



# Speed Zone Manual

**Traffic Engineering Section | Delivery & Operations Division**  
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## Preface

The primary reason for establishing speed limits is safety. The posted speed should inform motorists of maximum driving speeds that are considered safe and reasonable for a highway section under free-flowing traffic and favorable weather and visibility conditions.

Safe and reasonable highway speeds are determined through an engineering study. The study is based upon nationally accepted standards that include a review of roadway characteristics and users. These characteristics include, but are not limited to, traffic volumes, crash history, highway geometry, roadside development, and density, etc.

Previous studies<sup>1</sup> suggest posting speeds near the 85th percentile speed minimizes crash occurrence and provides favorable driver compliance. More recent studies<sup>2</sup> suggest that posting speeds near the 85th percentile is more applicable to rural areas and freeways to reduce crash potential. The 50th percentile speed may be more appropriate for areas within urban areas where there is development and vulnerable users.

Oregon procedures consider the functional class and context (roadside development) of the section in urban areas. This helps to balance what is perceived as reasonable and safe by drivers with what the community perceives as reasonable and safe.

The purpose of this manual is to provide guidance for speed zone investigations in Oregon. The technical data such as travel speeds, traffic volumes, and crash history are used to provide guidance to the decision maker.

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<sup>1</sup> [https://safety.fhwa.dot.gov/speedmgt/ref\\_mats/fhwasa1304/Resources3/40%20-%20Accidents%20on%20Main%20Rural%20Highways%20Related%20to%20Speed,%20Driver,%20and%20Vehicle.pdf](https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa1304/Resources3/40%20-%20Accidents%20on%20Main%20Rural%20Highways%20Related%20to%20Speed,%20Driver,%20and%20Vehicle.pdf)

<sup>2</sup> <https://nap.nationalacademies.org/catalog/26216/posted-speed-limit-setting-procedure-and-tool-user-guide>

# 100 Speed Zone Basics

## 101 History in Oregon

The speed laws in Oregon have evolved over time. Speed zone orders established under old statutes are still in effect until superseded by new speed zone orders. Prior to 1993 the State Speed Control Board was authorized to initiate an engineering study to determine speeds on roads other than state highways. The Highway Commission determined speeds on state highways. In 1993 the authority for setting speeds was given to ODOT and the speed zone review panel was created to provide an appeal process.

More recently, in 2016 [ORS 811.111](#) was amended to establish higher speeds on some sections of interstate and state highways in Eastern Oregon. In 2019, the ORS was changed to make all streets, roadways, and highways in Oregon speed limits. The change included allowing all cities the option of lowering their statutory speeds for residence districts that are not arterials by five miles per hour. In 2021, the ORS was changed to allow the delegation of speed zoning authority to local jurisdictions, requiring adhering to criteria established in administrative rule and requiring written notice to ODOT before posting signs.

## 102 Statutory Speed Limits

Oregon Revised Statutes (ORS) give road authorities the following statutory speed limits that can be posted at the discretion of the road authority if a street or highway meets the definitions described under [ORS 801.100](#) (definitions) and the criteria as described under [ORS 811.105](#), [ORS 811.111](#), and [ORS 810.200](#):

- 15 mph – alleys; narrow residential roadways.
- 20 mph – business districts, school zones (and some residential).
- 25 mph – residential districts, public parks, ocean shores.
- 55 mph – most open rural highways, trucks on some interstate highways.
- 60 mph – trucks on some open rural highways, (OAR designates trucks on most interstates).
- 65 mph – passenger vehicles, light trucks, motor homes and light duty commercial vehicles on most interstate highways; some open rural highways; trucks on some interstate and open rural highways.
- 70 mph - passenger vehicles, light trucks, motor homes and light duty commercial vehicles on some interstates and open rural highways.

In addition, within ORS 811.111 (subsections 2 through 12) some specific sections of rural highways and interstates (in eastern Oregon) have different statutory speeds than shown above.

Although these highways and interstates may have some segments with designated speeds, they generally have posted speed limits as follows:

- On some rural highways - 60 mph for trucks and 65 mph for passenger vehicles, light trucks, motor homes and light duty commercial vehicles.
- On some interstates and one specific rural highways - 65 mph for trucks and 70 mph for passenger vehicles, light trucks, motor homes and light duty commercial vehicles.

### 102.1 Residence Districts

A road authority must be careful when posting residence districts. Residence district statutory speeds do not apply to roads that are federally functionally classed as arterials. (Note: Some residence district statutory speeds were established on arterials prior to the exclusion of arterials in statute, these are still enforceable if they were posted prior to the statutory change in 1997). Most postings of residence districts are straight forward and no question, but a section of roadway that meets the legal definition and may be somewhat higher speeds or some mixture of contexts may indicate that the roadway may need to be given special considerations. It may be prudent to consider conducting an engineering study to determine the recommended speed. The engineer should determine whether a statutory speed is applicable or if an engineering study is necessary, after considering the character of the roadway.

A section of highway can be posted with a statutory residence district speed limit only if it meets the specifications listed below:

- The section of highway must be contiguous to a residence district, as defined in [ORS 801.430](#).
- The section of highway has a federal functional classification of local or collector as listed on the [ODOT TransGIS](#) federal functional class layer and the PDF files provided on the [ODOT Maps webpage](#).
- The road authority must rescind any existing speed zone order **prior to posting** a statutory speed limit along the section of highway. ODOT or the road authority with delegated authority over the entire existing order must complete the rescindment.

The process for posting a section of highway with a statutory residence district speed limit is typically less intensive than posting a designated speed limit. A jurisdiction may decide that the best option is to perform an engineering study and establish a designated speed regardless of whether or not it meets the statutory speed requirements.

## 102.1.1 Basic procedure for identifying a residence district statutory speed limit:

- Determine the federal functional classification of the roadway.
  - If the roadway section has a federal functional classification of arterial or higher, an engineering study is **required**. Most state highways are arterials and require an engineering study to designate a speed.
- Determine if the roadway segment qualifies as a residence district as defined in ORS.
  - Best practice involves counting all driveways on both sides, as these are all access points. (Only count properties with multiple accesses to the roadway segment once).
  - Determine the average distance between driveways.
    - Divide the length of the roadway by the number of driveways.
    - Residence districts must have an average of equal to or less than 150 feet between driveways.
  - If the roadway segment has driveways on one side and a park or vacant area on the other side, it still must meet the spacing requirements described in the ORS.
- Identify whether the segment of road has access to property occupied primarily by multifamily dwellings (apartment complexes, etc.). Multi-family dwelling access may qualify a road as a residence district.
- Rescind any existing speed zone order prior to posting a statutory speed if the order designates an alternate speed on that section of roadway.
  - If ODOT has issued an order, the road authority must request, via email, ODOT rescind the order so the roadway can operate under the new statutory speed.
  - The road authority must determine which segments on the existing order are changing and which segments will remain unchanged, as appropriate. The authority must indicate whether the unchanged segments need a new order issued.
  - For speed zone order involving multiple road authorities, the requesting authority must coordinate with the other appropriate road authorities and/or ODOT to issue new orders to ensure all speed zone segments correctly remain in force.

Additionally, a city or county may pass an ordinance that establishes a designated speed limit 5 mph below the statutory speed limit in a residence district after they have determined the roadways meet specific criteria as detailed in ORS 810.180 (10) or (11).

[ORS 810.180 \(10\)](#) requires a city or county to determine that the roadway meets all of the following:

- The roadway is located within a residence district.
- The roadway is not classed an arterial.
- Has an average volume of fewer than 2,000 motor vehicles per day.
- More than 85 percent of which are traveling less than 30 miles per hour.
- There is a traffic control device on the roadway that indicates the presence of pedestrians or bicyclists.
- The speed limit shall be posted along the roadway.

[ORS 810.180 \(11\)](#) is specific to only cities and requires a city to determine that the roadway meets all of the following:

- The roadway is located within a residence district.
- The roadway is not classed an arterial.
- The speed limit shall be posted along the roadway.

## 102.2 Business Districts

The roadside development must meet the definition of a business district found in [ORS 801.170](#). Business districts can be problematic since there are numerous sections that technically meet the qualifications for a business district. There are many sections of roadway where establishing a business 20 mph speed zone is inappropriate given the roadway character and context. For instance, a five-lane facility near major shopping centers and commercial areas with large parking areas fronting the street may technically meet the definition of a business district but would be entirely inappropriate to set a business 20 mph. The only appropriate context in which to establish a business 20 is in an urban core context.

When the context is other than an urban core it may be necessary to perform an engineering study to determine the recommended speed. The determination of whether a statutory speed is applicable or if an engineering study is necessary should be determined by the engineer after consideration of the character of the roadway.

The following factors should be taken into consideration when determining if a business statutory speed is appropriate:

- Context (should be an urban core).
- Composition of roadside development in the area.
- Number of lanes in each direction.
- Traffic volumes and congestion.

- Lane width.
- Parking.
- Pedestrian and bicycle movements.
- Marked crosswalks.
- Proximity of business to the highway.
- Operating speeds.

To establish a statutory speed an investigation should be performed and consist of some or all of the previous characteristics along with the engineer's recommendation. Send a request to rescind the designated speed, along with the study, to the state traffic engineer.

## 103 Designated Speed Limits

**Designated speed limits** are established when statutory speed limits may not be reasonable or applicable. [ORS 810.180](#) allows ODOT primary authority to designate speed limits on all public roadways when it is different than the statutory speed limit. It directs ODOT to use the process described in Oregon Administrative Rules (OAR) when establishing designated speed limits on public roadways. The statute also allows ODOT to delegate its authority to counties listed in [ORS 810.180\(5\)\(g\)](#) or a city with jurisdiction over their public roadways only if the road authority will exercise the authority according to criteria adopted by [OAR 734-020-0013](#).

This manual outlines the process of implementing the OARs to designate speed limits different than statutory by establishing a speed zone. ORS requires ODOT or its delegated authority conduct an engineering investigation to determine the appropriate speed.

[OAR 734-020-0014](#) defines the speed zoning terms used within OAR 734-0020-0013 and OAR 734-020-0015 through 734-020-0017. A copy of these OARs are available on the Secretary of State's web site at <https://sos.oregon.gov/>.

[OAR 734-020-0013](#) describes the delegation and certification processes, compliance and oversight, and speed zone procedures for road authorities requesting delegated authority.

[OAR 734-020-0015](#) describes the requirements establishing maximum speeds on public roads by ODOT and other road authorities under ORS 810.180, Designation of Maximum Speeds. This rule applies to all public roads except for the establishment of speed limits on interstate highways under OAR 734-020-0010.

[OAR 734-020-0016](#) describes the process for establishing speed zones on paved low volume roads of less than 400 ADT (as outlined in the OAR). ODOT may delegate authority to the road authority to conduct speed zone investigations and set speeds on roadways within their jurisdiction that meet the definition of low volume (ORS 810.180 (5)(f)).

[OAR 734-020-0017](#) describes the process for a road authority to request the authority to conduct a speed zone investigation on an unpaved road.

[OAR 734-020-0018](#) describes the process for establishing variable speeds.

In addition, any road authority may establish **emergency or temporary speeds** as per [ORS 810.180 \(8\) and \(9\)](#). These are commonly used to establish reduced speeds for work zones and following major events (i.e. fire, flood, tsunami, or damage to infrastructure after a major crash).

## 103.1 Speed Zoning Principles

Statutes require that designated speed zones be established based on an engineering study. Oregon Administrative Rules detail the engineering study including the required data. Some of the data to be included are:

- Context

Features such as roadside development (business, residential, rural, etc.) should be properly categorized, including type and density of adjacent land use.
- Federal Functional Class

The federal functional class of the roadway identifies the role the roadway plays in moving vehicles through the network of highways (i.e., urban arterial, rural collector, etc.).
- Speed Characteristics

Spot speed studies are used to determine the speed distributions of traffic at a specific location. The 50th and 85th percentile speeds are determined as well as the pace limits (the ten mile per hour range that contains the most vehicles), percent of total vehicles within the pace limits and maximum speed.
- Crash history

A crash analysis should be conducted as a routine part of speed zone investigations.
- Non-motorized users (i.e., pedestrians and bicyclists)

When determining the appropriate speed, pedestrians and bicyclists should be taken into consideration. The type of facilities for non-motor traffic, such as sidewalks and separated cycling paths versus shoulder use, should be considered.
- Geometric features

Geometric features include vertical and horizontal alignments, lane and shoulder widths and available sight distance. The appropriate warning sign with speed advisory plaques should be used rather than lower speed limits to indicate appropriate speeds for curves and hills.
- Enforcement

Signing alone is of little benefit accomplishing a change in travel speeds. Even if most drivers believe the limits are reasonable and comply with them, enforcement is essential

to ensure conformity of the remaining drivers. Setting speed zones too low makes enforcement difficult and expensive. The deterrence effects of enforcement are temporary and must be reinforced often.

- Public testimony

The road authority may consider public testimony before establishing a speed zone. Extenuating circumstances or other issues may be revealed beyond the speed zone investigation.

- Traffic Volumes

Traffic volumes are a key factor affecting drivers' choice of speeds and the determination of appropriate speed limits. On two lane rural highways, which have limited capacity and restricted geometric design features, travel speeds tend to deteriorate more rapidly with increasing traffic volumes.

- Accesses

Numerous accesses (i.e., intersections and driveways) which are typically found in urban, or community settings can increase the potential of vehicle conflicts. The presence and spacing of accesses are known to affect the safety of roadways.

The speeds drivers select are heavily influenced by roadway design and roadside development. If the objective is lower operating speeds, posting lower speeds alone often does not result in satisfactory outcomes. **The posted speed in concert with design elements and enforcement are necessary if desired operating speeds are to be achieved.**

Speed zones are not:

- Speed zones are not a tool to warn motorists of spot conditions. If a condition is found to exist within a road section under study, consider correcting this condition or using an appropriate warning sign with an advisory speed rider in line with the MUTCD.
- Speed zones are not an appropriate countermeasure to address high crash locations. The crash history may be relevant to the speed zone if the crashes are spread out along a section. But if concentrated around a single feature, such as a severe curve or intersection, the crashes may be more related to the feature. The road authority should conduct a separate field review to identify possible causes and develop recommendations for improvements for high crash locations.
- Speed zones are not a substitute for enforcement. Efforts should be made to coordinate the implementation of speed zones with the enforcement policies of the governing enforcement agency. The availability of enforcement for traffic speeds is an important consideration in establishing a posted speed. Appropriate speed zones coupled with consistent enforcement increases the safe operation of traffic by discouraging high risk behavior.

- Speed zones are not a substitute for appropriate speed management countermeasures to slow traffic. The jurisdiction should implement physical changes to the roadway or roadside to encourage drivers to slow.

## **103.2 Urban Speed Zones**

Urban areas involve a range of considerations, more conflicts, a wider variety of users and significant distractions. Traditionally urban area roadways were classified as to their ability to move traffic and provide access to adjacent property. There is a higher demand now for including community planning objectives. This includes acknowledging the context which the roadway passes through and other transportation users. Urban roadways should be designed to provide for a variety of transportation modes and users within the corridor.

The speed of the roadway is one of the most important elements in the design of the roadway and has significant impact on the safety of users, particularly on vulnerable users such as bicyclists and pedestrians, but also for motorists. A lower speed significantly reduces the potential of fatal and serious injury crashes for pedestrian and bicycles. The same is true for motorists, lower speeds reduce the probability that a motorist will be severely injured or killed in a crash, especially for angle crashes.

Current national research<sup>3</sup> supports lower speed limits than the 85th percentile in urban areas. The 50th percentile speeds are more appropriate speed limits given the types of collisions and the vulnerable users.

## **103.3 Rural Speed Zones**

Rural areas represent a large percentage of public roadways in Oregon and a wide range of geographical and topographical conditions. Most rural roadways provide a high-speed travel network between major urban areas. Some rural roadways are main streets of rural communities and may need to be treated more like urban areas.

National research supports 85<sup>th</sup> percentile speeds as a major factor in setting speed limits in rural areas of sparse development.

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<sup>3</sup> <https://nap.nationalacademies.org/catalog/26216/posted-speed-limit-setting-procedure-and-tool-user-guide>

## 200 Speed Zone Review Panel

The speed zone review panel's purpose is to conduct hearings for contested speed zones and determine the speed to be designated. The panel also serves as an advisory body to ODOT on speed zoning issues and practices.

The panel must consist of the five following persons:

- The chair of the Governor's Transportation Safety Committee or a representative designated by the chair.
- The superintendent of the Oregon State Police or a representative designated by the superintendent.
- The Chief Engineer of the Oregon Department of Transportation or a representative designated by the engineer.
- Two additional members, one representative of the interests of cities and one representative of the interests of counties. The League of Oregon Cities and the Association of Oregon Counties must appoint a member representing the interest of cities and counties respectively.

Typically, when a road authority disagrees with ODOT's recommendation or a recommendation is outside ODOT's authority set in OAR 734-020-0015, the road authority or ODOT can take the matter to the speed zone review panel as a contested speed zone. A road authority with delegated authority may also take a speed zone recommendation to the speed zone review panel if the recommendation is outside the authority set in OAR 734-020-0015.

The hearing process is a public meeting. The state traffic engineer will summarize the staff report. The state traffic engineer may read any letters received from those not in attendance, including the local jurisdiction and their reasoning for objecting to the speed recommended.

Typically, a video of roadway may be shown if available. The road authority representative may state their case and present any studies or pictures in support of their case. The road authority or local agency does not have to attend, but it typically helps their case. Anyone else who attends from the public may give testimony.

The panel will deliberate on a decision until a majority agrees. During the discussion the panel may, at their discretion, ask clarifying questions of the public, road authority or ODOT staff. The panel's decision is final, there are no conditions on the panel, they have authority via the OAR to approve any final designated speed.

## 300 Speed Zone Requests

Unless a road authority has delegated authority to perform speed zoning, ODOT must receive a request for investigation with a recommended speed. This request must be from the jurisdiction and include concurrence from any interested jurisdictions (i.e., any jurisdiction involved in maintaining the roadway or a county road within the city limits). This request will initiate an investigation to determine if a change in speed is appropriate. The request for an investigation and any recommended speed should come from the engineering or public works department of the jurisdiction, if possible.

Requests must be submitted from applicable road authority as follows:

- City, for city streets and state highways within the city.
- County, for county roads.

For rural state highways private constituents may submit a request to ODOT.

## 301 Requests for City Streets and State Highways within City Limits

A request to investigate a roadway within city limits must come from the city. Any constituent wishing to make a request to change the speed on a street within the city must work with the city.

Unless the city has delegated authority to perform speed zoning on their streets, the request by the city should be submitted to the Traffic Engineering Section via an online request form (<https://ecmnet.odot.state.or.us/SpeedZone/Home/RequestForm>). If the roadway to be investigated is under the authority of more than one jurisdiction, the agency requesting the investigation needs to provide ODOT with the location of the political (e.g., city limit lines) and maintenance boundaries.

## 302 Requests for County Roads

A request to investigate a county road must come from the county. Any constituent wishing to make a request to change a speed on a county road must work with the county. The request must be made by the county.

Unless the county has delegated authority to perform speed zoning on their roadways, the request by the county should be submitted to the Traffic Engineering Section via an online request form (<https://ecmnet.odot.state.or.us/SpeedZone/Home/RequestForm>). If the roadway to be investigated is under the authority of more than one jurisdiction, the agency requesting the investigation needs to provide ODOT with the location of the political (e.g., city limit lines) and maintenance boundaries.

## 303 Requests for State Highways Outside of City Limits

For rural state highways outside city limits, including a rural community, the request may be in the form of a letter or email ([ODOTSpeedZoning@odot.oregon.gov](mailto:ODOTSpeedZoning@odot.oregon.gov)). The request can be made by a constituent or another road authority. The request should contain at least the section of road to be investigated, the reason for the investigation and a recommended speed.

## 304 Requesting a Rescission to Go Statutory

An agency may email a request to ODOT to rescind the current speed order and allow the roadway to go to statutory speed (i.e., residence district). The road authority should send the necessary information about the location and name of the roadway to [ODOTSpeedZoning@odot.oregon.gov](mailto:ODOTSpeedZoning@odot.oregon.gov). See section [102 Statutory Speed Limits](#) for more details on this process.

## 305 Requesting Cancellation of a Previous Request

The original requestor or the state traffic engineer (STE) can cancel an investigation request. Send a request with reasoning to [ODOTSpeedZoning@odot.oregon.gov](mailto:ODOTSpeedZoning@odot.oregon.gov).

If a segment of roadway has had a full investigation performed within the last five (5) years and there have been no major geometric or traffic related changes an investigation may be postponed. This means if there has been a recent investigation completed on a roadway segment the department may decide to postpone the investigation until a later date. This decision should be documented in a memo to the STE and a subsequent memo from the STE to the requesting agency detailing the reason for the postponement.

In some cases, a region office may perform a preliminary investigation and determine that further investigation is not necessary. A preliminary investigation justifying the reasoning for the cancelation is then submitted to the STE and they will send a response to the local jurisdiction or constituent.

## 306 When an Agency Conducts Their Own Investigation

An agency may conduct their own engineering study. There is no need for a request prior to the investigation unless the agency is requesting delegated authority under OAR 734-020-0013 (see Requests for Delegated Authority for Public Paved Roads). The agency should get concurrence from any interested jurisdiction prior to an investigation. The investigation along with the agency's recommendation should be submitted to the appropriate region traffic office for review or can be submitted directly to the state traffic engineer's office.

## 400 Engineering Study Procedures

This approach to the required engineering study remains the same for both the standard report format and the alternative report format. It is important to develop repeatable practices to ensure the speed zoning is carried out consistently throughout the state.

### 401 Preliminary Research and Data for Investigations

Prior to performing a field investigation, research and compile the most current data for the following:

- Established speed zones (existing speed zone orders).
- The most recent investigation.
- Correct mileposts (if on state highway).
- Current map(s) and aerial photo.
- Crash data.
- Average Daily Traffic (ADT).
- Google Street View or similar aids.
- Federal functional class.
- City and county boundaries.

#### 401.1 Gather Established Speed Zones and Investigations

Obtain the current speed zone orders and previous investigations online at:

<https://ecmnet.odot.state.or.us/SpeedZone/Search/index> (or from ODOT region or the Traffic Engineering Section).

- Be certain to obtain all current orders that cover part or all the roadway section to be investigated and/or those that are contiguous with the roadway section.
- To ensure that all pertinent orders are discovered, consider former, current, or alternative names for the investigated roadway and former and current road authorities.
- It is important to remember that city limits and road names can change along a corridor and the road can change from one jurisdiction to another. Historically, separate orders were written for each road authority so there may be multiple orders covering one roadway.

## 401.2 Determine Federal Functional Classification

The federal functional class of roadway is based on the character of service and the functional use they provide, as defined by the Federal Highway Administration. The three main categories are arterial, collector and local. Federal functional class can be determined from ODOT's TransGIS at <https://gis.odot.state.or.us/transgis/>.

- Arterial – are higher traffic volumes and serve longer trips and typically refers to “Other Principal Arterials” and “Minor Arterials”.

Note: “Interstates” and “Other Freeways and Expressways” are also subcategories of arterials. “Other Freeways and Expressways” are specifically called out when applicable in OAR 734-020-0015. (Speed zoning of “Interstates” is covered under OAR 734-020-0010).

- Collector – both major and minor collectors serving more residential and commercial and channels trips between locals and arterials.
- Local – provides direct access to abutting land and designed to discourage through traffic and high speeds.

## 401.3 Determine City Limits

The city limits boundary of incorporated cities is a critical factor for determining applicable procedures for setting speeds. In general, the method and criteria used for speed zone studies depends on whether or not the roadway segment is inside city limits or outside city limits.

Determine city limits boundaries from:

- ODOT's TransGIS at <https://gis.odot.state.or.us/transgis/>.
- ODOT Mapping at <https://www.oregon.gov/odot/Data/Pages/Maps.aspx>.

