Establishment of Speed Limits and Zones
- Incorporates pertinent provisions of Alaska Statues and Alaska Administrative Code
- Defines **regulatory maximum speed limits and speed zones**; includes process for setting speed limits in work zones and conducting public involvement.
Regulatory maximum speed limits are in effect on roadway segments that have not been subjected to speed studies and lack speed limit orders.

There are four regulatory maximum speeds in Alaska:

- 15 miles per hour in an alley;
- 20 miles per hour in a business district;
- 25 miles per hour in a residential district; or
- 55 miles per hour on any other roadway.

Regulatory maximum speed limits are in effect except where speed limit orders establishing different limits have been completed and those limits have been posted.
When regulatory maximum speed limits do not apply

- Where regulatory maximums do not fit specific road or traffic conditions, the P&P provides for the establishment of speed zones.
- DOT determined that Glacier Highway through Auke Bay warranted establishment of a speed zone.
- Also, statutory conditions of AS 19.10.072 were present.
- Speed studies and speed limit orders were completed (early 1990’s). Confirming Speed Studies were also done in 2012.
- 35 mph and 40 mph speed zones were established through Auke Bay.
Establishing speed zones

• Data driven process
• Several factors are considered when establishing speed zones:
  - The speed that drivers are driving ("85th percentile"). Determined by speed study.
  - Presence of statutory conditions (AS 19.10.072)
  - Police enforcement of traffic speed
  - Crash history
  - Roadway alignment
The 85th percentile

- Definition: the speed that 85% of motorists drive at or below, as determined by speed study.
- The results of a speed study are presented in statistical form (bell curve) and the 85th percentile speed is determined.
- Absent any other conditions, a speed zone may be established at the 5-mph incremental speed nearest the 85th percentile speed.
- Example: an 85th percentile speed of 46 mph would result in a 45-mph speed zone.
TYPICAL SPEED DISTRIBUTION OF TRAFFIC ON MOST ROADS

Posted Speed Limit Range = 85% of motorists below this line, Adjusted for local development and road characteristics.

Low Speed Drivers do not fit within the majority of users or the road environment.

"Pace" = Most Drivers

Aggressive Speeders disregard the road environment, other vehicles, as well as any posted speeds.

Optimum posted speeds have the greatest percentage of traffic operating within a 10 MPH band (pace). A majority of motorists are commonly reasonable and prudent drivers who react to the road environment. Posted speeds accurately reflect reasonable and prudent driver observation, road character and activity. Average speeds are the minimum posted speed when adjusting for local conditions (DOT/PF Policy). Posting too low creates greater speed differential and thus more safety conflicts. Red areas are candidates for other solutions, including education, enforcement, traffic devices, or new road designs to meet demand, such as alternative routes to segregate traffic uses.
(a) In determining safe speed limits and safe speed zones, the department shall consider the following factors in the order of priority listed:

1. neighborhood safety, including the presence of children and pedestrian traffic;
2. the presence of schools, houses, parks, and crosswalks;
3. the presence of driveways, parked vehicles, and multiple turn locations;
4. that speed at which safe and prudent drivers could pass through the speed zone; and
5. the effectiveness of local enforcement of the speed zone.

- These factors usually lead to downward adjustment of 85th percentile speed, but not below the median speed of the pace.
Per AS 19.10.072(b):

- *In determining safe speed limits and safe speed zones within a municipality, the department shall consult with that municipality. In determining safe speed limits and safe speed zones on highways and other roadways under its jurisdiction, the department shall also consult with community councils or other community organizations in the affected area if the community councils or other community organizations request in writing to participate in the determination. The department shall provide notice and opportunity for a hearing before establishing a speed limit or speed zone other than as recommended by a municipality, community council or other community organization.*
October 2012 speed study

- Glacier Highway speed studies were conducted in October 2012 to validate existing speed zones.
- P&P procedure is to record speeds of 100 vehicles operating under free-flowing conditions (i.e., not impeded by traffic signals, stopped traffic, etc.)
- 665 samples were taken during a 2-hour recording session.
- Environmental conditions required by P&P were present (dry pavement, during the day, tangent section of roadway).
Highlights of Oct 2012 speed study

• Measured in front of UAS bookstore
• The 85th percentile speed was 38 mph
• That compares with 37 mph back in 1991
• The pace (10-mph interval containing the most speed study samples) was 27 – 37 mph.
• 480 of 665 vehicles (72%) were operating within the pace. >70% is considered a valid study.
• Median of the pace was 32.3 mph
• Average (mean) speed was 32 mph
Because statutory conditions are present, the 85th percentile speed of 38 mph needed to be reduced.

In this case, the P&P instructs us to “… reduce the speed limit, but not below the median speed of the pace …”

The median speed of the pace is 32.3 mph.

Results in a 35 mph speed zone.
More than just putting up signs
Cross sectional elements
• Roadway Width – lanes, shoulders/bike lanes
• Number of Lanes
• Sidewalk Width – presence of pedestrians

Alignment
• Curvature of roadway – how sharp are curves
• Condition of roadway surface

Environment
• Presence of buildings
• On-street parking
• Gateway features
• Enforcement
Lane width influences the comfort of driver, and therefore the travel speed.

- Narrow lanes (less than 12 feet) reduce the comfort of the driver and typically lead to reduced speeds.
- Glacier Highway through Auke Bay has 11.5% truck traffic. This combined with boat trailer traffic and the horizontal curves through the corridor affect the choice of lane width.
Lane Width: Truck Off Tracking

- Maximum width of swept path
- Path followed by innermost tire
- Path followed by outside tractor tire
Road Geometry: Curvature

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Juneau, AK – 20 MPH
Petersburg, AK – 20 MPH
Ketchikan, AK – 20 MPH
Auke Bay
Auke Bay
Gateway features: Roundabout

Sitka, AK
Enforcement also part of the equation

The presence of police enforcement is critical to speed zone effectiveness.
We do not propose to change the current speed orders through Auke Bay.

Speed zoning is data-driven and dependent on roadway configuration.

Posting lower speed limits on the current or proposed cross-section is not likely to be successful.
- Drivers won’t respect an excessively low speed zone
- Would require continuous enforcement; not feasible
- Crashes are more likely to happen
- Fosters disrespect of all traffic control devices

Per the P&P, the traffic engineer cannot recommend or approve a speed zone less than the median of the pace.
Questions?

- Pat Carroll, P.E., 465-4415
- Greg Lockwood, P.E., 465-2393
- David Epstein, P.E., Traffic Engineer, 465-4483