Speed zone studies for highways inside city limits may be conducted as described for standard method / urban speed zones (OAR 734-020-0015 (2)). In addition, ODOT may determine whether a highway adjacent to a city limit boundary (i.e., the city limit boundary runs mostly along the right of way of the segment of highway) can be considered as being within the city limits for purposes of designating speeds.

Speed zone studies for highways between city limits and the urban growth boundary may be conducted as described for standard method / urban speed zones (OAR 734-020-0015 (2)) if the highway segment has the same context and roadway character as the adjacent segment within the city limits.

Speed zone studies for highways designated in the functional class of “Other Freeways or Expressways” must be conducted as described for standard method / rural speed zones (OAR 734-020-0015 (3)), regardless of whether the highway is inside or outside city limits. Most speed

zone studies for highways outside city limits must be conducted as described for standard method/rural speed zones (OAR 734-020-0015 (3)).

Speed zone studies for any city street or county road that are federally functionally classed as “collector” or “local,” may be conducted as described for alternative investigation method (OAR 734-020-0015 (4)). The alternative investigation method may not be used on state highways or roadways federally functionally classed as “Arterial,” “Interstate” or “Other Freeway and Expressways.”

## **401.4 Determine Mileposts on State Highways**

There are different data sources to determine the mileposts for state highways and the sources can vary.

- State Highway Inventory Reports and Summary Reports (Recommended).
- TransGIS (corrected to scale).
- Virtual Highway Corridor (ODOT’s 3D mobile mapper data).
- MicroStation maps with aerials.

The information obtained from the different sources can vary. The state highway inventory reports provide mileposts of features related to the highway system. The milepost information comes from engineering stationing on construction plans. The data is then verified and augmented in the field using a distance measuring instrument. When possible, use state highway inventory summary reports mileposts for tying field work to the inventory reports. These are the most likely to be surveyed mileposts.

The data in TransGIS has often been corrected to be able to scale it with other types of data than linear data. Eventually this information may be the main source, but as of now, it should be used as an alternative to help sort out discrepancies when there is conflicting milepost information.

The MicroStation maps derived from aerial surveys have been corrected for both vertical and horizontal coordinates. However, they do not have all the features mile posted or available to scale off the map. Be aware of the possible discrepancies between the electronic maps and the straight-line data in the state highway reports. Reconcile straight-line data, and your field data, to the map by keeping distances proportionately correct per the field logs. Keeping watch for extra or missing mileage (mile point equations) on state highways.

Virtual Highway Corridor is an easy-to-use tool, it uses data from LIDAR and GIS and is survey grade correct. This is also very useful tool for scoping out the area ahead of the field investigation.

## 401.5 Gather Crash Data

Obtain crash data for the section of roadway being investigated from official ODOT crash data. The data may be obtained from [ODOT Crash Analysis and Reporting Unit](#), from [TransGIS](#) or from ODOT's [Oregon Transportation Data Explorer](#) (OTSDE). See [section 501.6.3 Crash Data](#) for more information on how to present the crash data in the report.

Typically, an investigator pulls crash records using the OTSDE graphical website or by using the standard reporting formats at <https://tvc.odot.state.or.us/tvc/>, most often using the comprehensive PRC format.

### 401.5.1 Crash Data Considerations

- Crash data for each investigated section must include at least three full consecutive calendar years of recorded crashes. A partial year of data for the current year can be included also. If volume data or the comparable crash rate aren't provided for the most recent year of crash data then use the most recent three years of data with volume and comparable crash data. Contact the speed zone team if you have questions about which years of data to use.
- Speed zone investigations consider crash rates in the recommended sections including intersections, the exception to this is that intersections which begin/end a section are not included.
- The ODOT crash data is made up of only reported crashes. The statewide or countywide crash rates are composed of only data from the ODOT official crash data. Adding supplemental data skews the results and possibly adds crashes that are not reportable by statute.
- On local roads (unless the jurisdiction uses mileposts) the investigator must pull crash records for the roadway using the PRC report and compare them to the crashes within TransGIS to locate the applicable crashes for the section of interest. This step can be avoided by using the [Oregon Transportation Safety Data Explorer](#) to pull crash data on local roads. A local jurisdiction may have a decode access database or other data extracts from ODOT Crash Data Unit for their jurisdiction, these databases may be used to populate geo databases.
- Supplemental crash data outside the official ODOT record may be used to determine if there has been more than one fatal or serious injury speed-related crash in the last three years. This is acceptable when a fatal or serious injury crashes occurred in more recent years than published in the official ODOT crash data. The respective jurisdiction is responsible for assuring such a crash is a reportable crash, per ORS or is contained within the Fatal Accident Reporting System (FARS).

- Bicycle and pedestrian crashes are only counted in crashes in which a pedestrian or bicycle was struck by a motor vehicle, not where they might have been involved but not struck.

### 401.5.2 Crash Data Tools

ODOT offers many tools to assist in crash data collection and analysis. These tools are available free of charge and are available on the [Speed Zone Website](#).

One of the main tools utilized in crash data collection and analysis is the [ODOT Crash Decoder Spreadsheet](#). Not only does this tool decode crash data but it also contains links to the databases needed to gather the raw crash data. The next sections will go through the main ways to gather crash data for speed zoning. While there are other ways to gather and analyze crash data it is recommended to use one of the tools detailed in this manual when analyzing crashes for speed zone investigations.

#### 401.5.2.1 Oregon Transportation Safety Data Explorer (OTSDE)

The Oregon Transportation Safety Data Explorer ([OTSDE](#)) is a geographical database of the last 5 years of crash data in Oregon. This tool allows users to geographically select crashes to download. This downloaded data can then be decoded using the [ODOT Crash Decoder Spreadsheet](#). While this tool provides 5 years' worth of data, it is important to note that for speed zone related crash analysis, 3 years of data is required. Once your data is downloaded you can utilize the ODOT Crash Decoder spreadsheet to decode the downloaded data. To utilize the OTSDE tool for speed zoning follow the basic steps below. **More detailed instructions and guidance is available from the ODOT speed zone team.**

1. Open the OTSDE Website
2. Navigate to your investigated roadway
3. Use the crash data filter button (it looks like a funnel) to filter down crashes to the last 3 years of crash data.
4. Use the data reporting button (looks like a report with a magnifying glass) to select the location of your investigation.
5. Once you've drawn a polygon around your selected crashes, click the report button.
6. Once you've downloaded the selected crashes, follow the instructions in the top right corner of the map for using the data with the crash decoder.

#### 401.5.2.2 Crash Analysis and Reporting Unit Crash Reports

The Crash Analysis and Reporting (CAR) Unit has a website for users to download crash reports. This website can be used to pull crash reports on both the local and state roadways. It is important to note that the local road crash reports will take more work to analyze for speed zone investigations and requires more work to filter out crashes that did not occur within the

investigated segment. It is often preferred to pull local road crashes from the OTSDE website instead.

When pulling crashes from this website, pull the most recent three years of data but do not include the available preliminary data. The warning at the top of the webpage will let you know which year is still preliminary crash data.

Crash data and statistics are available online on the [crash statistics and reports website](#). The following crash data reports are available online using the [TDS crash reports website](#).

- Comprehensive PRC (CDS380): *This is the original crash listing*, but now as many types of reports exist it is called the Comprehensive PRC (CDS380) as it gives all the crash information. You will receive information on crash location, including lat-long, date, type of crash, event, cause, errors, road characteristics, vehicle type, vehicle direction of travel, alcohol, or drug involvement; also, participant types, ages, gender, license, and injury severity. This data can be further “De-Coded” using the ODOT Crash De-Coder.
- 3R or Crash Characteristics Summary: This is a summary report on crash characteristics. It reports on several characteristics of each crash within the designated year range and highway and mile point ranges requested.
- Summary by Year (CDS 150): This report gives a crash count by year and collision type. It includes crash severity, number injured or killed, truck involved, road surface, day, dark, intersection or intersection-related, and off road.
- VDL Vehicle Direction: Report lists crashes by highway and milepost. Date, time, road character, off road, collision type, injury severities, vehicle types, and direction of travel for up to three vehicles.

Other reports and data extracts are available by request to the CAR Unit. Contact the CAR Unit for assistance. Spatial crash data is available online in TransGIS - <https://gis.odot.state.or.us/transgis>

### 401.5.2.3 ODOT Crash Decoder Spreadsheet

The quickest and most efficient way to decode crash data is using the ODOT Crash Decoder Spreadsheet. This spreadsheet is available on the [ODOT Speed Zoning Investigation Basics](#) website. This tool allows users to decode the comprehensive PRC data that can be downloaded from the ODOT Crash Analysis and Reporting Unit crash data website or from data downloaded from the Oregon Transportation Safety Data Explorer (OTSDE). This spreadsheet has built in instructions for its use. The image below shows the crash decoder spreadsheet.

Figure 1: Image of the crash decoder spreadsheet.

ODOT Crash De-Coder Version 6.0.3				SUMMARY FUNCTIONS								
PROJECT:				Go To OTSDE Map	Go To Crash Data Sys.	Total Number of Crashes		Unfilter Data	Crash Graphs		View Crash Graphs	Reset DeCoder
HIGHWAY:				Import & DeCode OTSDE Map Data	De-Code PRC Data				Create Crash Graphs	Delete Crash Graphs		
BMP to EMP: to												
DATES: to												
WHEN				AREA								
CRASH ID	DATE	DAY	TIME	COUNTY	CITY	URB AREA	HIGHWAY	FUNCTIONAL CLASS	ROADWAY	COMPONENT		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

### 401.5.2.4 Crash Summary Template

The crash summary template spreadsheet is available on the [ODOT Speed Zoning Investigation Basics](#) website. This template allows you to enter in the crash information for your investigated segment in a form acceptable to ODOT for inclusion in a speed zone investigation report. See section [Appendix C](#) for an example crash summary. Details on what is to be included in the crash summary can be found in section [501.6.3 Crash Data Summary](#).

## 401.6 Google Streetview / Digital Video Log

Before leaving the office, visit the site using Google Street View or the digital video log (or similar tools). This will allow for becoming familiar with the area and what to expect before visiting the site.

In addition, it may assist with collecting data for the field visit so there may be less time spent in the field, exposed to traffic. Review the field checklist ([Appendix N](#)) and then begin collecting field data from the office.

## 401.7 Cancelling a Request Prior to Preparing a Report

If a preliminary investigation is performed (site visit, spot speed checks and crash history) and it is determined that a more detailed investigation or prepared report is not warranted or can't be justified, a final response to deny the request based entirely on its preliminary investigation should be documented. For state highways, a memo should be submitted to the state traffic engineer for speed zoning records and all interested parties should be informed.

## 402 Field Investigation

The field investigation is necessary to ensure speed zoning data collected in the office is correct and to collect additional data. The field investigation is essential to properly understand the data and the issues. [Appendix N](#) contains the Speed Zone Field Investigation Checklist. The investigator may want to begin by collecting as much of the field data as possible from a tool such as Google Street View. On state highways, the investigator may want to try using data

from Lidar and using the Road Analyzer to measure and obtain data (other agencies may have similar tools).

This does not replace the necessity of a field visit, but it may reduce field time and potentially traffic exposure. The data must be field verified.

Included in the data collection for the field investigation is:

- Roadway data.
- Context including land use and density.
- Bicycle and pedestrian activity.
- Photographs.
- Speed Characteristics.

### 402.1 Gather Roadway Data

Start by driving through the section noting traffic flow, comfortable speed and the general road and traffic conditions. Verify existing speed zone boundaries including any possible needed changes.

Documenting the following roadway data on a milepost log can be useful for completing the investigation report. The milepost log for state highways should use the established milepost system. Other roads (city streets and county roads) may need to be mile posted starting from the beginning of the section with milepost zero. A distance measuring system is useful for tracking the order of the roadway features. Alternatively, a video of the roadway with a distance measuring device (using a camera such as a GoPro) would serve as a possible alternative. A milepost log is not required as part of the investigation submittal but is helpful when completing the investigation report.

**Alignment** – sight ahead on roadway along the fog line. If the roadway does not follow a straight line, it is a curve.

- Vertical – Number and location of crest and sag vertical curves.
- Horizontal – Number of horizontal curves, any speed advisory signs or the possible need for signs.
- Sight Distance – Note intersections and major driveway locations with possible sight distance issues (less than adequate stopping sight distance).

**Roadside Characteristics** – collect data for the following:

- Number and type of Intersections.
  - Number of legs.
  - Milepost.

- Left/right.
  - Traffic controls.
- Segment is limited access facility (yes/no).
- Number of driveways (right/left) or relative density per distance.
- Typical sections of the roadway.
  - Width of roadway (shoulder to shoulder or curb to curb).
  - Bike facilities (bike lanes).
  - Width of Travel Lanes.
  - Medians (raised, TWLT, painted, etc.).
  - Islands or pedestrian refuges, or channelization.
  - Pedestrian facilities or sidewalks (with buffer strip).
  - On-street parking.
- Pedestrian/Bike Crossings (marked and enhanced).
- Railroad crossings.
- Bus or Transit Stops (including pullouts or stations).

## **402.2 Determine Context**

Context means the roadway characteristics and land uses accessible by parking or driveway along the highway segment, determined based on the existing land use types, building density, set back of buildings and numbers and types of users of the transportation system accessible along the roadway segment.

The primary context of roadway section depends on the type and density of land use alongside the roadway. The contexts are general and may not fit every location precisely.

There are two rural contexts (or outside incorporated city limits) and four urban contexts (or inside city limits) described in order of increasing density of development.

The investigator (working in collaboration with the engineer) determines the appropriate context based on the predominant land use, density, and type of development. The state traffic engineer is the final authority for determining the context on state highways and all roads not having delegated authority for their jurisdiction. For road authorities with delegated authority for speed zoning, the designated speed zone engineer is the final authority for determining context on their roads.

The definitions and examples in the following sections give a general description of the contexts encountered on highways in Oregon. The context should be evaluated through a combination of

in-office assessment and field visit. Note sections where roadside development changes or where traffic volumes and movements change significantly.

For speed zoning purposes, only use existing land use conditions in the determination of the urban context. Planned uses and future development should not be considered until the actual development is in place or very nearly in place. Planned developments may or may not take place and timing of developments are often delayed, sometimes for years.

In some cases, the urban context may differ on each side of the highway, for speed zoning purposes the predominant context would generally be the denser of the two contexts.

Table 1 provides a more detailed guide to the assessment of the context. It is arranged with the denser context towards the top and the less dense towards the bottom. Use both Table 1 and the following definitions and examples to help you determine the context of the roadway being investigated.

Table 1: Assessing Context

<b>Context</b>	<b>Building Setback</b>	<b>Building Access</b>	<b>Land Use</b>	<b>Building Density</b>	<b>Parking</b>	<b>Block Size</b>
Urban Core	None or little setback	Front door from sidewalk	Mixed (Mostly Commercial may be some residential)	High density and taller buildings	Primarily on-street, maybe some off street	Small consistent blocks
Urban Mix	Little setback	Some front door from sidewalk	Mixed Commercial with some residential	Med to high density and shorter buildings	Some on street and off street	Small to medium block size
Suburban Residential	Little setback	Some access from sidewalk	Mostly Residential, Parks or Recreational	Med density single or multi family	Varies	Small to medium block size
Suburban Commercial	Med to Large setback	Relatively little access from sidewalk	Commercial or Industrial or Institution	Low Density large buildings	Off street parking primarily	Large block size
Suburban Fringe	Varies	Varies	Light Varied Suburban	Low Density to Sparse	On-street with some off street	Larger with not so well defined
Rural Community (Outside City Limits)	Little setback from sidewalk	Some front door from sidewalk	Mixed, mostly Commercial (some residential or parks)	Medium Density maybe mix residential and commercial	Mix of on-street and off-street parking or open front	Small to Medium
Rural (Outside City Limits)	n/a	n/a	Mostly Agriculture or Undeveloped	Sparse Buildings	None to little	Widely spaced intersections and driveways

When a context meets a statutory definition such as business district (ORS 801.170) or residence district (ORS 801.430) the methodology described in this manual can still be used to designate speeds. Alternately, the engineer can decide it is appropriate to use statutory speeds. The use of statutory speeds is more appropriate when the definition and context meet the intent of the definition within the statutes.

## 402.2.1 Rural Context Description and Examples

Areas outside of city limits with lowest density of development. These areas include few houses or structures (widely dispersed or no residential, commercial, and industrial uses), and usually large setbacks from the roadway. Roadside development may include undeveloped land, farms, outdoor recreation areas or low densities of other types of development.

Figure 2a: Example of **Rural**. Mill Creek Road (outside of Turner), via Google Maps



Figure 2b: Example of **Rural**. US101 Oregon Coast Highway (outside of Tillamook), via Google Maps



## **402.2.2 Rural Community Context Description and Examples**

Areas outside of city limits with a concentration of land uses, such as residential, businesses industrial or other public uses. The roadway segment is contiguous to:

1. A residential district or business district (as defined in statute).
2. An unincorporated community that includes a permanent residential dwelling, but also has at **least two other land uses in separate buildings** providing commercial, industrial, or public services for the community, surrounding area or persons traveling through the area.

Rural communities do not have established jurisdictional boundaries like incorporated cities. Typically, the boundary should be defined by the presence of residences and businesses set apart by not more than 150 to 200 feet. The community boundary may be extended by 500 to 1000 feet to cover sparse development along the highway or connecting streets with development off the highway. The boundary should not be extended unless the engineering study supports lengthening the boundary. There are some helpful references for finding rural communities:

1. DLCD Survey of Oregon Unincorporated Communities has some listed by county.
2. Some map services such as Bing and Google have unincorporated communities with boundaries shown.

It should be noted that even though found on these resources they may not fit the definition of rural community as found in speed zoning rules. It is also important to note that boundaries shown on Google and Bing often cover a larger area than where would meet the definition of a rural community.

Some communities on the list no longer have the land uses required. Also, the opposite is true, there may be new rural communities out there along road segments not listed within any list. These lists come from different services and were made for different purposes. There is no comprehensive list of rural communities, it is up to the investigator and engineer to determine if the community meets the definition. Final determination of if a segment meets the definition is up to the state traffic engineer or the designated speed zone engineer for agencies with delegated authority.

Figure 3a: Example of **Rural Community**. Crescent: Highway 4, via US97 Google Maps



Figure 3b: Example of **Rural Community**. Shedd: Highway 58, via OR99E Google Maps



## 402.2.3 Suburban Fringe Context Description and Examples

The suburban fringe generally includes the transition areas, within the city limits, between urban and rural areas, where there may be few homes and structures, sparsely developed land, lower density of business and fewer driveways.

Some highways outside city limits, but within the urban growth boundary, may qualify for analysis using the urban speed zone method, if the highway segment has the same context and roadway character as the adjacent segment within the city limits. Refer to [OAR 734-020-0015\(2\)](#).

Figure 4a: Example of **Suburban Fringe**. Prineville: Highway 380 via US26, via Google Maps



Figure 4b: Example of **Suburban Fringe**. Springfield: Highway 15 via OR126, via Google Maps



## 402.2.4 Suburban Commercial and Residential Context

### Description and Examples

Sections may be identified as suburban commercial, suburban residential or suburban commercial residential. Areas inside of city limits and generally includes areas of land uses that have:

- Residential.
- Offices.
- Restaurants or retail spaces with setbacks from the roadway, usually meant to be accessible by car and may include large parking lots, or which may be characterized by:
  - Big box stores.
  - Commercial strip centers.
  - Auto dealers.
  - Office parks.
  - Gas stations.
- Large residential neighborhoods along the corridor or have their access from widely spaced roadway connections with few driveways to the roadway.

Figure 5a: Example of **Suburban Commercial**. South Redmond: US97/SW Yew Ave, via Google Maps



Figure 5b: Example of **Suburban Commercial**. McMinnville: Pacific Hwy. W (OR99W), via Google



Figure 6a: Example of **Suburban Residential**. Tigard/Metzger: Highway 141/SW Knoll Dr, via Google Maps



Figure 6b: Example of **Suburban Residential**. Grants Pass: Redwood Avenue, via Google Maps



## 402.2.5 Urban Mix Context Description and Examples

Areas inside of city limits and generally include mixed-use (commercial, retail, restaurant, office and residential) high density areas on small lots. Such lots often include buildings adjacent to the sidewalk and parking on the streets.

Buildings are typically not as tall as urban core and may have parking in front or behind the buildings within a well-connected roadway system.

Blocks are typically small to medium in size.

Figure 7a: Example of **Urban Mix**. Portland N Mississippi Ave, via Google Earth



Figure 7b: Example of **Urban Mix**. Cannon Beach: US101 Connection (Sunset Blvd/HWY 009A11), via Google Maps



Figure 7c: Example of **Urban Mix**. Bend: NW Mount Washington Drive, via Google Maps



## 402.2.6 Urban Core/Central Business District Context

### Description and Examples

Urban core and central business districts are areas of highest density inside city limits. They generally include downtown areas with the highest development densities and building heights in the urban area.

These areas have minimal setbacks (building in back of sidewalk), with on-street parking within a well-connected roadway system. Blocks are typically smaller and consistent in size.

Figure 8a: Example of **Urban Core**. Baker City: US30/OR7 (HWY 006), via Google Maps



Figure 8b: Example of **Urban Core**. Salem: State Street via Google Maps

## 402.3 Determine Culture Type and Land Use Density

In the final report submittal, the context will be accompanied by a description of the type and density of adjacent land use. This additional information provides more clarity to the context given to the roadway and notes if the context is inconsistent, otherwise difficult to determine or development along the segment is very sparse. Make note of both the type and density of the existing land use and culture surrounding the roadway along with any changes in this land use and culture. See Section [501.6.1.1.4 Culture Type and Land Use Density](#) for more details on the required information for the final report.

## 402.4 Determine Pedestrian and Bicycle Activity

Built land use and roadside culture affects the pedestrian and bicycle activity. The existence of businesses and other draws such as parks and schools indicate more pedestrian activity and bicycling destinations. Also, the roadway cross section, including facilities for pedestrians and bicycles and the quality of facilities, influence walking and biking. The completeness and connectivity of sidewalks and bike facilities, more connected streets and higher densities of crossing opportunities all contribute to increased use.

Use qualified descriptions High, Medium, or Low to describe the relative use of the segment by pedestrians and bicycles for the roadway. The chosen description should be relative to surrounding and nearby areas. It should not be comparing the conditions in Portland to conditions in Pendleton. Pedestrian generators and not actual numbers are used here.

For instance, if land use is relatively high pedestrian generators and good roadside-built environment for walking and crossing, the description should indicate pedestrian activity High. If there are no generators or pedestrian facilities, then Low. If not either High or Low, indicate Medium.

Factors that might be conducive to pedestrians and bicyclists include:

- On street parking that is utilized.
- Bus stops.
- Regular crossing opportunities.
- Wide sidewalks and furniture for pedestrians.
- Separated or buffered bike lanes.
- High employment density.

Factors that might not be encouraging to pedestrians and bicycles (although the presence of these may not mean low activity, it depends on the surrounding land use)

- High vehicle speeds.
- Multiple lanes in each direction.
- The perception that the street may not be safe for non-motorized users.
- Dis-continuity of route or facilities.

Note any group demographics that are present especially older or younger.

## **402.5 Gather Photographs**

The photographs are intended to document the descriptions of the roadway and major factors considered in the recommendation for the report. Digital photographs are preferred. If the roadway is high volume or it feels unsafe to take photos, you may use images from either Google Street View or ODOT's digital video log. If either of these methods are used, make sure to state image capture date and note anything that has changed since those photos were taken.

Alternatively, a video of the roadway may be used (i.e., GoPro) to gather images.

### **402.5.1 Photo Locations**

- Choose photo locations to show the following:
  - Roadway character.
  - Roadside culture.
  - Signs (including the posted speed signs).
  - Features referenced in the speed zone report and report summary cover letter.

- Photographs should represent each section but are not required to overlap (unless an overlap is necessary to show sign messages or other specific details about the roadway).
- Space photo locations up to 1/4 mile apart while still showing roadway characteristics important to the report recommendations. Spacing may be greater than 1/4 mile if there is no change in the roadway or the roadside culture, and the section is longer than 1 mile. However, it's best not to skimp on photos; it's better to have too many than too few.
  - For the alternative report format a minimum of two photos is required per cross section. If investigation is more than one mile in length a minimum of two photos per mile is required.
- Include photos showing both current speed zones and any expected speed zone changes.
- Include photos of the beginning and end of the investigated section. For these photos, stand outside the investigated section so that the existing speed signs and intersections are in the photos.
- Take photographs from the roadway centerline if possible. Use a two-person crew and/or medians and crosswalk areas when traffic volumes are high, optionally collect images from video.
- Take one photograph ahead on line and one photograph back on line from every photo location. If the first photo shows the back of a sign or an intersection, the second photo of the pair should be taken from a point on the other side of the sign or intersection, so that an overlap is created, and the message/details can be seen.
- If sight distance is restricted where public roadways intersect the investigated roadway, take photos from those intersections to show the sight distance.

### 402.5.2 Recording Photographs

- Number the photographs consecutively in milepost order. (There will usually be two numbers per milepost.)
- If possible, log the photographs consistently, using odd numbers for one of the directions and even numbers for the other direction.
- Record the direction of view and milepost or distance from the **nearest** intersection or permanent landmark for each photograph. The location of the photograph given in the report will be the distance from the nearest intersection.
- For intersections, choose a photo location inside the section and far enough away from the intersection to show all approaches and close enough to show roadside features and traffic control detail.

## 402.6 Determine the Speed Characteristics

Individual speeds selected by motorists generally correspond to the visual driving environment presented to drivers. The roadway alignment, cross section, roadside and other users influence the speed selection of drivers. Spot speed checks at locations throughout the section are used to determine the speed characteristics such as 85<sup>th</sup> percentile, 50<sup>th</sup> percentile and pace limits.

A variety of devices are available to measure speeds, the most common are the following:

- Handheld portable devices such as a radar gun or LIDAR gun.
- Road tubes that are installed on top of the roadway surface.
- Radar or video devices that mount to poles or other structures nearby.

Typically, to get accurate speeds only those vehicles that are free flowing or choosing their own speeds are measured. When a line of vehicles moving closely together (within 4 seconds of each other) only the speed of the first vehicle is measured.

### 402.6.1 Spot Speed Check Requirements

Spot speed checks are used to determine the speed characteristics of a roadway. It is important to take spot speed checks that are representative of the segment, under normal conditions (during daylight and in dry weather), away from conditions that may influence speeds such as curves or intersections.

- Typically, every 1/2 mile with a minimum of two spot speed checks per mile. Note: If the roadway cross section and roadside culture remain virtually unchanged, the interval can be lengthened to 1 mile, or longer for a very long (>3 miles) investigated section.
  - When spacing is lengthened, an explanation should be provided in the report summary cover letter.
- Perform a spot speed check when there is a change in roadside context or roadway cross section for more than 1250 feet.
- Perform at least one spot speed check for each different speed zone section. If you are considering splitting an existing zone section into parts, take a spot speed check in each part (this could reduce the need for a return field trip to take another spot speed check).
- An existing designated speed zone may be adjusted up to 500 feet once without obtaining a spot speed check within that section. A minor adjustment study report is required. Current photos of area are encouraged depending on reason for requesting change.
- A transition speed zone may be added adjacent to an existing speed zone without a spot speed check. A minor adjustment study report is required.

## **402.6.2 Choosing Spot Speed Locations**

- Tangent sections away from controlled intersections are preferable.
  - Do not take spot speeds on curves or near stopped or signalized intersections.
  - If the section is mostly curves, take spot speeds from a representative location.
  - If the section has closely spaced controlled intersections, use a mid-block location, or split the directions into separate locations to obtain suitable free flow data.
- Locations should be chosen with the request information in mind. Good judgment in the choice of location may eliminate additional field trips. This may mean checking:
  - Close to speed zone changes.
  - Near a particular development.
  - Taking more checks than the minimum requirement.

## **402.6.3 Spot Speed Check Operations**

- Take checks:
  - In normal weather (avoid inclement weather, unusual conditions, or work zones)
  - During regular daylight hours
  - Preferably on Tuesdays, Wednesdays, or Thursdays (avoid holidays and weekends)
  - At free flow conditions rather than peak or congested traffic periods
- Remain inconspicuous so as to not influence speeds.
- Do not record speeds of vehicles passing other vehicles.
- Record trucks and other commercial vehicles speeds separately from passenger vehicles if applicable.
  - Trucks/Commercial vehicle speeds are not included in the report unless those vehicles constitute a significant traffic source ( $\geq 20\%$  of traffic), are specifically named in the request for investigation, or are disproportionately represented in crash data
- Count at least 75 vehicles in each direction, unless one of the following:
  - Limit time to three hours maximum per location, even if less than 75 vehicles per direction; or
  - Limit to one hour if less than 8 total vehicles in an hour.

## 402.6.4 Recording Spot Speed Checks

- Fill out the heading on the Spot Speed Survey form (example shown in [Appendix D](#)).
- The listing of the city or county name should be the road authority for that section.
  - Only use city names listed in the "Oregon Bluebook" for incorporated cities, otherwise use the county name.
  - Note the names of unincorporated communities in parentheses if they are within the investigated section.
  - On state highways, use the official highway name, highway number, route number, and milepost.
- Enter the street or road name used by the road authority for a city street or county road.
- If the road carries two names, as is the case with many state highways, list the name on the street signs with the alternate name in parentheses.
- Label each column with the traffic direction at the top.
- Enter the posted speed for the section investigated. If no speed is posted, enter "None (XX mph Stat.)" and use the appropriate statutory speed (ORS 811.105 or ORS 811.111).
- Send an electronic copy of the speed check data with the report to the state traffic engineer.
- Record the time in hours and minutes. Note the time the spot speed check began, and the time completed. If the count is interrupted for any reason, record each count period.

Based on STE engineering judgement, the STE may require more speed checks, recollection of certain speed data, use of only certain periods of time or exclude certain locations of spot speed checks. This may be due to location, hours of congestion or other factors that may impact the collection of speeds.

NOTE: Electronic traffic counters may be used if they can distinguish and analyze headway to count only free flow vehicles as defined above, and if they can tally speeds in 1 mile per hour increments. If an electronic counter is used, the report from the automated analysis must produce the required data or analysis will have to be completed manually for submittal. Periods of congestion and peak periods should be excluded completely from data.

NOTE: Electronic data from cloud-based services based on private and public data sources (such as RITIS and HERE) are currently not allowed to be used for gathering free flow speeds on most highways. Many streets have traffic controls and other features that may restrict free flow speeds (signals, driveways, curves, etc.) and thus speeds measured from these sources may not be appropriate except on free flow facilities such as freeways during non-congested times.

More work to develop procedures to use such tools is occurring.

## **402.6.5 Required Data Statistics**

Utilizing the ODOT provided Speed Summary Statistics tool available on the [Speed Zone Website](#) will ease the necessary calculations. The excel based spreadsheet will calculate all required speed data statistics.

- 85<sup>th</sup> percentile speed.
- 50<sup>th</sup> percentile speed.
- 10 mile per hour pace limits.
- Percent of traffic in the 10 mile per hour pace.
- Percent of traffic exceeding the posted speed.
- Maximum speed, per direction and combined.
- Line or data point chart.
  - With speed in 1 mile per hour increments on the x-axis.
  - Cumulative percentage of total vehicles counted (percentile) on the y-axis.
  - Scaled large enough to read percentile accurately for any speed.
  - A vertical line indicating 85<sup>th</sup> and 50<sup>th</sup> percentile speed and posted speed.

# 500 Standard Speed Zone Report Format

The report provides documentation of the data collected and supports the conclusions reached from the investigation. Each standard speed zone report must closely adhere to the criteria as described in this manual. The report includes in the order of presentation:

- Report outline.
- Map.
- Photograph page(s).
- Crash summary(s).
- Spot speed summary(s).

## 501 Report Outline

The report outline consists of the following ten components:

- Report heading.
- Recommendation.
- Section Descriptions.
- Historical background.
- Data Summaries.
- Investigation Data.
- Roadway Data.
- Crash Data.
- Spot Speed Data.
- Factors influencing the recommendation.

The report outline should be complete and accurate and follow the standard format. See [Appendix I](#) shows the section descriptions for roadways with multiple names. See [Appendix K](#) for the two-page standard report outline template and example.

## 501.1 Report Heading

The heading consists of the following six lines:

- |   |  |
|---|--|
| 1 | OREGON DEPARTMENT OF TRANSPORTATION (or agency conducting study) |
| 2 | Standard Report of Speed Zone Investigation                      |
| 3 | Name of Highway, Street or Road                                  |
| 4 | Description of begin and end points of full report.              |
| 5 | City and/or county jurisdiction and/or ODOT                      |
| 6 | Date   |

### 501.1.1 Lines 1 and 2

Lines 1 and 2 should remain the same for most reports. When the investigation was completed under the direction of a road authority other than ODOT, the road authority or consultant should use their own official designation on line 1.

### 501.1.2 Line 3

This line gives all pertinent names for the road investigated. On state highways, use the official highway name, highway number and the route number if there is one. Abbreviate the route number (US XX) or (OR XX) and milepost (MP) and abbreviate other words only as necessary to fit the report format. The route number can be added in parentheses, for example "Oregon Coast Highway #9 (US101)."

For county roads or city streets that are not state highways, use the name preferred by the responsible jurisdiction. If a roadway has two names, then show both. When the report recommends to "Retain" the present order, use the name of the street or road shown on the order. If the current name is different, add it in parentheses.

### 501.1.3 Line 4

The report includes the investigated section of road along with all orders contiguous along the road including the investigated section. This line lists the beginning and end of the current speed zoning together with the investigation. In most cases one or both endpoints will be outside of the investigated section.

These end points are described by distance and direction from the nearest intersection. (e.g., 450 feet east of Current Road).

On state highways, the list begins and end points beginning with the lowest milepost. For local roads the list begins and end points moving from the city center toward city limits into the county.

When to use Mileposts:

- If the report begins and/or ends on a state highway, spur, or connection, use mileposts in addition to the distance from the nearest cross street.
- State highways only: Only use 'Z' alphanumeric (to indicate overlapping mileage). Alphanumerics for connections and couplets should only be listed in the subtitles.
- Do not use mileposts for city streets or county roads.
- If the report of a city street or a county road begins and/or ends at a state highway, use the highway name and route number, but not the milepost, in the description.

## 501.1.4 Line 5

This line includes all roadway jurisdictions involved in the investigated sections and the current speed zone orders. Interested jurisdiction (more than one road authority shares responsibility for a single section of road – see glossary) must include active responsibilities such as right of way or maintenance authority. The Oregon Transportation Commission (OTC), through ODOT, has sole speed zoning jurisdiction for rural state highways.

Table 2: Use the following format for line 5, adding the number of road authorities necessary.

Road Category	Line 5
City street or State highway in the city	City of XX
State highway outside city	ODOT
State highway in & out of city	City of XX & ODOT
County road in county	XX County
Road in city and county	City of XX & XX County
Interested jurisdictions	Road Authority1/RoadAuthority2

## 501.1.5 Line 6

This line establishes the reporting date. Line 6 should have the month, day, and year the report is completed by the investigator. The figure below shows an example of a report heading.

Figure 9: Example Report Heading

Approved |  
State Traffic-Roadway

OREGON DEPARTMENT OF TRANSPORTATION  
Report of Speed Zone Investigation  
Northeast Portland Hwy #123 (US 30BY) / NE Sandy Boulevard  
NW St. Helens Road (MP 0.00) to 0.15 mile east of NE 238th Drive  
ODOT / City of Portland / City of Gresham / City of Fairview / City of Wood Village  
October 20, 2022

## 501.2 Recommendation

This statement gives the recommended disposition of existing orders and any new speed zoning. It must include the disposition of all orders included within the sections investigated within the speed zone report. Write recommendations in the following formats, combining formats as needed to include all existing orders and changes:

- a) "Retain Order<sup>1</sup> No. XXXX dated XXX:"

*This recommendation is used only when the entire order(s) is being retained with no changes, including school zone or boundary name changes.*

- b) "Rescind Order<sup>1</sup> No. XXXX dated XXX and establish the following speed zoning:"

*Use this wording when changing the designated speed of a speed zone, adding to, or dropping sections of speed zones, or changing school zones or speed zone boundary road names.*

- c) "Rescind Order<sup>4</sup> No. XXXX, dated XXX and establish the following speed zoning. Recommendation to establish a new order is for housekeeping purposes."

*Use this wording when the changes are housekeeping items, and the speed zoning is to remain the same. See [Section 708 Housekeeping Reports](#) for housekeeping procedures.*

- d) "Establish the following speed zoning:"

*Use only when the present speed is statutory or basic rule. An unestablished posted speed is statutory or basic rule unless covered by an existing order.*

- e) "Retain the existing speed:"

*Use when there is no established order, and the recommendation is to retain the statutory speed.*

<sup>4</sup> Use the same labeling (i.e. Order, Resolution, Speed Zone Rule, etc.) as the original document.

The figure below shows an example page with a report heading, recommendation and section descriptions.

Figure 10: Example report showing report heading, recommendation and section descriptions.

**Report Heading**

KARGEL  
Angela J  
Digitally signed by KARGEL Angela J  
Date: 2023.12.20 07:55:55 -08'00'  
Approved by  
State Traffic Roadway Engineer

OREGON DEPARTMENT OF TRANSPORTATION  
Report of Speed Zone Investigation  
Northeast Portland Hwy #123 (US 30BY) / NE Sandy Boulevard  
NW St. Helens Road (MP 0.00) to 0.15 mile east of NE 238th Drive  
ODOT / City of Portland / City of Gresham / City of Fairview / City of Wood Village  
October 20, 2022

**Recommendation**

**Recommendation:** Rescind SZ Order No.13495 dated November 1, 2023 and establish the following speed zoning as listed below:

**Section:**

Section	From	To	MP	Existing	Recommended	Notes
Not Investigated	On St. Johns Bridge Westerly Entrance & Exit Ramps					
A	From: NW St. Helens Road To: N Philadelphia Avenue	0.00 0.56	30 MPH	30 MPH	1/	
	On Philadelphia Avenue (St. Johns Bridge)					
	From: N Philadelphia Avenue To: N Syracuse Street	0.56 1.29	30 MPH	30 MPH	1/	
B	From: N Syracuse Street To: N Ivanhoe Street	1.29 1.32	25 MPH	25 MPH	1/	
	On N Ivanhoe Street					
	From: N Philadelphia Avenue To: N Richmond Avenue	1.32 1.52	25 MPH	25 MPH	1/	
	On N Richmond Avenue					
	From: N Ivanhoe Street To: N Lombard Street	1.52 1.57	25 MPH	25 MPH	1/	
	On N Lombard Street					
	From: N Richmond Avenue To: N Buchanan Avenue	1.57 1.99	25 MPH	25 MPH	1/2/	
C	From: N Buchanan Avenue To: N Russet Street	1.99 3.71	30 MPH	30 MPH	1/	
Investigated	From: N Russet Street To: N Williams Avenue	3.71 5.91	35 MPH	30 MPH	1/	
	Per provisions of ORS 811.111 Subsection 1(e) and ORS 810.200 the following segment(s) within the section above shall be 20 mph. 250 feet east of N Commercial Avenue (MP 5.76) 200 feet east of N Williams Avenue (MP 5.95) School Zone					
	On NE Lombard Street					
	From: N Williams Avenue To: 150 feet west of SW 6th Avenue	5.91 6.21	35 MPH	30 MPH	1/	
	Per provisions of ORS 811.111 Subsection 1(e) and ORS 810.200 the following segment(s) within the section above shall be 20 mph. 250 feet east of N Commercial Avenue (MP 5.76) 200 feet east of N Williams Avenue (MP 5.95) School Zone					
D	From: 150 feet west of SW 6th Avenue To: 100 feet east of NE 13th Avenue	6.21 6.67	35 MPH	35 MPH	1/	

**Section Descriptions**

Investigated and Not Investigated

Speed Zone Sections  
Each letter represents a segment with the same speed limit.

## 501.3 Section Descriptions

This part provides the descriptions to identify both the existing and recommended speed zoning on the road along with any road name and jurisdictional changes. This information is used to write the speed zone orders and to document the current conditions. It is organized as follows and generally in the same order:

- Investigated or not investigated.
- Road name (if more than one).
- Direction of travel (if divided roadway or couplet).
- Recommended speed sections
- Road authority and interested jurisdiction.

Note that no one of the above factors is exclusive of the others, except that division by road authority and interested jurisdiction is always described within each recommended speed section.

### 501.3.1 Investigated or Not Investigated

The heading NOT INVESTIGATED, placed at the left margin, covers all the sections or portions of sections excluded from investigated lengths of road. Every investigated/not investigated portion is listed separately in order from begin point of the report to the end point.

For not investigated sections on local agency roads, list the sections as described on the most current speed zone order. If there is more than one road authority or interested jurisdiction, add the footnote: **Jurisdictional boundaries may have changed from what is shown in the not investigated sections. Although it is not required to update the not investigated sections jurisdictional information it is in the best interest of all parties involved to update to the most recent boundaries for clarity of the speed zone order.**

For not investigated sections on state highways, list the sections and mileposts as described on the most current order. However, if corrections were made in the investigated section(s) that impact the descriptions and mileposts in the not investigated section(s), the not investigated section(s) are to be corrected also. Update the jurisdictional boundaries when there is an annexation notice for that section.

### 501.3.2 Road Names and Direction of Travel

Within the description always completely spell out the roadway's suffix. For example, Street, Avenue, Road, Lane, Way, should be spelled out completely, not abbreviated.

For a couplet or other divided road, the main direction by increasing milepost or distance from city center is listed first with the opposing direction next and then any following speed zoning

on undivided sections. The figure below shows an example of how to show couplets on a report outline.

Figure 11: Example of how to break out couplets on a roadway.

<u>Section:</u>		<u>Existing</u>	<u>Recommended</u>
Not Investigated	<u>On NE 102nd Avenue</u>		
A	<u>From:</u> NE Sandy Boulevard	30 MPH	30 MPH <u>1/</u>
	<u>To:</u> NE Prescott Street		
	<u>From:</u> NE Prescott Street	30 MPH	30 MPH <u>2/</u>
	<u>To:</u> NE Fremont Street		
	<u>From:</u> NE Fremont Street	30 MPH	30 MPH <u>1/</u>
	<u>To:</u> 150 feet south of NE Fremont Street		
	<u>From:</u> 150 feet south of NE Fremont Street	30 MPH	30 MPH <u>2/</u>
	<u>To:</u> 0.12 mile south of NE Fremont Street		
	<u>From:</u> 0.12 mile south of NE Fremont Street	30 MPH	30 MPH <u>1/</u>
	<u>To:</u> 300 feet north of NE Weidler Street		
	<u>From:</u> 300 feet north of NE Weidler Street	25 MPH	25 MPH <u>1/</u>
	<u>To:</u> 200 feet south of NE Wasco Street		
	<u>From:</u> 200 feet south of NE Wasco Street	30 MPH	30 MPH <u>1/</u>
	<u>To:</u> E Burnside Street		
	<u>On SE 102nd Avenue</u>		
	<u>From:</u> E Burnside Street	30 MPH	30 MPH <u>1/</u>
	<u>To:</u> SE Pine Street		
	<u>On SE 102nd Avenue (One-Way, Southbound)</u>		
	<u>From:</u> SE Pine Street	30 MPH	30 MPH <u>1/</u>
	<u>To:</u> 100 feet south of SE Morrison Court		
	<u>On SE Cherry Blossom Drive (One-Way, Southbound)</u>		
	<u>From:</u> 100 feet south of SE Morrison Court	30 MPH	30 MPH <u>1/</u>
	<u>To:</u> SE 103rd Drive		
	<u>On SE 103rd Drive (One-Way, Northbound)</u>		
	<u>From:</u> SE Pine Street	30 MPH	30 MPH <u>1/</u>
	<u>To:</u> SE Cherry Blossom Drive		
	<u>On SE Cherry Blossom Drive (Resume Two-Way)</u>		
	<u>From:</u> SE 103rd Drive	30 MPH	30 MPH <u>1/</u>
	<u>To:</u> SE Market Street		

### Example for Z Mileage:

If a speed zone includes a section of highway that includes 'Z' mileage (see [Appendix A](#) for definition), this is the only time there should be a letter in front of the MP such as 0.22 mile north of Lake Boulevard, MP Z48.94.

### **501.3.3 Recommended Speed Zone Sections**

The roads are divided into sections by the recommended speeds. Sections are defined as one recommended speed zone. Divide the report into more than one section whenever the recommended speed changes.

Consider sign placement when determining the speed zone termini. Questions to consider:

- Can a sign physically be placed at this location?
- Should the lower speed encompass a bridge or an intersection?
- Name the termini so that the sign is placed in the correct spot for the area.

Normally, speed zones should not be changed at an intersection, but on one side or the other of the intersection so that sign placement can match the speed zone order as nearly as possible. Also speed zones shall not be changed within a school speed zone, they should change a few hundred feet either side of a school speed zone to allow for proper sign spacing. Each different recommended speed zone section should be at least 1/4 mile long. Transition speed zones can be a minimum of 1000 feet long. However, the responsible engineer may exercise engineering judgment and recommend establishment of a speed zone less than one- quarter mile in length. This may be exercised when the speed zone begins and ends at an intersecting street. Ramps can be speed zoned separate from their associated roadway if the ramp is at least 1/4 mile in length. However, most ramps operate under the statutory 55 mph speed limit.

Label each section with a letter (except if there is only one recommended speed, no section letter is used). Place the section letter at the left margin. If there are separate descriptions by road name, direction of travel, or road authority which continue the recommended speed, each section will typically be labeled with the same letter. The figure below shows section descriptions along with recommended speed zone sections.

Figure 12: Image showing recommended speed sections and section descriptions

Recommended speed zone sections

Section Descriptions

Section:

Investigated

Not Investigated

		MP	Existing	Recommended	
<u>On Oregon Coast Hwy (US 101)</u>					
A	From:	200 feet northwest of Deer Park Drive	354.33	55 MPH (Stat.)	50 MPH
	To:	0.17 mile northwest of Carpenterville Hwy. (OR 255)	354.66		
	From:	0.17 mile northwest of Carpenterville Hwy. (OR 255)	354.66	55 MPH (Stat.)	50 MPH
	To:	475 feet northwest of W Harris Heights Road	355.27		
	From:	475 feet northwest of W Harris Heights Road	355.27	55 MPH (Stat.)	50 MPH
	To:	250 feet northwest of W Harris Heights Road	355.31		
B	From:	250 feet northwest of W Harris Heights Road	355.31	45 MPH	45 MPH
	To:	100 feet southeast of W Harris Heights Road	355.38		
<u>On Oregon Coast Hwy (US 101) / Chetco Avenue</u>					
	From:	100 feet southeast of W Harris Heights Road	355.38	45 MPH	45 MPH
	To:	0.26 mile northwest of Parkview Drive	355.61		
C	From:	0.26 mile northwest of Parkview Drive	355.61	35 MPH	35 MPH
	To:	350 feet southeast of Crissey Circle (south conn.)	356.39		
D	From:	350 feet southeast of Crissey Circle (south conn.)	356.39	30 MPH	30 MPH
	To:	100 feet northwest of Pacific Avenue	357.06		
E	From:	100 feet northwest of Pacific Avenue	357.06	20 MPH	20 MPH
	To:	100 feet east of Alder Street	357.59		
F	From:	100 feet east of Alder Street	357.59	35 MPH	35 MPH
	To:	0.11 mile east of N Bank Chetco River Road	357.87		
<u>On Oregon Coast Hwy (US 101)</u>					
G	From:	0.11 mile east of N Bank Chetco River Road	357.87	45 MPH	45 MPH
	To:	0.14 mile west of Lower Harbor Road	357.99		
	From:	0.14 mile west of Lower Harbor Road	357.99	45 MPH	45 MPH
	To:	300 feet northwest of Pedrioli Drive	359.50		

1/ ODOT - Road Authority; City of Brookings - Interested Jurisdiction

2/ ODOT - Road Authority

1/ ODOT - Road Authority; City of Brookings - Interested Jurisdiction

2/ ODOT - Road Authority

## 501.3.4 Road Authority

Each section is further divided into segments when there is a change in road authority or interested jurisdiction. The segments describe a portion of the section with a unique road authority and/or interested jurisdiction, following in order of increasing milepost or distance from city center. A footnote is added for each segment designating the road authority and/or interested jurisdiction. See [Appendix E](#) for multiple examples of jurisdiction footnotes. School speed zone segments are shown **only** on state highways. It is not necessary to show these on local agency roadways. The figure below shows an example of footnoting for road authority.

Figure 13: Footnoting for Road Authority

Section:		MP	Existing	Recommended	
Not Investigated					
On NE Lombard Street					
E	From: 100 feet east of NE 13th Avenue To: NE Cully Boulevard	6.67 9.64	45 MPH	45 MPH	1/
F	From: NE Cully Boulevard To: NE Killingsworth Street	9.64 9.77	35 MPH	35 MPH	1/
On NE Killingsworth Street					
	From: NE Lombard Street To: NE 82nd Avenue, Connection #1	9.77 10.37	35 MPH	35 MPH	1/
Not Investigated					
On NE Killingsworth Street					
G	From: NE 82nd Avenue, Connection #1 To: NE Sandy Blvd	10.37 11.29	45 MPH	45 MPH	1/
On NE Sandy Boulevard					
H	From: NE Killingsworth Street To: NE 112th Avenue	11.29 11.95	30 MPH	30 MPH	1/
I	From: NE 112th Avenue To: NE 125th Place	11.95 12.65	35 MPH	35 MPH	1/
J	From: NE 125th Place To: 200 feet east of NE 165th Avenue	12.65 14.74	40 MPH	40 MPH	1/
	From: 200 feet east of NE 165th Avenue To: 300 feet east of NE 165th Avenue	14.74 14.76	40 MPH	40 MPH	3/
On NE Sandy Boulevard (city street)					
	From: 300 feet east of NE 165th Avenue To: 0.12 mile east of NE 201st Avenue		40 MPH	40 MPH	4/
	From: 0.12 mile east of NE 201st Avenue To: 0.10 mile west of NE 205th Avenue		40 MPH	40 MPH	5/
	From: 0.10 mile west of NE 205th Avenue To: 300 feet east of NE 230th Avenue		40 MPH	40 MPH	6/
	From: 300 feet east of NE 230th Avenue To: 0.16 mile west of NE 238th Drive		40 MPH	40 MPH	7/
	From: 0.16 mile west of NE 238th Drive To: 0.15 mile east of NE 238th Drive		40 MPH	40 MPH	8/

1/ ODOT - Road Authority / City of Portland - Interested Jurisdiction  
 2/ Milepoint equation, MP 1.67(BK) = MP 1.69 (AH)  
 3/ ODOT - Road Authority / City of Gresham - Interested Jurisdiction  
 4/ City of Gresham - Road Authority  
 5/ City of Gresham and City of Fairview - Road Authorities; City limits coincident with centerline  
 6/ City of Fairview - Road Authority  
 7/ City of Fairview and City of Wood Village - Road Authorities; City limits coincident with centerline  
 8/ City of Wood Village - Road Authority

## 501.3.5 Describing Sections/Segments

The following capture some of the best practices for describing boundaries for sections and segments.

- Only use distances from the nearest intersection or physical feature such as a river or bridge for referencing the beginning and end points.
  - Do not use jurisdictional boundaries, such as city limits, which are more likely to change. List the county or city limits only as a reference, placing them in parentheses. If the existing order has city limits as a section description, do the research and field verification to establish a current description according to these guidelines.
  - Do not use land divisions such as section or township.
  - Do not reference buildings or other roadside development facilities. In very rural areas, these may be described in the report summary cover letter or other notes for description purposes.
  - Do not reference any signing, including mileposts.
  - When there is a milepost equation within the investigated section, do not use reference point that is after the equation. Reference point should be prior to equation for less confusion.
- Follow these rules when listing distances:
  - List distances from 50 feet (0.01 mile) up to and including 500 feet (0.09 mile) in increments of 50 feet.
  - List distances of more than 500 feet (0.10 mile) as miles and hundredths of a mile.
  - Listing school speed zones on state highways – use the same boundary description conventions for describing school zone boundaries as for section and segment boundaries. List directly under segment where school speed zone is located. It is not necessary to show school speed zones on non-state roadways.
- Place footnote numbers at the right margin of the "Recommended" column across from the recommended speed to refer to road authority and interested jurisdictions applicable to the section.
  - Use footnotes to list the road authority and interested jurisdiction (if any) for each section.
  - Use footnotes to include milepost equations on state highways.
  - Footnotes are listed at the bottom of the section descriptions.

- If the recommendation is to rescind an existing order and establish a new order for housekeeping reasons (no changes to the speed zoning), use a footnote to explain the purpose of the new order.

## **501.4 Listing Existing and Recommended Speeds**

- Existing speeds shown on a current order are the legal speeds.
- If there is no order the applicable statutory speed is the legal speed.
- List the legal speed “XX MPH” under existing.
- When an established speed from an order is not posted, place “XX MPH order # (not posted)” under existing.
- When a statutory speed is not posted list “XX mph stat (not posted)” under existing.
- If there is a current posted speed, but the speed is not established by order or by applicable statute list the posted speed in parentheses beside the legal current speed and note as “(XX MPH unestablished).”
- There can be more than one existing speed for each recommended speed zone. List all the existing speeds in a section side by side separated by “/”, e.g., 45/55 MPH.
- Include “MPH” with all speeds listed.
- Check to be sure there is at least one spot speed check in each existing speed portion of each investigated section. This does not include transition zones (see Minor Adjustment Study).
- Each section has one recommended speed. If a section has multiple segments (e.g., multiple jurisdictions), the same speed is listed for each segment within that section.

The figure below shows an example of how to list existing and recommended speeds by section. See [Section 501.6.4.9 Recommended Speed](#) for more information on how to calculate allowable recommended speeds.

Figure 14: Listing existing and recommended speeds by section.

Report of Speed Zone Investigation  
Northeast Portland Hwy #123 (US 30BY) / NE Sandy Boulevard  
NW St. Helens Road (MP 0.00) to 0.15 mile east of NE 238th Drive  
ODOT / City of Portland / City of Gresham / City of Fairview / City of Wood Village  
October 20, 2022

**Recommendation:** Rescind SZ Order No.13495 dated November 1, 2023 and establish the following speed zoning as listed below:

**Section:**

Not Investigated	On St. Johns Bridge Westerly Entrance & Exit Ramps	MP	Existing	Recommended	
A	From: NW St. Helens Road To: N Philadelphia Avenue	0.00 0.56	30 MPH	30 MPH	1/
	<u>On Philadelphia Avenue (St. Johns Bridge)</u>				
	From: N Philadelphia Avenue To: N Syracuse Street	0.56 1.29	30 MPH	30 MPH	1/
B	From: N Syracuse Street To: N Ivanhoe Street	1.29 1.32	25 MPH	25 MPH	1/
	<u>On N Ivanhoe Street</u>				
	From: N Philadelphia Avenue To: N Richmond Avenue	1.32 1.52	25 MPH	25 MPH	1/
	<u>On N Richmond Avenue</u>				
	From: N Ivanhoe Street To: N Lombard Street	1.52 1.57	25 MPH	25 MPH	1/
	<u>On N Lombard Street</u>				
	From: N Richmond Avenue To: N Buchanan Avenue	1.57 1.99	25 MPH	25 MPH	1/ 2/
C	From: N Buchanan Avenue To: N Russet Street	1.99 3.71	30 MPH	30 MPH	1/
Investigated	From: N Russet Street To: N Williams Avenue	3.71 5.91	35 MPH	30 MPH	1/
	Per provisions of ORS 811.111 Subsection 1(e) and ORS 810.200 the following segment(s) within the section above shall be 20 mph. 250 feet east of N Commercial Avenue (MP 5.76)      200 feet east of N Williams Avenue (MP 5.95)      School Zone				
	<u>On NE Lombard Street</u>				
	From: N Williams Avenue To: 150 feet west of SW 6th Avenue	5.91 6.21	35 MPH	30 MPH	1/
	Per provisions of ORS 811.111 Subsection 1(e) and ORS 810.200 the following segment(s) within the section above shall be 20 mph. 250 feet east of N Commercial Avenue (MP 5.76)      200 feet east of N Williams Avenue (MP 5.95)      School Zone				
D	From: 150 feet west of SW 6th Avenue To: 100 feet east of NE 13th Avenue	6.21 6.67	35 MPH	35 MPH	1/

## 501.5 Historical Background

The historical background follows the section descriptions and describes who made the request, the requested speed, and any previous actions.

## 501.5.1 Investigation Requested By

Include the source of each request, the requestor's name, title, and agency. This includes the agency making the original request and any concurrence from an interested agency. When a constituent is the requestor, include his/her name and address (or email) on the report. If there is a petition, include only the name(s) of the person(s) submitting the petition.

## 501.5.2 Requested Speed

A requested speed is required. List the requested speed(s) by section(s), as necessary.

## 501.5.3 Previous Action

There are three ways to note a previous action:

- "None" indicates that no order exists on the entire length of road described in the report.
- "Established..." indicates that a current order exists. Include the order number and date of the order.
- "Rescinded..." indicates that an order was previously rescinded on this portion of road and no new order was issued.

The figure below shows an example of the Historical Background, including Requested by, Requested Speed and Previous Action information.

Figure 15: Historical Background

### Historical Background:

Investigation Requested by: Christina Charvat, Assistant Traffic Engineer, City of Medford  
Requested Speed:  
Section E: 20 MPH (Statutory - Business District)  
Section F: 25 MPH  
Previous Action: Established SZ Order No. J9264 dated July 9, 2018

## 501.6 Data Summaries

A separate column is created for each investigated section. Sections that were not investigated can be grouped together, as there will be no data in that column. Columns for investigated sections cannot be grouped.

For example, if Sections A, B and C were not investigated and Sections D and E were investigated then you might have three columns, the first column combining Sections A, B and C (with no data) and a separate column for D and E, each with data for the section. [Appendix K](#) has an example of the template as well as a complete report outline. The figure below shows an example of a data summaries page of a report outline.

Figure 16: Data Summary Example

<u>Investigation:</u>	Not Investigated <u>Section A-B</u>	Investigated <u>Section C</u>	Investigated <u>Section D</u>	Not Investigated <u>Section E-J</u>
Section Length	•	2.50 mile	0.46 mile	•
50% Speed	•	32 MPH	39 MPH	•
85% Speed	•	36 MPH	45 MPH	•
2018-2020 Crash Rate*	•	3.48	1.93	•
2020 Average Daily Traffic	•	19,319	22,617	•
Context	•	Suburban Residential	Suburban Residential	•
Culture Type and Density	•	Moderate Residential & Business	Light to Moderate Residential & Business	•
Horizontal Alignment	•	1 Curve	1 Curve	•
Vertical Alignment	•	Mostly Level	Mostly Level	•
Curve Signs & Speed Riders	•	None	None	•
Existing Posted Speed	•	35 MPH	35 MPH	•
Recommended Speed	•	30 MPH	35 MPH	•
*Crashes per Million Vehicle Miles				
<u>Roadway Data:</u>				
Surface	•	AC	AC	•
Width	•	50 ft. (curb to curb)	50 - 70 ft. (curb to curb)	•
Lanes	•	2-4 <u>4/</u>	4 <u>5/</u>	•
Parking	•	Prohibited	Partially Prohibited	•
Shoulders	•	None (curb & gutter)	None (curb & gutter) <u>6/</u>	•
Intersecting Streets	•	53	6	•
Paved	•	53	6	•
Stopped	•	41	5	•
Signalized and Other	•	12 (2 are ramp terminals)	1	•
Pedestrian Activity	•	High	Low	•
Bicycle Activity	•	Low	Low to Moderate	•
Bicycle Lanes	•	20%	30%	•
Sidewalk	•	100%	23%	•
Marked Crosswalks	•	20	1	•
Enhanced Crosswalks	•	3	0	•
Transit	•	Yes	Yes	•
<u>Crash Data:</u>				
Study Period	•	1/1/18 - 12/31/20	1/1/18 - 12/31/20	•
2018-2020 Total Crashes	•	184	22	•
2018-2020 Fatal K Crashes	•	1	1	•
2018-2020 Serious Injury A Crashes	•	8	2	•
2018-2020 Injury B and C Crashes	•	90	16	•
2018-2020 No Injury O Crashes	•	85	3	•
2018-2020 Section Crash Rate (R)	•	3.48	1.93	•
2018-2020 Comparable Crash Rate ( r ) <u>1/</u>	•	1.97	2.10	•
Deviation (R-r)	•	1.51	— — —	•
<u>Spot Speed Data:</u>				
50% Speed	•	32 MPH	39 MPH	•
85% Speed	•	36 MPH	45 MPH	•
Pace Limits <u>2/</u>	•	27-36 MPH	34-43 MPH	•
% in Pace	•	80%	73%	•
Maximum Speed	•	55 MPH	54 MPH	•
Posted Speed	•	35 MPH	35 MPH	•
% Exceeding Posted Speed	•	22%	85%	•
Computed 85th Speed <u>3/</u>	•	34 MPH	45 MPH	•
Recommended Speed	•	30 MPH	35 MPH	•
<u>1/ Section C:</u>				
Urban Minor Arterial (MP 3.71 to MP 6.15) Majority				
Urban Other Principal Arterial (MP 6.15 to MP 6.21)				
<u>Section D:</u>				
Urban Other Principal Arterial (MP 6.21 to MP 6.67)				
<u>2/</u> Ten mile-per-hour range containing the largest number of sample vehicles.				
<u>3/</u> 85% speed minus deviation (if deviation is zero or negative, list 85% speed)				
<u>4/</u> Includes a short parking (stop) section of 250 ft. for buses, 5 ft. bike lanes (buffered) both sides and continuous left turn lane for approximately 1 mile (added from the recent construction project).				
<u>5/</u> Includes 5-8 ft. bike lanes both sides for the last approximately 0.13 mile and on-street parking for the last 100 ft. on right side.				
<u>6/</u> Majority is curb & gutter however the last approximately 0.13 mile is bordered by a fog line resulting in 8-13 ft. of paved shoulder (8 ft. bike lane on left side & 13 ft. on right (5 ft. bike lane & 8 ft. parking)				
<u>7/</u> 2 - RRFB/Median Refuge, 1 - School Crossing Signal				

## 501.6.1 Investigation

The investigation component summarizes information from Roadway Data, Crash Data and Spot Speed Data along with basic information for each section. This information gives an overview of traffic conditions, putting together the traffic volumes, road alignment, crash history and prevailing speeds.

### 501.6.1.1 Section Length

List the section length in miles and hundredths of miles. For sections less than 1/4 mile, add a footnote with an explanation in the reference note of the reason for the short section.

Valid reasons for speed zone recommendations of less than 1/4 mile are:

- Extending an existing speed zone, which will then total more than 1/4 mile.
- A transition zone at least 1,000 feet long with at least a 10 miles per hour difference at each end. For a recommended transition zone, a minor adjustment report is required. See the Minor Adjustment Study section for details.
- A unique situation, approved by the respective designated responsible registered engineer and detailed in the report.

**Note:** if speed zone changes will result in an existing speed zone reduced to less than 1/4 mile, a decision must be made to either:

1. Include it, keep as a transition speed if practical and 1,000 feet minimum length.
2. Add it to an adjacent speed zone that is not changing.

The last option will require a spot speed check in the orphan short section. A spot speed check is needed for the first option if the roadside culture or roadway characteristics are different than the area proposed for a new speed zone. At the discretion of the engineer, an existing designated speed zone may be extended or shortened up to 500 feet, without a spot speed check for the section. A minor adjustment study report will be required (see [Section 701 Minor Adjustment Study](#) for more information).

If the minor adjustment study includes rescinding an existing order, it may trigger a full investigation. Some reasons to consider if a full investigation may be necessary include but are not limited to, if the abutting sections have not undergone investigation in the last 10 years and/or conditions have changed significantly, as determined by the engineer.

### 501.6.1.2 (year) Average Daily Traffic

Fill in the leading blank using the year used for the crash rate. Use the middle year ADT from the year-year crash rate (or the most recent year ADT estimated or grown to be the middle year). You may take the average of the three years (if you have three years of ADT values), in which case use "(year-year)".

The ADT for state highways will be supplied by the ODOT region office. If additional data is needed, it is available from the Systems Monitoring Unit, Transportation Data Section.

For city streets and county roads, this should be provided on the request for investigation form, but if not or if it appears to be incorrect, call the local jurisdiction for traffic volumes. If the agency has no volume count within two or three years of the desired year, ask the agency to give an estimated ADT or call the Systems Monitoring Unit. If the last volume count is over 5 years old, ODOT has the option to require the jurisdiction to perform a traffic count. If very little has changed since the last count, ODOT may accept their current estimate of ADT.

Note an estimated ADT as "XXX (estimated)". A two- or three-year-old ADT may be "updated" using a rule-of-thumb of 2-5% growth per year. The rate of growth should be supplied by the road authority or, alternately, by ODOT's Traffic Planning & Analysis Unit (TPAU). The rate of growth can be applied to bring an ADT forward in time or to take it back in time. Use the latest measured ADT and adjust to your crash year.

### **501.6.1.3 Context**

This is to provide information on the extent and character of roadside development as it currently exists. There are two rural contexts (or outside incorporated city limits) and four urban contexts (or inside city limits). See [section 402.2 Determine Context](#) for more information on how to properly identify contexts for speed zoning. Use the following terms:

- **Rural**
- **Rural Community**
- **Suburban Fringe**
- **Suburban Commercial and Residential**
- **Urban Mix**
- **Urban Core/Central Business District**
- **Undeterminable** – Use when the context type does not fit the definitions above.
- **Inconsistent** – Use when the context does not fit any above contexts consistently.
- **Sparse** – Use when the context is so sparse that it does not fit any above contexts.

Changes in speed zoning should generally fit with a definite change in context, development or if the road characteristics change.

### **501.6.1.4 Culture Type and Land Use Density**

A description of the density and predominant type of land use. It is acceptable to use more than one land use. Use the following terms, listing density first and then culture type:

Density:

- **Sparse.**

- Light.
- Moderate.
- Heavy.

Culture type:

- Residential – Mainly land used for dwellings, parks, etc.
- Business – Mainly buildings used for commercial or professional business.
- Industrial – Industry and heavy truck traffic.
- Expressway – Access controlled in urban area.
- Rural – Mostly agricultural or open undeveloped land (density not required when listing rural).

### **501.6.1.5 Functional Classification**

List the federal functional classification of the section of roadway. See section [401.2 Determine Federal Functional Classification](#) for more information on where and how to determine the federal functional classification of a roadway.

### **501.6.1.6 Horizontal Alignment**

The horizontal alignment is for the entire section including the end intersections. Record as either “Tangent” or report the number of curves. Turns or sharp curves are called curves for the purposes of the report.

### **501.6.1.7 Vertical Alignment**

The vertical alignment is also for the entire section including the end intersections. It is a description of the general vertical alignment. Enter either “Level”, “Mostly level”, “Mildly undulating”, “Undulating”, or “Steady grade”. Alternatively, an undulating alignment can be described with the numbers of sag and crest curves.

### **501.6.1.8 Curve Signs and Speed Riders**

Curve Signs and Advisory speed plaques are used to advise motorists of a change of roadway alignment. The need for curve signs or a change to an advisory speed should be evaluated as per the MUTCD when conditions change. ODOT is responsible for evaluating curves on state highways. On non-state roadways, evaluation of curves is the responsibility of the local agency. The speed zone investigator should review the signing and comment if curve or advisory signs need to be re-evaluated. The speed zone investigator is not responsible to ball-bank the curves.

For state highways, designate the curve signing as one of the following:

- “In Place”

- Use if there are curves and the curve warning sign and speed rider signing is appropriate.
- “Partially Posted”
  - Use if there are curves and one or more is not signed.
  - Note safe speeds, extent of posting and needed action by using a footnote.
- “None”
  - Use if there are no curves.
  - Use if there are curves (described in the horizontal alignment) but no required curve signing.
  - Note any needed actions and the safe speeds by using a footnote.

For non-state roadways, designate the curve signing as one of the following:

- “In Place”
  - Use if there are curves and curve warning signs in place.
- “Partially Posted”
  - Use if there are curves and one or more is not signed.
  - Note any recommended action by using a footnote.
- “None”
  - Use if there are no curves.
  - Use if there are curves (described in the horizontal alignment) but no curve signing.
  - Note any recommended actions by using a footnote.

## **501.6.2 Roadway Data**

Each of the items below provide the traffic and physical driving conditions of the roadway.

### **501.6.2.1 Surface**

This refers to the surfacing material. Most cases will be either AC (asphalt) or PCC (concrete). If a bridge surface is different than the roadway surface, enter the bridge surfaces separately from the roadway surface: e.g., AC (PCC on bridge).

If there is a non-hard surface portion (i.e., gravel), this portion will not be investigated by the state. The road authority would have to request delegated authority to conduct the speed zone investigation.

## **501.6.2.2 Lanes**

This gives more detail to understand the travel environment by section. This portion should contain all the information about the uses of the traveled width.

Enter the number of through travel lanes. Note the existence and widths of a painted or curbed median, channelization, continuous left turn lane or other features between travel lanes. Also note the existence, width, and location of bicycle lanes. When adequate space is lacking for a full description, use footnotes.

Note: bicycle lanes when the pavement is marked with a wide white edge stripe and a bicycle legend or black and white Bike Lane sign. Green and white “Bike Route” signs denote a bicycle route, not a bicycle lane.

## **501.6.2.3 Width**

This is an indication of any travel lane restrictions. Enter the width in feet across all travel lanes and enter the basis of the width measurement. Travel lanes are the portions of road normally used for travel, excluding shoulders and some parking areas. The width does include channelization, median, continuous left-turn lanes and can include bike lanes.

If it is a curbed section and has a paved parking area and/or bike lanes within the curbs, include them in the width measurement<sup>5</sup>. Put an explanation of what is included in the width measurement under the “Lanes” section (bike lanes, parking area, channelization, etc.).

If it is not a curbed section, include any parking area width under “Shoulders.” If it is not a curbed section and has bike lanes the width should be measured bike lane line to bike lane line and the width of the bike lane should be included under “Shoulders” with a denotation of the bike lane width.

The width limits are determined by one of the following, depending on what's there:

- Curb to curb.
- Fog line to fog line.
- Bike lane line to bike lane line.
- If none of the above exist, pavement edge to pavement edge.

When the width varies over a substantial portion of the section, show the widths as a range from narrowest to widest (e.g., 24-36 ft.).

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<sup>5</sup> If the section is partially curbed (curbs on one side) with bike lanes on both sides of the roadway, include them in the width and use curb to EoP as the basis of the measurement. The important detail is to not “double count” the width of the bike lane. Meaning, if the bike lane width is included in the shoulder width, it should not be included in the roadway width. The opposite is true as well; if the bike lane width is included in the roadway width, it should not be included in the shoulder width.

### **501.6.2.4 Parking**

This section gives information about the possible interference with travel by parking maneuvers and parked vehicles.

Wording should follow the guidelines below:

- "Prohibited"
  - Use when there are red and white regulatory signs throughout the entire section on both sides of the road stating "NO PARKING".
- "None"
  - Use when parking is prohibited by statute (ORS 811.550) in a signed and striped bicycle lane or when the shoulder has insufficient width to park out of the travel lane.
  - Use this designation when the conditions prohibiting parking exist throughout the entire section on both sides.
- "Partially Prohibited"
  - Use when there are "NO PARKING" signs for a portion of the road or for one side of the road. The sign(s) must be red and white regulatory signs rather than green and white restrictive signs.
  - Use when there are part time restrictions, i.e., No Parking 8:00 AM to 5:00 PM. The sign(s) must be red and white regulatory.
  - Use if the roadway conditions prohibit parking for part of the section or for part of the time.
- "Not Prohibited"
  - Use when no signs or conditions prohibit parking anywhere in the section.
- "No Truck Parking"

Use when truck parking and/or oversized vehicle parking is fully or partly prohibited by regulatory signing.

### **501.6.2.5 Shoulders**

Shoulders refer to the part of the road outside the travel lanes. The shoulder is measured from the edge of travel lane to the break-over for the ditch, cut bank, or other obstruction such as barrier or sidewalk.

Enter each shoulder width and type(s) in that order. There can be more than one type of surfacing for a section of road, either side by side or along the road. List all relevant types with widths for that type in the section. State if any type is only partial for the length of the section. If widths vary for a type, enter a range from least to greatest width. Enter shoulder types as:

- "None"
  - This means there is less than 1 foot of shoulder.
  - Footnote to describe roadside, e.g., curb and gutter, guardrail, cut bank, tree line.
- "Paved"
  - Paved refers only to a traversable hard surface such as AC or PCC.
- "Unpaved improved"
  - Gravel.
  - Oil treated and compacted dirt.
- "Unimproved"
  - Grass or other small vegetation.
  - Untreated, loose dirt.

### **501.6.2.6 Intersecting Public Streets**

Enter the total number of public road intersections (including roundabouts and signalized driveways that resemble intersections). This data informs of the frequency of cross traffic movements within the section. Count ramp terminals to freeways as one intersection, but do not count slip lanes or separated turn lanes as additional intersections.

Do not count the intersections that begin or end a section. Do not include driveways to private developments (unless signalized), alleys or separated turn lanes (slip lanes). Footnote Railroad crossings.

The intersecting streets data will be accompanied by a note in parentheses if the facility is "limited access". A limited access facility is a roadway with widely spaced public road intersections and no or few private driveways. Limited access facilities are typically only accessed by public road intersections. The intersections may be stop controlled or signals or separated grade.

### **501.6.2.7 Paved Streets**

Count all paved intersecting streets where the investigated roadway is uncontrolled. Most will have a STOP sign installed on the cross street, but some may not. Count only those public road intersections that intersect the roadway section being investigated.

Do not include driveways to private developments, alleys, or separated turn lanes (slip lanes). Do not count intersections which have signals, roundabouts, all-way stop control or for which the investigated road section is a controlled leg approaching the intersection. See section [501.6.2.9 Signalized and Other Controlled Intersections](#) for more details.

### **501.6.2.8 Stopped Streets**

Count all paved stop controlled intersecting streets. There must be a STOP sign installed on the cross street to be counted as stop controlled. Do not include driveways to private developments, alleys, or separated turn lanes (slip lanes). Do not count intersections which have signals, roundabouts, all-way stop control or for which the investigated road section has a stop.

### **501.6.2.9 Signalized and Other Controlled Intersections**

List the number of signalized intersections, roundabouts, and all-way stop controlled or stop control intersections along the investigated segment. Do not count flashing beacons or emergency signals (note these, but do not count). Do not count pedestrian or bicycle signals or flashers (these should be included under enhanced pedestrian and bicycle crossings).

Note each of the following (use a footnote if inadequate space):

- Roundabouts.
- All-way stop control.
- A stop control along the investigated street (where the cross street is the through road).
- Red or yellow flashing beacons along the investigated street (note them, but do not count).
- Emergency signals (Fire Stations, etc.) (note them, but do not count).

### **501.6.2.10 Pedestrian Activity**

This information informs of the extent and character of non-motorized road users. Use descriptions High, Medium, or Low from the field investigation to describe the relative use of the segment by pedestrians for the roadway. See section [402.4 Determine Pedestrian and Bicycle Activity](#) for more details.

### **501.6.2.11 Bicycle Activity**

This information informs of the extent and character of non-motorized road users. Use descriptions High, Medium, or Low from the field investigation to describe the relative use of

the segment by bicycles for the roadway. See [section 402.4 Determine Pedestrian and Bicycle Activity](#) for more details.

### **501.6.2.12 Sidewalk**

Estimate the percentage of section with sidewalk. For example, count as 100% if both sides have sidewalks for the entire section. If only one side of a facility has a complete sidewalk count as 50%.

### **501.6.2.13 Bicycle Lanes**

Estimate the percentage of section with bike lane. A bicycle lane may be a standard bike lane, a buffered bike lane (narrow buffer area between bike lane and vehicle travel lanes), separated bike lane (separated from motor vehicle traffic by a vertical element in a buffer between the bike lane and motor vehicle lanes), or a separated path (can be combination bike path and walking path). It is also possible that the segment may be a shared roadway, with a symbol reminding drivers that the roadway should be shared with bicycles.

For example, count as 100% if both sides have bike lanes (or if one side has bike lanes on a one-way roadway). If only one side of a two-way facility has a bike lane count as 50%.

Footnote if the section has other than a standard bike lane, such as buffered bike lane, separated bike lane, shared roadway, or separated path (include the separated path if it provides alternate for riding within roadway segment).

### **501.6.2.14 Marked Crosswalks**

Count all marked crosswalks for Pedestrians or Bicycles across the segment being investigated. The intent is that Marked Crosswalks include all crosswalks (including those enhanced) and the Enhanced is a subset, such as 12 total and 3 enhanced. Include all marked crosswalks at signalized or stop controlled intersections and any midblock or uncontrolled intersection locations. Note if any are school crosswalks.

Do not count unmarked crosswalks without pavement marking. Do not count marked crosswalks across the intersecting streets (along the investigated section), only count marked crosswalks across the investigated segment.

### **501.6.2.15 Enhanced Pedestrian/Bicycle Marked Crosswalks**

Count only enhanced crosswalks for Pedestrians or Bicycles. Enhanced crosswalks are those marked crosswalks that have been enhanced with special features to draw attention to crossing pedestrians or bicycles, such as flashers, beacons, median refuges, a pedestrian, or bicycle only signal or raised crosswalk.

Do not count marked crosswalks at signalized or stop controlled intersections. Do not count marked crosswalks with standard features such as striping and signing.

Footnote enhanced pedestrian bicycle crossings such as:

- Raised crosswalks.
- Median refuges.
- RRFBs.
- Pedestrian hybrid beacons.
- Pedestrian or bicycle signal.

### **501.6.2.16 Transit Stops**

Indicate whether or not there are public mass transit stops along the segment being investigated. Indicate “yes” if there is bus or transit stops within and along the investigated section. Indicate “no” if there are no known public mass transit or bus stops within and along the segment. Indicate “no” if there are no stops even though transit vehicles traveling over or through the segment.

## **501.6.3 Crash Data Summary**

See section [401.5 Gather Crash Data](#) for more information on available tools to gather and analyze crash data. This section details how that crash data should be presented in the speed zone investigation report. The crash data used here is from the ODOT crash data system, even though it may differ from locally recorded crashes. The reason for this is statewide consistency in the data, the ODOT crash data is the official record of reported crashes. If there is a difference between state and local information, this should be discussed in the report summary cover letter.

Do not include crash data not reported in ODOT Crash data, such as incident reporting or local sources since these may or may not be reportable crashes. Use of other data (besides ODOT crash data) also biases the crash rates since the average crash rates are developed only from the ODOT official crash data.

Create one Crash Summary for each Speed Section. If two non-contiguous portions of a Speed Section were investigated, the portions will be separated on the same Crash Summary form and listed by end point descriptions as described in the Sections part of the Recommendation Report.

The crash summary clearly shows the following for the three most recent years of data:

- Highway or roadway name.
- Investigated section description.
- Crash summary dates.
- Number of crashes by collision type.
- Number of fatal crashes.

- Number of serious injury A crashes.
- Number of injury B and C crashes (or total injury crashes).
- Number of PDO crashes.
- Number of bicycle crashes.

See [Appendix C](#) for an example of a complete crash summary.

Fill out the heading on "Crash Summary" according to the information listed in the Recommendation Report Outline heading.

List the route number of state highways using "US" or "OR". If there are two routes on the same highway, use the "US" designation rather than the "OR" designation (or indicate both). If both are "OR" routes list both. On state highways, fill in the milepost blanks with begin and end milepost

The study period includes the three most recent complete calendar years of crash data. The study periods must be the same for all sections in one investigation report.

If the most recent year of crash data is still not complete, do not include in crash listing. If preliminary data lists a speed related severe injury or fatal crash in the investigated section, then the crash may be mentioned in the cover letter. If a fatal or INJA crash has occurred but does not yet show up in the preliminary data, it may still be included in the cover letter. When using crashes that do not show up in the preliminary data, care should be taken by the engineer to ensure that the crash is a speed related crash, a reportable crash, and the information on the crash is coming from a reputable source.

Place all sections on the crash listing. For those sections not investigated add a "Not Investigated" text box over the breakdown of crashes. If there are no reported crashes in a section add a "No Reported Crashes" text box over the breakdown of crashes. See [Appendix C](#) for an example Crash Summary.

If there are no crashes recorded for a Section, only the Total box needs to be filled out (with '0').

### **501.6.3.1 Study Period**

The study period includes the three most recent complete calendar years of crash data that also has corresponding volume and comparable crash rates available.

Use of the crash data may need to be modified if the road has been recently physically altered through reconstruction, realignment or new construction. If the roadway had changed significantly due to the construction improvement, the study period will be the available data beginning one month after the road was under normal traffic. Footnote if less than three years. The crash data before the construction may be invalid depending on how much the roadway was changed. Crash data from the period during construction should not be used because of construction on the roadway.

### 501.6.3.2 Total Crashes

Use only data from ODOT's Crash Analysis and Reporting Unit as these are the official reportable crashes for Oregon. This will become important when comparing to average crash rates that are derived from ODOT's official reportable crashes. An example crash summary can be found in [Appendix C](#). This is the total of reportable crashes and not the total vehicles involved, for the full study period. Typically, this should be the most recent three complete years of data available.

Enter the range "(year-year)" of most recent year(s) for which three *complete* years of crash data *and* volume data are available. The most desirable range of years is the most recent three years that includes the latest completed calendar year of crash data. If the volume data or state rate isn't provided for the most recent year of crash data, it may be available from the ODOT Transportation Systems Monitoring (TSM) Unit in the Transportation Data Section.

Use only calendar years in the "year-year" range. If using a partial year, footnote the years, and note the months included (i.e., 1/ includes January 2017-March 2019).

### 501.6.3.3 Total Fatal (K) Crashes

Use data from "Crash Summary". Include total number of fatal injury crashes (K) where at least one person was killed in the crash for the study period. A **Fatal Injury** is any injury that results in death within 30 days after the motor vehicle crash in which the injury occurred.

### 501.6.3.4 Total Serious Injury (A) Crashes

Use data from "Crash Summary." Include the total number of crashes where the most severe injury was suspected serious injury A. A **Suspected Serious Injury (A)** is any injury other than fatal which results in broken bones, unconsciousness, suspected major injuries, or prevents the person from continuing in normal activities they were capable of before the injury.

### 501.6.3. 5 Total Injury (B) and (C) Crashes

Use data from "Crash Summary." This is the total number of crashes where the most severe injury was suspected minor injury B or possible injury C. A **Suspected Minor Injury (B)** is any injury that is evident at the scene of the crash, other than fatal or serious injuries. A **Possible Injury (C)** is any injury reported or claimed which is not a fatal, suspected serious, or suspected minor injury.

### 501.6.3.6 Total No Injury (O) Crashes

Use data from "Crash Summary." This is the total number of crashes where No Apparent Injury (O) occurred. **No Apparent Injury (O)** is a situation where there is no reason to believe that the person sustained any bodily harm from the motor vehicle crash.

### 501.6.3.7 Section Crash Rate(R)

Fill in the (year) blank with the same year as for Crashes above. Calculate the crash rate to two decimal places using the formula below. When the section crash rate is zero, enter a single 0.

$$\text{Section Crash Rate (CR)} = \frac{(\#Crashes \text{ for 3 years})(1,000,000)}{(\text{Length})(3 \text{ years})(365 \text{ days})(ADT)}$$

Note: Using the most recent three years is preferable, but using part of a year is also acceptable. If only part of a year is available, change the “3 years” in the denominator to the applicable decimal of years (if 2 years 6 months, divide by 2.5).

Length = length of section in miles, to the nearest hundredth of a mile.

ADT = Average Daily Traffic (ADT) count (average of three years ADT or middle year ADT).

CR = Section Crash Rate in crashes per million vehicles miles of travel.

### 501.6.3.8 Comparable Crash Rate (r)

These comparable crash rates are representative of the average of all crashes over identical functional classes by jurisdiction. This data is for comparing the section crash rate to comparable rate for the same functional class.

Use the most current year available or average the three years of comparable crash rates. If an average of three years is used change the (year) to (year-year).

A state highway comparable rate and a county comparable rate (non-state highways) exist only for highways with estimates of daily travel available. This includes all state highways and any higher function classes of non-state roadways within each county (it excludes non-state rural minor collectors and local function classes). State highway comparable rates are developed yearly and are available on the [Crash Statistics & Reports Website](#). The comparable rates by county are updated routinely by the speed zoning office for this process. The most recent version of the county comparable crash rates are available on the [ODOT Speed Zoning Website](#). Fill in the leading blank with the same year or year to year range depending on whether or not the most recent year was used or the three years were averaged.

For Rural Minor Collectors or Local Functional Class (or other roads with no average rates) use a dash through the column (rather than show “0” or “N/A”).

- For roads with an average crash rate, list the highway type-functional class under Footnote 1/. Use the functional class from which the state or county rate was taken.
- For roads with no average crash rate, use the following standard wording in footnote 1/: “No comparable rate available.”

If the investigated segment has two different functional classifications, use the one with the majority of the segment length. If the split of the segment functional classifications is about 50/50 on the investigated segment or if there are more than two functional classes in the investigated segment use the weighted average weighted by the length of the segment.

To calculate the weighted average weighted by length of the segment use the formula below.

$$\text{Weighted Average} = \frac{\sum_{i=1}^n w_i * x_i}{\sum_{i=1}^n w_i}$$

Where:

$n$  = the total number of FC in the segment

$x_i$  = the crash rate of the  $i$ th segment

$w_i$  = the length of the  $i$ th segment

In words, multiply each length of FC by its crash rate and sum these products across all segments. Then divide by the sum of the lengths. This formula ensures that functional classes with longer lengths contribute more to the average than those with short lengths. A spreadsheet calculation tool is available from the ODOT Speed Zone Team upon request.

### 501.6.3.9 Crash Rate Deviation

This is the comparison between the crash rate specific to the investigated section and comparable rate. It applies only on highways where comparison data is available.

$$\text{Crash Rate Deviation} = R - r$$

Where:

$R$  = Section Crash Rate.

$r$  = Average Rate from above.

When the Section Crash Rate ( $R$ ) exceeds the Comparable Rate ( $r$ ), list the Deviation ( $R-r$ ) to two decimal places. When the deviation equals zero or a negative number, show the deviation as a single "0".

For non-state roads with no comparable rate, dash through the column rather than show "0" or "N/A".

### 501.6.4 Spot Speed Data

The information from analysis of the spot speed data is reported here. [Appendix D](#) shows an example of a spot speed data table as well as an example of a spot speed summary using the Speed Summary Statistic tool available on the ODOT website.

If less than 8 total vehicles in one hour or 25 total vehicles in three hours were counted, enter a footnote stating "Insufficient ADT for a valid speed check" rather than the 85% speed or 50% speed.

On local agency roads with less than 400 ADT, ODOT encourages local jurisdictions to take responsibility for these roads. ODOT can delegate authority for speed zoning of low volume roads to the local road authority. (For more information on the delegation request please see

[Section 802 Delegated Road Authorities](#) for low volume roads and [Section 802.1 Procedures for low volume paved roads.](#))

Note: Averaging speed statistics shall be calculated by merging the speeds of all vehicles and determining the speed statistics accordingly. For ease of this process, ODOT has provided the Speed Summary Statistic tool available on our [website](#).

### **501.6.4.1 85<sup>th</sup> Percentile Speed (85% Speed)**

If there is a single speed check for an investigated section, list the 85th percentile speed of the combined total vehicles in both travel directions.

If there are several speed checks in an investigated section, averaging shall be calculated by merging the speeds of all vehicles and determining the speed statistic accordingly. For ease of this process, ODOT has provided the Speed Summary Statistic tool available on our [website](#).

### **501.6.4.2 50<sup>th</sup> Percentile Speed (50% Speed)**

If there is a single speed check for an investigated section, list the 50th percentile speed of the combined total vehicles in both travel directions.

If there are several speed checks in an investigated section, averaging shall be calculated by merging the speeds of all vehicles and determining the speed statistic accordingly. For ease of this process, ODOT has provided the Speed Summary Statistic tool available on our [website](#).

### **501.6.4.3 Pace Limits**

This always includes a standard footnote (see standard footnotes below) explaining what a pace limit is.

If there is a single speed check for a section, take the pace limits directly from the analysis.

If there are several speed checks for a section, averaging shall be calculated by merging the speeds of all vehicles and determining the speed statistic accordingly. For ease of this process, ODOT has provided the Speed Summary Statistic tool available on our [website](#).

### **501.6.4.4 Percent in Pace**

When there is only one speed check in a section, take the percent in pace directly from the analysis.

When there is more than one speed check in a single existing speed zone, averaging shall be calculated by merging the speeds of all vehicles and determining the speed statistic accordingly. For ease of this process, ODOT has provided the Speed Summary Statistic tool available on our [website](#).

### **501.6.4.5 Maximum Speed**

List the highest recorded speed in each section.

### **501.6.4.6 Posted Speed**

List all the posted speeds for each section. If the posted speed cannot be found on a current speed zone order, show the posted speed as XX mph (unestablished). If there is no posted speed, enter “None (XX mph Stat.)”.

### **501.6.4.7 Percent Exceeding Posted Speed**

If there is a single posted speed for a section, use the percent exceeding from the results of the combined total vehicles analysis.

If there are several posted speeds in a section, give the percent exceeding for each posted speed. There should be at least one spot speed check in each existing speed portion.

If there is more than one spot speed check per posted speed, averaging shall be calculated by merging the speeds of all vehicles and determining the speed statistic accordingly. For ease of this process, ODOT has provided the Speed Summary Statistic tool available on our [website](#). If no speed is posted, enter percent exceeding statutory speed with the statutory speed listed.

### **501.6.4.8 Computed 85<sup>th</sup> Percentile Speed**

On highways with an average crash rate for the functional class, calculate the computed speed by subtracting the crash rate deviation (R-r) from the 85% speed listed above. If the crash rate deviation is zero or negative, or there is no average crash rate, use the 85% speed listed above as the computed speed (do not leave blank).

### **501.6.4.9 Recommended Speed**

The allowable ranges for recommended speeds are restricted by specific criteria outlined within the [OAR 734-020-0015](#) and definitions in [OAR 734-020-0014](#). Recommended speed is dependent on whether the roadway section is inside of incorporated city limits or outside of incorporated city limits. [Appendix Q – Allowable Speed Ranges](#) based on the OAR provides a more in-depth breakdown of the allowable speed ranges. Along with the detailed description in [Appendix Q](#), a flow chart with steps and decision points was produced to help guide the engineer through the OAR to reach the allowable speed ranges. This flow chart is available in [Appendix R – Speed Zoning Process Flow Chart](#) and steps through the different decisions outlined in the OAR to get to the correct allowable range of recommended speeds for a particular location.

It is important that the engineer utilize all collected data to determine what the recommended speed limit should be, rather than defaulting to the lowest possible speed in the allowable range.

#### **501.6.4.9.1 Inside Incorporated City Limits**

The recommended speed inside of city limits is generally selected from within the range of allowable speeds from the following table, based on functional class and context:

Table 3: Allowable Speed by Functional Class and Context

Context	Arterial	Collector	Local
Urban Core	20-25 mph	20-25 mph	20-25 mph
Urban Mix	25-30 mph	25-30 mph	20-25 mph
Suburban Commercial or Residential	30-35 mph	25-35 mph	25-35 mph
Suburban Fringe	35-45 mph	30-40 mph	25-35 mph

There are various circumstances that occur that allow for a recommended speed outside of the ranges in the **TABLE 3** above. OAR 734-020-0015 contains exceptions as shown below. Note: If the roadway is classed as “Other Freeway or Expressway” it must be treated as if the roadway section is outside of city limits, see **TABLE 4** in [section 501.6.4.9.2 Outside Incorporated City Limits](#) for more details.

**First the investigator must check to see if the 50<sup>th</sup> percentile speed is 35 mph or greater.** If the 50<sup>th</sup> percentile is 35 or greater, the investigator cannot use the table 3 above. The recommended speed **must** be between 5 mph below and 10 mph above the 50<sup>th</sup> percentile speed. If exclusion 2 below applies, then the recommended speed may be up to 10 mph below the 50<sup>th</sup> percentile speed.

If the 50<sup>th</sup> percentile speed is less than 35 mph then the following exclusions (exclusion 1 and 2 below) should be checked. If any of the following exclusions apply, they may be used as a recommended speed range in addition to the speed range from Table 3 that is applicable for functional class and context. If exclusion 1 is met, careful consideration should be given to utilizing the 50<sup>th</sup> percentile speed to set the allowable range rather than relying on context-based ranges. The final recommended speed is up to the engineer’s judgement and the findings of the engineering study.

**Exclusion 1:** The recommended speed may be between 5 mph below or 10 mph above the 50<sup>th</sup> percentile speed if any of the following circumstances are found to exist:

- If the context is inconsistent, difficult to determine, or very sparse development.
- The 50<sup>th</sup> percentile speed is 5 mph or more greater than the range maximum.
- The highway has widely spaced public road intersections and few private driveways (limited access).

**Exclusion 2:** The recommended speed may be between 10 mph below or above the 50<sup>th</sup> percentile speed if any of the following circumstances are found to exist:

- The crash rate for the section exceeds 150% of the average crash rate.
- There have been more than one fatal or serious injury speed related crash in the last three years. A speed related crash is determined by being coded with a speed related flag in the ODOT crash data system and may also include any crash determined by the engineer to be speed related.

- The segment is within a residence district.

The engineer should select a recommended speed based on authorized ranges within the OAR. Otherwise, if it is outside the authority given within the OAR, the recommendation must go to the speed zone review panel, the state traffic engineer or delegated authority's engineer does not have authority to establish the speed zone order.

The recommended speed (in 5 mph increments) should be based on the allowable speed ranges determined above, taking into consideration the information in the engineering study such as context, the users, the roadway characteristics, and the crash history. The engineer should note the factors influencing their choice of recommended speed.

A recommended speed within 5 mph of the 50<sup>th</sup> percentile speed is considered the speed at which there will be the least crashes due to speed variances within the developed bounds of a city on roadways with full access (NCHRP 17-76).

#### **501.6.4.9.2 Outside Incorporated City Limits**

The recommended speed for rural highways outside of city limits (and for the "Other Freeways and Expressways" within city limits) may vary depending on the road authority and the functional class of the highway.

For highways outside of city limits (and highways that are functionally classed as "Other Freeway and Expressway" inside city limits) the recommended speed ranges from OAR 734-020-0015 are as follows:

Table 4: Allowable Speed Ranges by Highway Type and Functional Class

<b>Road Authority</b>	<b>Functional Class</b>	<b>Location</b>	<b>Speed Range</b>
State Highway	Any	Outside City limits	5 mph below the computed 85 <sup>th</sup> to 5 mph above the computed 85 <sup>th</sup>
Any Highway	Other Freeway or Expressway	Inside or Outside City limits	5 mph below the computed 85 <sup>th</sup> to 5 mph above the computed 85 <sup>th</sup>
Non-State Highway*	Arterial	Outside City limits	5 mph below the computed 85 <sup>th</sup> to 5 mph above the computed 85 <sup>th</sup>
Non-State Highway*	Collector or Local	Outside City limits	5 mph below the 50 <sup>th</sup> to 5 mph above the computed 85 <sup>th</sup>

\*Non-State Highway outside of city limits would typically be a county road but may be another road authority such as Forest Service.

OAR 734-020-0015 contains exceptions to the rules noted in the table above.

**Exclusion 3:** The recommended speed may be up to 10 mph below the computed 85<sup>th</sup> percentile speed if any of the following circumstances are found to exist:

- The crash rate for the section exceeds 150% of the average crash rate.

- There have been more than one fatal or serious injury speed related crash in the last three years. A speed related crash is determined by being coded with a speed related flag in the ODOT crash data system and may also include any crash determined by the engineer to be speed related.
- There is limited sight distance which has contributed to crashes.

**Exclusion 4:** The recommended speed may be up to 10 mph above or below the 50<sup>th</sup> percentile speed if located in a rural community. See [Section 402.2.2](#) for more information on the rural community context. See [Appendix G – Survey of Oregon Unincorporated Communities](#) for further information on unincorporated communities.

The engineer should select a recommended speed based on authorized ranges within the OAR. Otherwise, if it is outside the authority given within the OAR, the recommendation must go to the speed zone review panel, the state traffic engineer or delegated authority's engineer does not have authority to establish the speed zone order.

The recommended speed (in 5 mph increments) should be based on the allowable speed ranges determined above, taking into consideration the information in the engineering study such as the roadway characteristics and the crash history. The engineer should note the factors influencing their choice of recommended speed.

A recommended speed within 5 mph of the 85<sup>th</sup> percentile speed is considered the speed at which there will be the least crashes due to speed variances outside the bounds of development on rural type roadways (NCHRP 17-76). Within the bounds of developed areas consideration should be given to recommending speeds within 5 mph of the 50<sup>th</sup>.

## **501.7 Factors Influencing Recommended Speed**

This is a summary of the major factors taken into consideration in the recommended speed decision. List factors by name from the Speed Data, Roadway Data, and Crash Data. List any other factors not listed in the report succinctly. This does not have to be a complete listing of all factors, a further explanation of the influences on the recommended speed can be put in the report summary cover letter. The first factor listed should be the OAR citation used to make the recommendation.

If there is more than one section, list factors by section letter. For example:

- Section A: OAR 734-020-0015(2)(b) Based on context, pace limits, roadside culture.
- Section B: OAR 734-020-0015(3)(c)(A)(ii) There has been more than one fatal or serious injury in the past three years, 50% speed, crash rate, context.

## 501.8 Standard Footnotes for Roadway Data, Crash Data, Spot Speed Data

- 1 On state highways, list the functional class used to get the state crash rate from Table IV of the State Highway Crash Rate Tables. List each highway type separately by section letter. On city streets and county roads, if there is a comparable county rate list the functional class used to get the county crash rate from the county crash rate table. If there is no county crash rate such as for rural minor collectors and local, this should read "No comparable average rate available." See current crash rates for local roads, by county and functional class at <https://www.oregon.gov/odot/Engineering/Pages/Speed-Zones.aspx>.
- 2 Ten mile per hour range containing the largest number of sampled vehicles (This footnote remains the same for all reports.).
- 3 Computed Speed is 85% speed minus Crash Rate Deviation (R-r) (This footnote remains the same for all reports).
- 4 Additional footnotes may be used when describing roadway data such as medians and bicycle lanes or when crash data is limited by roadway construction. For sections that have a crash rate and are less than  $\frac{1}{4}$  mile in length, footnote the length to highlight that the crash rate may be misleadingly high.
- 5 Add a Footnote to "Culture Type and Density" for whether or not the context is consistent or inconsistent or sparse development.
- 6 Add A footnote to "Intersecting Streets" for limited access or not limited access.

## 501.9 Map

The map graphically represents the speed zone report and is included with each report. The map should show:

- Location.
- Highway or street name (route number if appropriate).
- Jurisdictional boundaries.
- Begin and end points.
- Investigated and not investigated sections.
- Existing and recommended speeds.
- Photo directions and locations by number.
- Spot speed check locations with 85% and 50% speeds.

All street names and names of other features such as bridges or creeks referenced in the report and correspondence must be shown on the map. Maps should be developed from the newest county or city base maps available at the time of the investigation.

Figure 16 below is a completed map showing the following elements:

- Scale.
- Title.
- Legend and Color Chart.
- North Arrow.
- Brackets.
- Labels.
- Colors.
- Date.

### **501.9.1 Scale and Accuracy**

Since these may be printed, use standard sizes. Letter size sheets are preferred, although up to 11" x 17" sheets may be used if necessary for a legible map. For very long speed zones, more than one map sheet may be used.

Make the map large enough to show all necessary detail including street and highway names. The scale should be accurate enough to measure off distances and maintain less than a 200-foot electronic placement error. This accuracy will be somewhat dependent on the length of the segment and the map, in most cases 200 feet will be adequate. In some urban areas or much shorter defined segments it may be closer to 50-to-100-foot accuracy.

Map corrections will be requested when placement errors exceed the 200-foot tolerance or when the location placement is incorrect in relation to the physical location for the following elements:

- Jurisdictional boundaries.
- Lines separating investigated speed zone sections.
- Photo locations.
- Spot speed locations.

Locations and lines should be shown in the correct relation to existing physical features. Map corrections will also be requested when photo locations, spot speed locations or section boundary lines are shown on the wrong side of an intersecting street, bridge, or other described physical feature.

In uninvestigated sections, jurisdictional boundaries, streets, bridges, or other features do not need to be corrected or verified for location or accuracy on the map.

## **501.9.2 Title**

The title shows the locality, road name and date. If the street is entirely a city street, only the city is named in the title. If there is an interested jurisdiction, or the speed zones continue in both city and county, or more jurisdictions, then all jurisdictions are named in the title. On rural state highways, show the county name(s) in the title.

## **501.9.3 Legend and Color Chart**

Show the full range of speeds in the speed color chart but color only the existing and recommended speeds from the speed zone report.

## **501.9.4 North Arrow**

Provide an arrow indicating north.

## **501.9.5 Brackets**

The brackets indicate begin and end points given in the speed zone report. There will be a set of brackets both above and below the roadway to delineate the recommended and existing illustrations.

Brackets further divide the recommended length into sections corresponding to the recommended speeds in the report. The sections may be further divided by half brackets into "Investigated" and "Not Investigated" portions.

For state highways, place begin and end milepost on the Recommended and Section end brackets if the roadway has mileposts.

## **501.9.6 Labels**

The many labels must be designed so each set is distinct, level of importance is maintained, and they are readily understood.

## **501.9.7 Labeling the Speed Sections**

Label the recommended and existing total lengths as "**Recommended**" and "**Existing**" in a font at least 4 points larger than other labeling. If more than one section, label the recommended speed sections as "**Section A**", "**Section B**", and so on to correspond to the sections in the report. The font size should be the next in importance to the recommended/existing labels.

Label the uninvestigated sections and parts of sections with "Not Investigated" in a bold font large enough to distinguish from original map names.

Place a "No Change" label in a normal font (the same size or 2 points smaller) underneath the "Not Investigated" labels. The same "No Change" tag is placed in portions of a section which were investigated, and the recommendation is no change.

## 501.9.8 Labeling Photograph Locations

Indicate photograph locations using a circled number with an arrow showing direction of sight. Use a normal or bold font a little smaller than the "No Change" label as necessary to stand out from the map.

Place the labels as close to perpendicular to the photo location on the road as possible where they don't obscure street or other important feature names. Leave space between the road and the photo labels for clearing the color bar showing the recommended or existing speeds.

Draw a single solid line from the photograph label to the roadway photo location. If both photos in a pair were not taken from the same location, and the photos were taken more than 200 feet apart, then two lines are to be placed on the map, showing both locations. If the distance was less than 200 feet, then just one line can be placed on the map indicating the location where the first photo was taken.

Photo labels can be placed on either side of the road as necessary to avoid conflicting with other labeling. It is easier for the reader if the photo labels are all on one side.

## 501.9.9 Labeling the Spot Speed Checks

The Spot Speed Check locations are labeled with the circled 50% speed and 85% speed results. Inside of city limits generally only the 50<sup>th</sup> is needed, outside of city limits both can be necessary. The labels are large with a font similar to the "No Change" label fonts. Place the labels away from the roadway, above the photo labels. Draw a single solid line to the spot speed location on the roadway.

## 501.9.10 Colors

Using the colors shown in **TABLE 5** below, indicate Existing and Recommended speed zones with a color bar following the horizontal alignment of the road and with a width of about 1/4 inch (4-6 mm).

On the Existing side, color the existing ordered speed sections and statutory speed zones. Do not color the zones as posted if different from the order or unestablished.

Color only the Speed Sections or parts of sections with changes on the Recommended side.

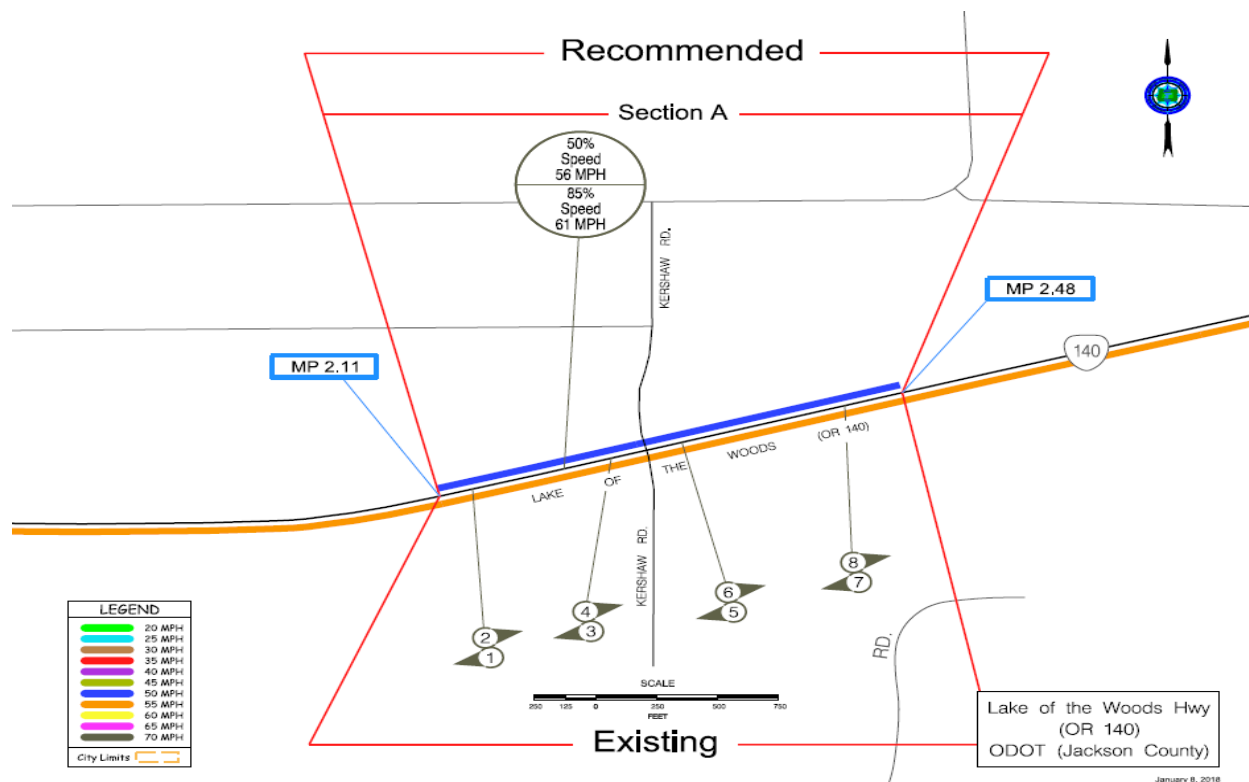
Indicate school zones by adding a color bar the length of the school zone to the *outside* of the Existing or Recommended color bar. Indicating school zones are required for all state highways, because they must be listed on the order. School speed zones are optional but desired on the map for non-state highways, but not listed on the order.

Color the roadway outside the beginning and end of the reported section on the **existing** side showing the entering and exiting speeds.

Table 5: Map Colors Indicating Existing and Recommended Speeds

MPH	Color	MicroStation Color Number <sup>6</sup>
20	Green	2 or 35
25	Sky Blue	7 or 242
30	Sienna Brown	6 or 92
35	Carmine Red	3 or 155
40	Violet	5 or 197
45	Olive Green	39 or 81
50	Indigo Blue	14 or 52
55	Orange	24
60	Yellow	43
65	Bright Pink	59
70	Dark Grey	134

Figure 17: Example Map



<sup>6</sup> Suggested color numbers from Bentley MicroStation software (using the color chart version that is attached to ODOT's GIS system maps).

## 501.10 Photograph Pages

The photograph pages show:

- Highway or roadway name.
- Jurisdiction.
- Date (either date of photo taken or capture date if obtained from DVL or other).
- Individual photographs with:
  - Numbers.
  - Direction.
  - Location.

### 501.10.1 Title for Photo Page

If the road changes names, list all relevant names in the title and add "on xxx Street" to the photograph description. Place the following legend at the top of the page on each photo page:

Name of the highway, route number (if applicable), street or road name

City of XX and/or XX County and/or ODOT

Date

### 501.10.2 Individual Photos

List below the photo the photograph number, the direction the photograph looks and photograph location. Number the photographs consecutively beginning with number 1 at the beginning of the first investigated section.

Use the following notation:

Example:     #1.     Looking (direction) North from (location) 150 South of Main St.

Use the nearest cross street, creek, or other unmovable landmark to describe photograph locations.

Use directions matching the general direction of the roadway unless long sections change direction. [Appendix L](#) shows completed Photograph Page for digital photographs.

## 501.11 Crash Summary

There is a crash summary for each portion of the road which was investigated. One crash summary is required for each Speed Section. If two non-contiguous portions of a Speed Section were investigated, the portions will be separated on the same crash summary form and listed by end point descriptions as described in the Sections part of the recommendation report.

The crash summary shows the following for the three most recent years of data:

- Highway or roadway name.
- Investigated section description.
- Crash summary dates.
- Number of crashes by collision type.
- Number of fatal crashes.
- Number of serious injury A crashes.
- Number of injury B and C crashes (or total injury crashes).
- Number of PDO crashes.
- Number of bicycle crashes.

Include at least one “Crash Listing” with each report. See [Appendix C](#) for a complete crash summary.

Fill out the heading on “Crash Listing & Summary” according to the information listed in the recommendation report outline heading.

List the route number of state highways using “US” or “OR”. If there are two routes on the same highway, use the “US” designation rather than the “OR” designation (or indicate both). On state highways, fill in the milepost blanks with begin and end milepost.

The study period includes the three most recent complete calendar years. The study periods must be the same for all sections in one investigation report.

If the most recent year of crash data is still not complete, do not include in crash listing, but if there has been a severe crash in the section, but data is preliminary, the crash could be mentioned in the cover letter.

More than one investigated section may be summarized on one form if there is room to do so neatly. Label each section summary with the section letter and begin and end descriptions.

If there are no crashes recorded for a Section, only the Total box needs to be filled out (with '0').

## **501.12 Spot Speed Summary**

The Spot Speed Summary shows the roadway information, summary of the collected data and statistical analysis of one spot speed check. It includes a graph of Speed (MPH) vs. Percentile of Total Vehicles.

If the investigated length is divided into sections, label each Spot Speed Summary with the appropriate section letter in the space above the graph itself.

[Appendix D – Spot Speed Checks](#), contains an example of a Spot Speed Summary.

There is a Speed Summary Statistics tool available on the [Speed Zone Website](#) which accepts the raw speed check data and produces the analysis and graph. Instructions for the Speed Summary Statistics tool may be obtained from ODOT Traffic Engineering Section.

## **502 Preparing the Submittal – Standard Engineering Study Method**

The following is submitted to ODOT to complete the investigation:

- Report Summary Cover letter.
- Speed Zone Report.
  - Report Outline
  - Map
  - Photograph Pages
  - Crash Summary
  - Spot Speed Summary
- Supporting Data

If an ODOT region completes the report submit the package to the state traffic engineer. If the report is completed by a road authority, the package would be submitted to their local ODOT region office or the state traffic engineers office.

### **502.1 Report Summary Cover Letter**

For each investigated section, the report summary cover letter presents results and reasons for recommendation along with any other considerations. The OAR citation used to make the recommendation must be listed within this letter. See [Appendix I](#) for an example.

The report summary cover letter may also include:

- Information from conversations or correspondence pertinent to the investigation or recommendations.
- Information on potentially contributing safety factors or any planned projects within the vicinity.
- Any needed changes, both those that were investigated and those that were not.

The engineer responsible for the investigation must sign the report summary cover letter.

If the investigation is performed by another agency other than ODOT for ODOT to issue an order, the cover letter and report is submitted to the ODOT region office responsible for the area. The ODOT region traffic engineer then also prepares a recommendation for the state traffic engineer based on their review of the engineering study. If the agency with delegated

authority completes the report and issues the order, they must include a summary cover letter with the details described above.

## **502.2 Speed Zone Report**

The speed zone report includes the investigation data summary and resulting recommendation(s) in the report summary cover letter(s). The completed speed zone report is submitted to the state traffic engineer.

The state traffic engineer has the authority to determine the final recommendation, within the authority given by the OARs and given the recommendation(s) from the study. The state traffic engineer after review of the speed zone report may offer their recommendation to the road authority and interested jurisdiction.

If the final recommendation by the state traffic engineer is accepted by both the road authority and any interested jurisdiction a speed zone order will be issued.

If the final recommendation is different than the ODOT region recommendation (and accepted by the jurisdiction), the state traffic engineer will document their reasoning for the recommendation and include it as part of the final study documentation.

If the recommendation is not acceptable to the requesting road authority and any interested jurisdiction the matter may be appealed to the speed zone review panel.

## **502.3 Supporting Data**

Supporting data from the field investigation should remain in the region or other road authority's electronic files, whoever performed the investigation, accessible to the ODOT speed zone engineer during review and completion of the request. These data files should remain available for at least one year after conclusion of the speed zone request. This includes any road/sign log, spot speed survey sheets, etc.

## 600 Alternative Speed Zone Report Format

The alternative method may be used on any city street or county road that is functionally classed as collector or local. The alternative investigation method **may not be used** on state highways or any functionally classed arterial, other freeway and expressway, or interstate.

The alternative investigation method differs from the standard method in that although it requires much of the same field investigation and data collection, the report is abbreviated, and some data is not necessary to include in the report.

The investigation can have more data than shown and be formatted differently but the fields shown in this section are required to be reported by OAR 734-020-0015. Refer to section [400 Engineering Study Procedures](#) for information on the preliminary research and field investigation requirements.

The report provides documentation of the data collected and supports the conclusions reached from the alternative investigation. Each report must adhere to the criteria below as a minimum.

The report for the alternative investigation method form consists of the following components:

- Report heading (date, contact name).
- Sections/segments (from/to, length), including all existing speed zones listed on current speed zone order, whether investigated or not.
- Roadway data (classification, context, ADT).
- Speed data summary.
- Crash data.
- Recommended speed.
- Factors influencing the recommendation.
- Signatures.
- Basic map.
- Photos.
- Interested jurisdiction concurrence (if applicable).

The report should include all the elements on the alternative investigation method form (following the OAR). The report may include more information or data as desired by the agency performing the investigation. See [Appendix H](#) for alternative investigation method minimum requirements and example report format.

Note: The crash summary and the spot speed check should be retained with the data from the field investigation for at least one year from conclusion of investigation but does not need to be submitted.

## 601 Report Heading

The report heading consists of information about the date of the report and the agency performing the investigation:

- Agency.
- Alternative report of speed zone investigation
- Name of street under investigation.
- Boundaries of report; description of beginning of report to description of end of report.
- Date.
- Contact name, title, phone number and/or email address of contact.

## 602 Sections/Segments (from/to, length)

See [section 501.3, Section Descriptions](#) for more information on describing the “from” and “to.” The “From” and “To” should adhere to the same guidelines as the standard method for determining begin and end of segments. These segment descriptions are used to develop the speed zone order.

## 603 Roadway Data

The roadway data includes:

- Federal functional class.
  - List federal functional class (may not be arterial, interstate or other freeway/expressway).
  - If applicable, a statement of whether the highway has widely spaced public road intersections and with few private driveways leading to businesses or residences.
- Context.
  - Context as determined by the engineer.
  - Accompanied by a description of the type and density of adjacent land use.
- Typical roadway cross section.
  - i.e., EOP or curb; Shoulder width; travel lane 1 width; travel lane 2 width; shoulder width; EOP or Curb
- Average daily traffic (ADT).
  - Average daily traffic and year

- Pedestrian activity.
  - Use descriptions High, Medium, or Low from the field investigation to describe the relative use of the segment by pedestrians for the roadway.
- Bicycle activity.
  - Use descriptions High, Medium, or Low from the field investigation to describe the relative use of the segment by bicycles for the roadway.

## **604 Speed Data**

The speed data includes:

- Date, time of day and location(s).
- Free flow 85th percentile.
- 50th percentile.
- Pace limits.
- Percentage within pace limits.
- Max speed observed.
- Percentage exceeding posted speed.

## **605 Crash Data**

The crash data from the most recent three years includes:

- Number of total crashes.
- Number of fatal crashes.
- Number of serious injury A crashes.
- Number of injury B and C crashes.
- Number of no injury O crashes.
- Crash rate for investigated segment.
- Average crash rate (if available).

## **606 Recommendations**

The recommendations include:

- Current posted speed.
- Existing speed zone order number (if applicable).

- List current speed zone order number for both investigated and not investigated sections, if applicable.
- Recommended speed.
  - Recommended speed must fall within range of recommended speeds listed by context/functional classification under OAR 734-020-0015
- Factors/notes considered for recommendations including the OAR citation the recommendation is based on.
  - Any other information, which, in the professional judgement of the engineer preparing the study, are relevant to the designation of the speed zone or the investigation. Note the OAR citation for which the recommendation is based.
- Name, signature, date of investigator (if different than the engineer).
- Name, signature, date of engineer.

## **607 Basic Map**

The map includes enough information to readily locate the segment of roadway including the beginning and end points of the proposed speed zone.

## **608 Typical Photos**

The photos page should contain representative photos of each cross section. A minimum of two photos is required per cross section. If more than one mile in length there should be at least two per mile.

## **609 Interested Jurisdiction Concurrence**

Attach documentation showing concurrence from an interested jurisdiction if any.

## **610 Other Information**

As a minimum, the alternative report must include the above factors, but may include more factors than listed above, as the jurisdiction and engineer deem appropriate or that influence the recommended speed. When including relevant “other information” it can be included above in a relevant section or at the end of the report.

Following somewhat the same format as above will make it easier for anyone checking the report to assure the minimum requirements are met. An example of the alternative method template is available in [Appendix H – Example of an Alternative Investigation Report](#).

# 700 Other Speed Zones and Investigations

## 701 Minor Adjustment Study

A minor adjustment study may be used to determine the need for a transition speed zone or to reduce or extend an existing speed zone. The minor adjustment study does not require as broad of data collection and report as a standard method or alternative method. The elements considered in the minor adjustment study are reduced to a few pertinent details that are considered relevant by the engineer.

One of the major differences of a minor adjustment study is that it does not require a spot speed check. Data considered relevant by the engineer may include, but is not limited to:

- Crash data.
- Posted speeds of adjacent speed zones.
- Any changes to the roadway or development.

The study documents the engineer's considerations and recommendation and provides the necessary information to issue a new speed zone order.

An existing designated speed zone may be extended or shortened once, up to 500 feet, by performing a minor adjustment study within that segment (OAR 734-020-0015(8)(d)).

Transition speed zones may be 1,000 feet in length and up to 1/4 mile in length with a minor adjustment study. A transition speed zone may be longer than 1/4 mile in length under special circumstances approved by the state traffic engineer (OAR 734-020-0015 (8)(b)).

The minor adjustment study may be used on state highways, city streets or county roads. Do not use the minor adjustment study on interstate highways.

If the conditions found to exist in the field differ significantly from the investigation that established a previous order, the engineer may decide to perform a new standard or alternative study.

### 701.1 Preliminary Research and Data for Investigations

Prior to performing a field investigation, research and compile the most current data as required by the engineer for the minor adjustment study.

### 701.2 Field Investigation – Minor Adjustment Study

For a minor adjustment, extending or shortening an existing speed zone up to 500 feet, a field investigation should be performed to determine best location for signs. Reasoning for extending or shortening may need to be field verified such as driveways, sight distance or other reasons.

For a minor adjustment, establishing a transition speed zone abutting an existing or new speed zone, a field investigation should be completed to determine best location for signs. A transition speed zone may be a minimum of 1,000 feet and not more than 1/4 mile in length. Transition speed zones may be established to make the change in legal speeds less abrupt for drivers. As an example, instead of going directly from a 55-mph segment to a 25-mph segment, it may be desirable to establish one or more transition speed zones in between, such as 45 mph and 35 mph.

A minor adjustment study includes the pertinent considerations as determined relevant by the engineer but does not require a spot speed check.

## **701.3 Minor Adjustment Study Report Format**

The report provides documentation to issue a new order.

The report for the minor adjustment study consists of the following components (see [Section 500 Standard Speed Zone Report Format](#) for more detailed information on the components):

- Report summary cover letter.
- Report heading.
- Recommendation.
- Sections/segments (from/to, length), including all existing speed zones listed on current speed zone order, whether investigated or not. Mark the segment investigated for minor adjustment.
- Other relevant data as determined by the engineer.
- Existing and recommended speeds.
- Historical background.
- Factors influencing the recommendation including reason for minor adjustment (extension/reduction or transition zone)
- Basic map.
- Interested jurisdiction concurrence (if applicable).

As a minimum, the minor adjustment report must include the above components, but may include more factors than listed above, as the jurisdiction and engineer deem appropriate or that influence the recommendation. Complete up to and including previous action.

### **701.3.1 Basic Map**

The map includes enough information to readily locate the segment of roadway including the beginning and end points of the proposed extension/reduction or transition speed zone.

## 702 Housekeeping Reports

Existing speed zone orders may need to have the information on the order, other than the designated speed, updated. These updates are called “housekeeping” changes. The reasons for these include:

- Speed zone boundary description corrections.
  - If the current description only refers to a mile point, city, or other jurisdictional limit, or a building or other structure, that description will need to be rewritten to reference a distance from a fixed feature such as a street or bridge.
- Street name changes.
- New streets such that the existing reference street is no longer the closest street.
- Realignment of the existing road or an existing intersection such that the position of the described boundary point is no longer at the same place on the main road.
- Jurisdictional transfer.

When housekeeping corrections are made, an abbreviated report (completed through “Historical Background”) and a map and a cover memo are required. See [Appendix F – Housekeeping Changes](#) for an example of a report completed through “Previous Action.”

Note: a **map** and **cover memo** in addition to this report are required for a housekeeping change.

The cover memo should explain the housekeeping nature of the change, how the updated information was determined, and that the criteria for a full investigation was not met. As a courtesy, the investigator should contact any interested jurisdictions or other road authorities so there is no confusion when they receive the new order. The cover letter sent with the new order will explain the housekeeping nature of the changes made.

### 702.1 Procedures for Changing a Boundary or Street Name

To update the speed zone boundary reference (for instance, finding a description to fit an old city limit), research the position on the roadway of that old boundary by the closest side street existing at the time of the old speed zone order and distance from that side street. You may need to contact the local agency to find the historical information and/or interpret from right-of-way descriptions. The new description should be verified in the field by measuring the location and then determining the current closest side street and distance. Write the new description in the speed zone report.

For street name changes, note the change on the speed zone report and on the map as New Street (Old Street). The old street name will not show up on the new order.

New development that has changed the intersections and/or alignment of the road in a way to require a new boundary description will require field work to establish the best description.

Measure where the boundary is on the roadway using the old information, then determine the nearest cross street and distance from that cross street. The new description and both the new and old street names are to be in the report and on the map. Again, the old description will not show up in the new order.

## **702.2 Housekeeping Change or Full Investigation**

In some situations, a full speed zone investigation should be done, even though the initial changes were thought to be only housekeeping corrections. The criteria listed below are used to determine when a full investigation (that investigates the designated speed) is to be done. In each of the following, the region traffic office determines what constitutes a significant change.

- There has been a significant change to the roadway (alignment change or modernization-type project) and/or
- Development around the roadway has changed significantly and/or
- Traffic volumes for the roadway have changed significantly.

If these criteria are not met and the road authority or interested jurisdiction is not proposing a change to the speed zoning, then the region office should send to the Traffic Engineering Section an abbreviated report and a cover memo as described above.

## **703 School Speed Zones**

School speed zones are a special case of statutory speed limits. Although they are statutory speeds, they require the signs to be posted to be enforceable as a speed limit. There are two categories of school zones in statute (ORS 801.462), (1) those zones which are adjacent to school grounds and (2) crosswalks not adjacent to school grounds.

For school speed zones adjacent to school grounds, the speed may be in effect from 7 am to 5 pm or when lights flash. For those crosswalks away from school grounds, the speed zone may be in effect when children are present or when lights flash.

Locations and limits for school zones and school speed zones should be determined on the basis of an [engineering study](#) that includes relevant safety considerations and needs identified by school or community members.

### **703.1 Considerations for School Speed Zones**

School speed zones are typically appropriate when all of the following conditions exist:

- The roadway is adjacent to the school grounds (not limited to front of school buildings).
- There is at least one marked school crosswalk within the proposed school zone which is not protected by a signal or STOP sign.

- The property houses a public or private elementary or middle school (grades K-8).
- The posted speed is 40 mph or below.

School speed zones typically require more careful consideration and further justification when one or more of the following conditions exist:

- The school is a public or private high school.
- The school is a publicly funded early childhood education program housed in a building that is or was previously owned by a school district.
- The marked school crosswalk is at a signalized intersection.
- The marked school crosswalk is at a STOP sign.
- The marked school crosswalk is on a roadway segment not adjacent to the school grounds.
- Children walking on the school's Safe Routes to School Plan do not cross the roadway in this area.

While exceptions may exist, school speed zones are typically not appropriate when:

- The speed is posted at 45 mph or above and other means or routes are available to school children: or,
- All children are bused or driven to school, even short distances. No children desire to walk or bike to school.

A school speed zone is not intended to be used to address vehicle to vehicle conflicts. In lieu of establishing a school speed zone, a school sign (establishing a school area without a reduced speed) may serve to warn motorists approaching the school area.

See the **Guide to School Area Safety** for further recommendations for signing school speed limits in Oregon. The guide can be found on the ODOT Traffic Engineering Section website at: [https://www.oregon.gov/ODOT/Engineering/Docs\\_TrafficEng/Guide\\_to\\_School\\_Area\\_Safety.pdf](https://www.oregon.gov/ODOT/Engineering/Docs_TrafficEng/Guide_to_School_Area_Safety.pdf).

## 703.2 School Zones on Local Roadways

Establishing school speed zones on local roadways is the responsibility of the road authority. ODOT no longer shows school speed zones on the speed zone orders for local roadways. ODOT recommends using the bulleted lists in section [703.1 Considerations for School Speed Zones](#) when considering a school speed zone on the local system. ODOT has developed a **Guide to School Area Safety** (link above) to assist the road authority in making school zone decisions.

## 703.2 School Zones on State Highways (Within Designated Speed zones)

Establishing or removing school speed zones on state highways within city limits requires concurrence from the state (as the road authority). It is expected the investigator attempt to obtain the city and school district views and include that input in the letter of recommendation that is sent to the state traffic engineer. This same process is followed when requesting to extend or shorten an existing school speed zone listed on an existing speed zone order. Input can be sought from city engineering staff, public works, or the police department. Communicating a description of the new school speed zone termini via email is acceptable to ODOT. The requests are typically made by the school district, law enforcement or city engineering staff.

On state highways outside city limits, the request usually comes from the school district often through the district manager. Include a copy of the school's Safe Route to School Plan if it is available (see the *Guide to School Area Safety*).

The complete report consists of:

- The original correspondence requesting the establishment or removal of a school speed zone.
- The investigator's letter of recommendation stating the reason for establishing or removing the school speed zone and the input received from the city or school district.
- Report outline that includes the report heading, recommendation, section, and historical background.
- Map showing the existing speed zoning and the proposed or existing school speed zone boundaries.
- Photographs in each direction at the beginning and end of the proposed or existing school speed zone.
- Safe Route to School Plan (if available from the school).

Once the investigation has been completed, a copy of the report is submitted to the Traffic Engineering Section for review and approval. For state highways covered by speed zone orders, it is necessary to include any school speed zone in the speed zone order. If the recommendation in the report is approved, the Traffic Engineering Section will produce an updated speed zone order that includes a new school speed zone or reflects the removal of an unnecessary school speed zone.

## 703.3 School Zones on State Highways (Within Statutory Speed Areas)

In statutory speed areas, it is not necessary to obtain the state traffic engineer's approval for a school speed zone. The signs can be posted with approval by the region traffic engineer. However, it still requires an engineering study to determine the limits of the school speed zone boundary.

The complete report consists of:

- The original correspondence requesting the school speed zone.
- Letter of recommendation stating the reason for establishing the school speed zone.
- Map showing the location of the school speed zone.

A copy of the investigation shall be retained at the region traffic office. A record of the school speed zone can be kept on record in the Traffic Engineering Section files. See [Appendix M](#) for a template.

## 704 Temporary Speed Zones

Any road authority may establish temporary speed zones per provisions of ORS 810.180 (8). Any limitations or restriction imposed under this section shall be imposed by a speed zone order.

A temporary speed zone may be established under ORS 810.180(8) if, "in the judgment of the road authority, the temporary designated speed is necessary to protect any portion of the highway from being unduly damaged, or to protect the safety of the public and workers when temporary conditions such as construction or maintenance activities constitute a danger."

Temporary speed zones must be approved by the state traffic engineer. Examples are bridge deck issues, road slide areas, high crash area with impending safety project such as a roundabout scheduled.

An abbreviated report with historical background (similar to a housekeeping report) should be submitted including the following:

- Recommendation with an explanation of how the recommendation was determined.
- Requested date of expiration for the order. The timing of the order should correspond with the specified condition that makes the order necessary.
- Map showing the location.
- Any additional information such as photos/aerials of area.

For both local jurisdiction roadways and state highways, all temporary speed zones, including construction speed zones, temporarily supersede any permanent designated speed zone or

statutory speed for the specified time that the order states or until the temporary or construction speed is no longer necessary and the posted temporary speed signs are removed from the project.

## **704.1 Temporary Speed Zones on New or Rebuilt Roadways**

When a new or rebuilt road nears completion, the road authority under ORS 810.180(8) can issue a temporary designated speed. If a newly rebuilt section has been significantly altered with a different design that changes the characteristics of the roadway it may require a temporary speed until such time as a permanent speed may be established. The outcome of a study to establish a permanent speed may be different than the temporary speed.

A temporary speed will be based on a modified investigation until such time as a standard or alternative engineering study can be completed. Once the new or rebuilt road is open and under traffic a new permanent speed will have to be established by completing a speed zone engineering study as per OAR 734-20-0015.

For new or rebuilt roadways, the temporary order should be established citing the new or revised road conditions that make the speed changes necessary. The temporary order must have a specified end date, and an engineering study for establishing a permanent speed completed before that period ends. This should take place within six months after the road is opened to traffic.

The road authority should provide ODOT with a copy of any temporary speed zone order if ODOT is maintaining a speed zone order with a designated speed. If ODOT will be completing an engineering study, the road authority shall notify ODOT about the timing of the project completion so the engineering study can be scheduled quickly for permanent speed zoning.

To provide consistency for all temporary speed zone signing, the road authority should follow the criteria below when establishing temporary speed zones on new or rebuilt roadways. *This section does not apply to construction speed zones.*

Temporary speed zones on new or rebuilt state highways may be established after a modified investigation has been conducted. This investigation should take place after the road nears completion. The modified investigation is based on the following elements:

- Discuss the proposed roadway with the local agency and enforcement personnel to obtain their recommendation.
- Review the roadside culture.
- Determine how the roadway will be used and what classification it will have.
- Review adjacent roadways use and speed zoning to ensure consistency with similar roadways in the area.

- Consider estimated pedestrian and bicycle use.
- Consider design speed.
- Use engineering judgment.

Based upon the above criteria, a complete explanation of how the recommendation was determined should be submitted to the state traffic engineer for temporary speed zoning. An abbreviated report with historical background, similar to a housekeeping type report, should be included.

Conduct a standard speed zone investigation within six months after the road has been opened to traffic to determine the permanent speed zone.

Temporary speed zones supersede any permanent designated speed zone or statutory speed for the specified time that the order states or until the temporary speed is no longer necessary and the posted permanent speed signs are posted.

## **705 Emergency Speed Zones**

Emergency speed zones may be established by the road authority, typically due to natural or other disasters (see ORS 810.180(9)). Emergency speed zones may be designated for a specific period of time but cannot exceed 120 days. All emergency speed zones temporarily supersede any permanent designated speed zone or statutory speed for the specified time that the order states.

Extending past 120 days is not allowed. Instead, a temporary speed zone investigation should be completed if the existing conditions last longer than 120 days. This will change the speed zone from an emergency speed zone to a temporary speed zone. If a study is not completed by the end of the 120-day period, the emergency speed zone shall terminate, and the previously posted speed shall be reestablished by the appropriate agency.

The emergency speed zone shall be removed when the condition necessitating the designation has been removed or corrected.

### **705.1 Local Roadways**

An emergency speed zone may be established by a local public agency having road authority as the agency determines is appropriate.

### **705.2 State Highways**

The state traffic engineer approves emergency speed zones on state highways. To provide consistency and to determine reasonable and prudent emergency speed zones on state highways, ODOT has created an emergency speed zone request form. Use the request form, available on the speed zone website, to request an emergency speed zone on a state highway.

Some of the elements ODOT has adopted in the review of emergency speed zones are listed below:

- Traffic volumes.
- Condition of the roadway.
- Weather.
- Any other considerations deemed necessary by the responsible engineer.

The figure below shows an image of the emergency speed zone request form.

Figure 18: Image of the Emergency Speed Zone Request Form



## State Highway Emergency Speed Zone Request

Use this form to request an emergency speed zone on the State Highway System. See the Speed Zone Manual for information on emergency speed zone requirements.

**Region Traffic:** Send this form as a PDF signed by the region traffic engineer to [ODOTSpeedZoning@odot.oregon.gov](mailto:ODOTSpeedZoning@odot.oregon.gov). The state traffic engineer will only consider requests signed by the region traffic engineer.

### Concurred by Region Traffic Engineer

Place the region traffic engineer's signature below. Use digitally signed PDF. The request date is the digital signature date. Engineer's seal is not required.

Concurred and forwarding to state traffic engineer for consideration.

### Contacts

Contact for Follow-Up Questions	People who need to be cc'd on the order.
Request drafted by	

### Location Information

Region	Highway Name and Number		Project Name (ie. Johnson Creek Slide Repair)			
From Description (ie. 0.25 mile east of NE First Street)	MP	To Description (ie. 100 feet west of NE Third Street)	MP	Existing Speed	Requested Speed	

### Description of Emergency

Why are you requesting an emergency speed zone? How long will you need the emergency speed zone (120 days maximum)? Attach photographs that show the emergency as needed.

## 706 Reoccurring Temporary Speed Zones

On occasion, there is a need for a temporary speed zone to reoccur each year. The two typical instances are temporary speed zones for annual events and seasonal speed zones. Each has their own appropriate use, for any questions about reoccurring temporary speed zones please contact ODOT's speed zone team.

### 706.1 Temporary Speed Zones for Annual Events

For temporary annual event type speed zone reports and orders, any road authority under ORS 810.180(8), may issue a temporary designated speed. Use of a speed zone order is required to impose any limitations or restrictions under this section.

Road authorities may establish temporary speed zones on state highway recurrently, if anticipated driving conditions due to or for the event could be mitigated by slower driving speeds, or if the authority considers it necessary to protect any portion of the highway from being unduly damaged. Examples of temporary driving conditions that could be mitigated by slower driving speeds include unusual congestion, change in access points, or change in traffic control using temporary devices.

Such events might include annual fairs and festivals in which a roadway experiences high traffic volumes for a short timeframe, where a lower speed limit could increase safety for both drivers and pedestrians/attendees. The state traffic engineer must approve temporary speed zones on state highways.

Submit an abbreviated report with historical background (similar to a housekeeping report), including the following:

- Recommendation with an explanation of how the recommendation was determined and what conditions precipitate the speed change.
- Requested date or date range of order. Date(s) must correspond with the event and may include additional days for set-up and/or break-down. The request may note the order is valid each year during the event and may be updated annually to incorporate the specific dates for the given year. See [Appendix O-Speed Zone Order Examples](#) for an example of temporary annual order.
- Map showing the location.
- Any additional information, such as photos/aerials of area.

For both local jurisdiction roadways and state highways, all temporary speed zones, including annual event speed zones, temporarily supersede any permanent designated speed zone or statutory speed for the specified time that the order states or until the temporary speed is no longer necessary and the posted temporary speed signs are removed.

The road authority should, whenever feasible, provide ODOT with a copy of any temporary speed zone order if ODOT is maintaining a speed zone order with a designated speed.

## **706.2 Seasonal Speed Zones**

For annual seasonal speed zone reports and orders, ODOT or an approved delegated road authority, may issue a seasonal type of designated speed. Use of a speed zone order is required to impose any limitations or restrictions imposed under this section.

Seasonal speed zones temporarily supersede any permanent designated speed zone or statutory speed for a specified time (as indicated in an order) or can encompass different speeds for different times of the year. For example, a seasonal speed zone may be appropriate for a ski area. In this instance, the seasonal zone could look like one of the following:

- Lower speed during when the ski resort is open each year.
- Designating different speeds for specified date ranges, such as winter and summer.

See [Appendix O](#) for an example of seasonal speed zone order.

Seasonal speed zones may be established under ORS 810.180(8), if “in the judgment of the road authority, the temporary designated speed is necessary to protect any portion of the highway from being unduly damaged, or to protect the safety of the public and workers when temporary conditions such as construction or maintenance activities constitute a danger.” A standard or alternative method (if not arterial) speed zone report is required for these types of speed zones.

## **707 Work Zone Speed Zones**

Work zone speed zones are established in long term construction, maintenance projects, and some short-term construction. Often in work zones the lanes may be narrowed or diverted, there may be pavement drop offs or other features such as construction equipment or workers close to live traffic. The work zone speed zone is established for the safety of the public and road workers.

### **707.1 Local Roadways**

Any road authority may establish work zone speed zones per provisions of ORS 810.180 (8). Any limitations or restriction imposed under this section shall be imposed by a speed zone order. To provide consistency for all work zone speed zone signing, the local road authority should consider following the criteria below when establishing construction speed zones.

### **707.2 State Highways**

ODOT may establish work zone speed zones per provisions of ORS 810.180 (8). The traffic control plan designer, region project manager or region traffic manager/engineer usually initiates requests for construction speed zones. A completed [Work Zone Speed Reduction Request](#)

[Form](#) which can be found on the Traffic Engineering Section [website](#) along with a copy of the Traffic Control Plan should be submitted with the request.

## 707.3 Criteria

In general, work zone speed zone reductions are not warranted under the following conditions.

- Activities which are more than 10 feet from the edge of the traveled way.
- Activities which require an intermittent or moving operation on the shoulder.

Below is a list of conditions which are considered when evaluating requests for temporary reduced speed zones.

- A high crash rate within the work zone.
- Workers present for extended periods within 10 feet of the traveled way unprotected by barriers.
- Traffic control devices encroaching on a lane open to traffic or within a closed lane but within 2 feet of the edge of the open lane that can't be moved to a safer location.
- Barrier or pavement edge drop-off within 2 feet of the traveled way.
- Horizontal curvature with a safe speed of 10 or more mph lower than the posted speed.
- Reduced design speed for detour or transitions (radius of curvature, super-elevation, and sight distance) when the distance between restrictions is less than ¼ mile.
- Lane width reductions of 1 foot or more with a resulting lane width less than 10 feet on most roads or 11 feet on freeways.
- Lane closures with barrier and less than 2 feet of shoulder on each side.
- Unusual conditions which are hard to sign or otherwise communicate to travelers effectively.

If none of the above or similar factors exist, it may be appropriate to consider alternatives to a speed zone reduction. Reducing speed zones under lesser conditions promotes disregard for future speed reductions. Additionally, work zone speed zone reductions may be covered at night and on weekends, or when the work zone is not active. The speed zone reduction may remain in place until all work is complete in cases when there are traffic diversions, detours, edge drop offs or other changes to the roadway that justify the need for a speed zone reduction while the work is not active.

Exceptions to any of the above statements may apply under special circumstances. On a divided highway, a work zone speed may be established in one direction only if work is not being done in other direction.

## 708 Variable Speed Zones

Variable speed zones can be established by the road authority to reduce congestion and enhance the safety of the motoring public by slowing traffic for congestion management, construction and maintenance work, incident management, emergencies, adverse weather conditions, and other unusual situations.

A variable speed zoning system typically includes detectors to identify current volumes and speeds; software that uses an algorithm to determine the optimal speed zones during a variety of traffic conditions; variable speed signs; and advance warning signs to alert drivers to the variable speed zone location. A variable speed zone system will reduce speeds as needed based on current traffic volumes and speeds but may be based on other safety and operational conditions, such as incidents or adverse weather conditions.

A variable speed system may be a regulatory system or an advisory speed system. The regulatory speed system is enforceable, and the advisory speed system is only advisory and not enforceable. A regulatory speed system requires an engineering study and the establishment of a speed zone by legal order or by OAR (for interstates) to be enforceable. An advisory system does not require an order but should be established by an engineering study and use the same algorithms for posting of speeds as the regulatory systems. Both an advisory system and a regulatory system should be established by an engineering study considering the same types of criteria and operate based on the same algorithms.

ODOT may establish variable speed zones on a section of interstate highway, rural state highway or state highways inside city limits, city streets, county roads and any other rural public roads except unpaved public roads. This must be based on an engineering study of the characteristics such as congestion, road conditions, reduced visibility, or weather conditions. For city streets, county roads or any other rural public road, the road authority must make a recommendation to the state traffic engineer, which would include all that is listed below for listed types of roadways.

For each section of interstate highway, rural state highway or state highway inside city limits under consideration, ODOT will prepare an engineering study that will include all of the following:

- The maximum speed.
- Crash patterns in the section of highway under consideration by time of day, day of week, season of year or other period exhibiting recurring crash patterns.
- Law enforcement consultation and input.
- Traffic characteristics by time of day, day of week, season of year or other periods where recurring congestion levels and reduced average speeds occur, such as hourly congestion levels and speed characteristics.

- Type and frequency of adverse road conditions, including weather, environment, and visibility.
- Locations of each sign and the boundaries of each variable speed segment listed by description and mile post.

ODOT (or other road authority) will prepare an engineering study detailing out the need for the system and a recommendation of the boundaries for the variable speed zone. A concept of operations detailing out the algorithms and operating standards of the system will be prepared. The Oregon Statewide Variable Speed System Concept of Operations meets the requirement for detailing the algorithms and operations on all state highways. If a different system is to be used, the concept of operations will include:

- Set of algorithms.
- The speed change intervals.
- The means, responsibilities, and procedures for changing posted speed.
- The means, responsibilities, and procedures for keeping the speed change records.

## **708.1 Variable Speed Zone System Criteria and Process**

The following criteria and process will be used to establish a variable speed zone:

- An engineering study will examine the safety and operational conditions that prompt the need for a variable speed zone system.
- The system employed to enact the regulatory variable speeds must be fully described and approved by the state traffic engineer prior to the design and implementation of the regulatory variable speed zone.
- An advisory speed zone system may be approved by the road authority.
- The system that will trigger the change in posted speed may be based on current traffic volumes, speeds, incident detection, or adverse condition detection.
- The traffic volumes and speed data will be obtained from detectors in real-time and will be based on small time intervals.
- The variable speed control software and algorithms, will be configured to comply with:
  - Any requirements for the individual location identified.
  - The statewide Concept of Operations or a specific concept of operations for the location.
- The state traffic engineer may impose additional requirements for Regulatory Variable Systems.
- Speed signs shall display speeds only in increments of 5 mph.

- Unless the highway has more than two lanes in each direction and is separated by a wide median or positive barrier, variable speed signs shall display the same speed for all lanes of traffic at the same location.
- The variable speed will not exceed the maximum speed determined by the standard speed zoning investigation criteria described in OAR 734-020-0015 or, for interstate highways, OARs 734-020-0010 and 734-020-0011.
- A regulatory variable speed zone will be established by speed zone order, and/or if appropriate, ODOT will institute rulemaking to make changes to the interstate speed designations which are included in OAR 734-020-0019.
- The regulatory variable speed zone becomes enforceable when appropriate signs are posted and operational on the portion of the highway where the variable speed zone is imposed.
- See OAR 734-020-0018 for further information regarding establishment of variable speed zones on all public roads.

## 800 Delegated Road Authorities

ODOT may delegate its speed zoning authority under certain conditions and on specified roads as designated in ORS.

The following sections describe the different delegated authorities ODOT may grant to local agencies.

### 801 Public Paved Roads

ODOT may delegate its authority under ORS 810.180 for public paved roads under the jurisdiction of the road authority.

OAR 734-020-0013 describes the process and requirements for delegating authority to road authorities. OAR 734-020-0015 specifies the processes and methodologies by which road authorities may establish speed zones.

A delegation covers **all** roadways under the road authority's jurisdiction.

- The road authority must agree to ODOT's certification process.
- The road authority must designate one qualified registered professional engineer to be responsible for decision making and assuring all methods and procedures in the administrative rules are followed.
- The road authority will prepare a quality control plan for assuring compliance with program rules and procedures.

The road authority will agree to abide by ODOT's requirements for the program.

### 801.1 Procedures for Public Paved Roads

#### 801.1.1 Step 1: Delegation of Authority

The agency with road authority will request delegated authority using the [Delegation of Speed Zone Authority Request Form](#). This form is available on the [ODOT Speed Zoning Website](#) and an image is available in [Appendix B](#). The signed request form shall be submitted to ODOT via email to [ODOTSpeedZoning@odot.oregon.gov](mailto:ODOTSpeedZoning@odot.oregon.gov).

The road authority will also submit a quality control plan, including:

- Description of equipment used for measuring roadway and speed data.
- Discussion of how the road authority expects to follow the administrative rule.
  - Outlining the investigation process.
  - Documenting the investigation.
  - Understanding of the speed setting rules.

- Producing a speed zone order.
- Describe why it should receive delegated authority to set speeds on roads under its jurisdiction.

Along with the completed request form and quality control plan, the road authority must complete the training provided by ODOT on speed setting practices and submit one engineering study and written order to ODOT to demonstrate its understanding of the process prior to delegation.

Upon approval of request for delegated authority, ODOT will assign a prefix for the local jurisdiction to place in front of the number of the order, as to define orders issued other than by ODOT (ex. PDX for Portland).

## **801.1.2 Step 2: Initial Delegation Period**

Upon initial delegation, ODOT will conduct a review of the first 10 speed zones established under the delegation to assure the road authority is performing speed setting in conformance with the OAR.

ODOT will provide an analysis of the results and determine if further reviews are necessary. ODOT will either terminate the delegation or continue the delegation. See OAR 734-020-0013 (2)(c)(B).

## **801.1.3 Step 3: Investigation**

Speed zone reports shall include the information required in the standard method or alternative method, along with a report summary cover letter (See [Appendix I](#)). Most roadways will be eligible for an alternative method unless it is classified an arterial.

## **801.1.4 Step 4: Recommended Speed**

The road authority may recommend a different speed on a specific section of highway if an engineering study finds the existing designated or statutory speed is greater or less than reasonable or safe under the conditions found in the specific section.

Recommended speed is dependent on whether the road is inside or outside incorporated city limits as well as other factors. The standard speed zoning method explains the factors, and road authorities should consider it when determining a reasonable and prudent recommended speed. See [section 501.6.4.9 Recommended Speed](#), to determine allowable ranges of speed recommendations.

Neither the road authority nor ODOT has authority to exceed the ranges of allowable speeds within OAR 734-020-0015.

If a recommended speed exceeds the authority of the road authority to establish by delegated authority, the road authority may contact ODOT, and the matter may be presented to the speed zone review panel.

## 801.1.5 Step 5: Speed Zone Orders

Speed zone orders are how speed zones and the boundaries for them are established (excluding statutory speeds). If there is an interested jurisdiction, both the interested jurisdiction and the road authority must agree to the speed zone.

See further explanation in OAR 734-020-0013 concerning interested jurisdictions. See [Appendix Q](#) for delegated authority order examples.

Road authorities must rescind existing speed zone orders prior to issuing a new order for that road segment. If ODOT issued the existing order, road authorities must provide ODOT with a 30-day notice, requesting we rescind the existing order, along with a copy of the new order and investigation. Road authorities may not post the new speed until the previous order is rescinded.

Some existing speed zone orders cover multiple road authorities. A delegated road authority only has authority to issue orders for roads under its jurisdiction. If an existing order involves multiple jurisdictions, contact ODOT prior to issuing a new order. It is likely ODOT will reissue an order for the remaining portion, outside the jurisdiction of the delegated road authority.

Speed zone orders with multiple jurisdictions can be complex and may require more than 30 days to complete. Contact ODOT as soon as possible. Early and ample notification provides ODOT time to determine the proper course of action. It is likely ODOT will rescind the previous order and issue a new order for the remaining segments at the same time the road authority issues a new speed zone order. Coordination is key to ensuring all speed zone orders remain in agreement and the new posted speed is valid. Only after an existing speed zone order is rescinded may the new speed be posted (OAR 734-020-0013 (4)(b)(B)).

The road authority must keep the original copy of the speed zone order and the investigation report that supports the investigation. ODOT will upload the copies it receives to our speed zone database, making them available for public search.

## 801.2 When ODOT performs Review

ODOT will perform periodic reviews of the speed zoning by road authorities. ODOT performs these reviews at its discretion, but typically occur every five years after the initial delegation period has been completed.

During a review, ODOT selects a sample of up to 10 speed zones, assessing the selected reports, noting any concerns or suggestions. ODOT may take any of the following actions:

- If ODOT determines the road authority substantially performs speed zoning in compliance with the rules and procedures, ODOT may monitor the speed zoning again in five years.

- If a periodic review finds areas of concerns, ODOT may choose to analyze additional speed zones and/or may recommend more frequent reviews based on identified concerns.
- If during any of the reviews, ODOT determines the road authority repeatedly fails to substantially comply with the rules, as documented by the reviews, ODOT may withdraw the delegation of authority. ODOT may require the road authority to post the section of roadway at the speed that was posted preceding the engineering study or cause a new study to be performed to properly designate the speed.

At its discretion, ODOT may take the results of any review to the speed zone review panel for recommendations on actions.

## **802 Low Volume Paved Roads**

A city, county, or other agency (such as the Bureau of Land Management) may request delegated authority from ODOT to conduct speed zone investigations and establish speed zones on low volume public paved roads (less than 400 average daily traffic).

On paved low volume roads, any road authority can make application to the state traffic engineer requesting delegated authority to determine and establish speed zones. Authority can be granted for all low volume roads or just for an individual road under their road authority. See below under Step 4 for example letter requesting delegated authority low volume paved roads.

The road authority will perform or cause to be performed an engineering study to determine the appropriate speed. If there is an interested jurisdiction on any paved low volume roads within the boundary of the road authority the request shall include a statement that the interested jurisdiction has agreed to the need for the engineering study and, if appropriate, the designated speed.

### **802.1 Procedures for Low Volume Paved Roads**

#### **802.1.1 Step 1: Delegated Authority**

The agency with road authority will request delegated authority as outlined.

#### **802.1.2 Step 2: Investigation**

A report of speed zone investigation will be made for determining the recommended speed(s) for the proposed speed zones(s). The report for low volume Roads shall include the following information and procedures in the standard method or alternative method. Most likely a low volume paved roadway will be eligible for an alternative method unless it is classified an arterial.

- A standard spot speed sample is 75 vehicles in each direction. Spend no longer than three hours on a speed check even if less than 75 vehicles are counted in that time.
- The minimum acceptable spot speed sample is a total of 25 vehicles in both directions when the standard sample cannot be achieved.
- If the minimum sample is unattainable, no speed zone will be established.
- Recommended speed is dependent on whether the roadway section is inside of incorporated city limits or outside of incorporated city limits.

### **802.1.3 Step 3: Recommendation**

The factors are further explained in the standard speed zoning method and should be considered when determining a reasonable and prudent recommended speed.

### **802.1.4 Step 4: Speed Zone Order**

Speed zones other than statutory speeds shall be established by order stating the designated speed and boundaries for that speed zone. If there is an interested jurisdiction, both that agency and the road authority must agree to the speed zone.

- For a public paved low volume road, submit a copy of the report and written order to the state traffic engineer. The report and order will not be reviewed for content or accuracy; this responsibility falls to the road authority.
- See OAR 734-20-0016 for further information regarding establishment of speed zones on public paved low volume roads.

Example: Sample request for low volume road April 30, 2012

State Traffic Engineer  
Oregon Department of Transportation  
Traffic Engineering Section  
4040 Fairview Industrial Drive SE, MS#1  
Salem, OR 97302-1142

The XXX County Department of Public Works is requesting delegated authority to conduct speed zone investigations and establish speed zones on public paved low volume roads (less than 400 ADT).

It is understood XXX County will conduct the investigations in accordance with OAR 734-020-0016 and the Oregon Department of Transportation Speed Zone Manual. It is also understood XXX County will submit a copy of the completed investigation and a copy of the written order to Department once the speed zone is established.

If you have any further questions, please call me at (541) 000-0000.

County Roadmaster

## **803 Unpaved Roads**

On unpaved roads, the road authority can make application to the state traffic engineer requesting delegated authority to perform a speed zone investigation on an unpaved gravel road under their jurisdiction. ODOT will not grant permission to designate speeds on any unpaved road that is not gravel. ODOT will only grant permission for each gravel road individually and not grant blanket authority. The road authority must make the request on a case-by-case basis. See below under Step 4 for example letter requesting delegated authority unpaved road. Establishment of speed zones on unpaved roads is subject to approval by ODOT and ODOT issuing a speed zone order.

Establishing speed zones on unpaved roads is generally discouraged. The risk with establishing a specific speed zone is that a “speed zone” sign creates an expectation by the driver that the roadway is safe to drive at the posted speed.

Unpaved roadway conditions can change rapidly depending on weather, season, traffic volumes and amount of road maintenance. Establishing the appropriate speed limit for all conditions is difficult, if not impossible, due to the unpredictability of roadway conditions. Oregon’s basic rule speed law requires drivers to adopt a reasonable and prudent speed. The driver should be using their visual observation of the roadway conditions, rather than a speed zone sign to determine the safe speed to drive a road.

There are other factors that reduce the effectiveness or necessity for setting speeds on unpaved gravel roads. Enforcement is usually minimal on unpaved roads so there would be poor compliance with speed zoning without enforcement commitment. Potential for vehicle conflict is very low on these roads because most are used by travelers who are familiar with the roads and their condition.

### **803.1 Procedures for Unpaved Roads**

#### **803.1.1 Step 1: Delegated Authority**

The agency with road authority will request delegated authority to perform an engineering study as below:

- State the reason for the requested change.
- Specify that an engineering study will be performed.
- Commit to grading the roadway every 6 months when open to traffic.
- Submit written commitment from law enforcement that the roadway will be subject to regular patrols.

## **803.1.2 Step 2: Investigation**

A report of speed zone investigation will be made for determining the recommended speed(s) for the proposed speed zones(s). The vehicle used by the investigator to take the spot speed sample should be unmarked and kept as inconspicuous as possible so as not to bias the sample. The report shall include the following information:

- Map showing location of speed zone.
- Photographs (optional).
- Submit evidence of crash history related to excessive speed.
- A primary factor in determining the recommended speed for the roadway will be the operating speeds of the roadway.
- Speeds may be varied a maximum of 10 mph above or below the 85<sup>th</sup> percentile speed.
- The spot speed sample taken at a location which is representative of normal, unrestricted traffic flow on the roadway.
- A standard spot speed sample is 75 vehicles in each direction. Spend no longer than three hours on a speed check even if less than 75 vehicles are counted in that time.
- The minimum acceptable spot speed sample is a total of 25 vehicles in both directions when the standard sample cannot be achieved.
- If the minimum sample is unattainable, no speed zone will be established.
- Spot speed samples should be taken within one week after the roadway has been graded.

## **803.1.3 Step 3: Recommendation**

The optional factors below may be listed in the report. These factors should be considered when determining a reasonable and prudent recommended speed such as:

- Geometric features.
- Enforcement.
- Crash history.
- Public testimony.
- Accesses.
- Traffic volumes.
- Pedestrian and bicycle movements.
- Type and density of land use.

## **803.1.4 Step 4: Speed Zone Order**

If there is an interested jurisdiction, both that agency and the road authority must agree to the speed zone.

- For a public unpaved road, submit a copy of the report summary cover letter and report to the state traffic engineer for review and approval.
- ODOT will issue a speed zone order if approved.
- See OAR 734-20-0017 for further information regarding establishment of speed zones on Public Unpaved Roads.

### **Example: Sample Request for Unpaved Road**

**April 30, 2021**

State Traffic Engineer  
Oregon Department of Transportation  
Traffic Engineering Section  
4040 Fairview Industrial Drive SE, MS#5  
Salem, OR 97302-1142

The XXX County Department of Public Works is requesting delegated authority to conduct a speed zone investigation on XXX road, which is an unpaved road. The reason for this request is XXX.

It is understood XXX County will:

- Conduct the investigation in accordance with OAR 734-020-0017 and the Oregon Department of Transportation Speed Zone Manual.
- Submit a copy of the completed investigation to the Department for review and approval.
- Grade the subject roadway a minimum of every six months when open to normal traffic.

Enclosed is the evidence of crash history that supports this speed zone request and written commitment from law enforcement that the subject roadway will be part of routine patrols.

If you have any further questions, please call me at (541) 000-0000.

County Roadmaster

**Sample Speed Zone Report for Unpaved Road**

MALHEUR COUNTY PUBLIC WORKS  
Report of Speed Zone Investigation Hyline Road  
Douglas Road to Grove Road Malheur County  
September 23, 2021

**Recommendation:** Establish the following speed zoning:

Section Investigated	Existing	Recommended
A From: Douglas Road To: Grove Road	55 mph	45 mph

<u>Investigation:</u>	<u>Findings:</u>
50% Speed	42 MPH
85% Speed	47 MPH
Section Length	0.31 mile
Pace speed:	38-47 MPH

<u>Roadside characteristics</u>	<u>Findings:</u>
Horizontal Alignment	0 curves
Vertical Alignment	Level
Curve Signs & Speed Riders	None
Surface	gravel
Width	22 feet
Lanes	2
Shoulders	1-2' gravel

Intersecting Streets	6
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<u>Roadside development and use:</u>	<u>Findings:</u>
Culture type and density	Sparse/residential

<u>Parking practices and pedestrian activity:</u>	<u>Findings:</u>
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Parking	None
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Pedestrian/Bicycles	0/2
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<u>Reported crash experience:</u>	<u>Findings:</u>
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Study Period	01/01/2016 - 12/31/2018
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Total Crashes	2
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Injuries	1
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Fatalities	0
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## Appendix A – Glossary

- 1) **Ahead on line** - Following the road centerline, the direction of increasing mile points.
- 2) **Average crash rate** - Average of the crash rates for a group of similar highway segments within the same functional class and the same geographical area (either countywide or statewide).
- 3) **Average daily traffic (ADT)** - Total number of vehicles to operate over a designated segment of highway during a given time period greater than one day and less than one year, divided by the number of whole days in that time period.
- 4) **Back on line** - Following the road centerline in the direction of decreasing mile points.
- 5) **Basic Rule** - When a person drives a vehicle upon a highway at a speed greater than is reasonable and prudent, having due regard to all of the following: traffic, surface and width of the highway, intersections, weather, visibility, and any other conditions then existing that person can be cited for violation of basic rule. Any highway in Oregon can be enforced as Basic Rule, see ORS 811.100.
- 6) **Business district** - As defined in ORS 801.170. The territory contiguous to a highway when 50 percent or more of the frontage thereon for 600 feet or more on one side or 300 feet or more on both sides, is occupied by buildings used for business.
- 7) **City limits** - The limits of an incorporated city.
- 8) **Computed eighty-fifth percentile speed** - The eighty-fifth (85%) percentile speed minus the difference between the crash rate and the average crash rate (if the crash rate is above the average crash rate for the same functional classification highways within the road authority's jurisdiction), with maximum possible deduction of 5 mph. If there is no average crash rate available for the highway, then the computed eighty-fifth percentile speed is the eighty-fifth percentile speed.
- 9) **Context** - The roadway characteristics and land uses accessible along the highway segment. The context is determined based on the existing land use types, building density, set back of buildings and numbers and types of users of the transportation system accessible along the roadway segment. In descending order of density, the four urban contexts are:
  - a) **Urban Core**, which generally includes downtown areas with the highest development densities and building heights in the urban area, minimal

setbacks (building in back of sidewalk), parking on the street within a well-connected roadway system and typically smaller consistent block sizes.

- b) **Urban Mix**, which generally includes mixed -use (commercial, retail, restaurant, office and residential) high density areas on small lots with buildings typically adjacent to the sidewalk and parking on the streets, where buildings are typically not as tall as urban core and may have parking in front or behind the buildings within a well-connected roadway system and typically small to medium block sizes.
  - c) **Suburban Commercial or Residential**, which generally includes areas of land uses that have residential, offices, restaurants or retail spaces with setbacks from the roadway usually meant to be more accessible by car and may include large parking lots, or which may be characterized by big box stores, commercial strip centers, auto dealers, office parks or gas stations, or which may be large residential neighborhoods along the corridor or that have their access from widely spaced roadway connections with few driveways to the roadway.
  - d) **Suburban Fringe**, which generally includes transition areas between urban and rural areas where there may be few homes and structures, sparsely developed land, lower density of businesses and fewer driveways, intermittent commercial or industrial uses and typically have fewer street connections and larger lot sizes.
- 10) **Crash Severity** - The most significant level of injury sustained in the crash. (See ODOT Crash Analysis and Coding Manual on ODOT's Transportation Data website for the more detailed descriptions of the injury severity). There are five levels of injury:
- (a) **Fatal injury (K)** is any injury that results in death within 30 days after the motor vehicle crash in which the injury occurred.
  - (b) **Suspected Serious Injury (A)** is any injury other than fatal which results in severe laceration, broken extremity (arm or leg), suspected severe skull, chest or abdominal injury, unconsciousness when taken from the crash scene, paralysis or that prevents the injured person from normally continuing the activities the person could perform before the injury occurred.
  - (c) **Suspected Minor Injury (B)** is any injury that is evident at the scene of the crash, other than fatal or serious injuries, including lump on the head, abrasions, bruises, minor lacerations.

- (d) **Possible Injury (C)** is any injury reported or claimed which is not a fatal, suspected serious, or suspected minor injury. Examples include momentary loss of consciousness, claim of injury, limping, complaint of pain or nausea. Possible injuries are those that are reported by the person or are indicated by his/her behavior, but no wounds or injuries are readily evident.
  - (e) **No Apparent Injury (O)** is a situation where there is no reason to believe that the person sustained any bodily harm from the motor vehicle crash. There is no physical evidence of injury, and the person does not report any change in normal function.
- 11) **Crash rate** - Number of crashes per million vehicle-miles (MVM) traveled on a segment of road.
  - 12) **Crash Rates by Functional Class** - Crash rate for each group of functional class highways. The crash rate by functional class is calculated by dividing the total number of crashes by the total vehicle miles traveled for the group of highways within the functional class.
  - 13) **Designated speed** - Speed that is designated under ORS 810.180 as the maximum permissible speed for a highway. The designated speed is established through a speed zone order or rule. Designated speeds shall be in multiples of 5 mph. The designated speed supersedes the statutory speed that would be in effect if no designated speed was established except for school speed zones.
  - 14) **Eighty-fifth percentile speed (85% Speed)** - Speed at or below which 85 percent of the motorists drive on a segment of road for which speeds were measured.
  - 15) **Engineering Study**- means a written engineering and traffic investigation with an analysis and evaluation of pertinent information, for the purpose of deciding upon a designated speed that is reasonable and safe under the conditions found to exist. An engineering study shall be performed by an engineer, or by an individual working under the supervision of an engineer.
  - 16) **Established speed zone** - A posted speed zone established by order.
  - 17) **Fiftieth percentile speed (50% Speed)** - Speed at or below which 50 percent of the motorists drive on a segment of road for which speeds were measured.
  - 18) **Free flowing** - Circumstances under which drivers tend to drive at their chosen speed unrestricted by conditions such as congestion, inclement weather, road work, law enforcement activity, traffic control such as traffic signals, stop or yield signs, or by road geometry such as infrequent curves or hills.

- 19) **Functional class** - Type or class of highway as defined by the Federal Highway Administration (FHWA) in 23 CR 470.105 and the FHWA Functional Classification Guidelines. The functional class of all highways in Oregon are shown on maps maintained by ODOT. The functional classes are divided into the classifications based on type of service and traffic volumes. The five classifications are as shown below are also divided by rural and urban. The classifications used in speed zoning are shown below and urban and rural are added as applicable:
- a) Arterial includes “Other Principal Arterials” and “Minor Arterials.”
  - b) Collector includes “Major Collectors” and “Minor Collector.”
  - c) Interstate
  - d) Local
  - e) Other Freeways and Expressways (a sub-category of arterials but treated as separate for speed zoning)
- 20) **Highway** - Every public way, road, street, thoroughfare, and place as described in ORS 801.305. In this Manual highway, road, roadway, and street may be synonymous.
- 21) **Industrial uses** - An area contiguous to the road segment with mainly warehouse, distribution and manufacturing development.
- 22) **Interested jurisdiction** - Any governing agencies, other than the road authority, which may have interest in the speed on a highway by virtue of being within the city limits or having responsibility for maintaining the highway.
- 23) **Limited Access** - A roadway with widely spaced public road intersections and no or few private driveways. Limited access facilities are typically only accessed by public road intersections with few, if any, private driveways. The public road intersections may be stop controlled, signals or separated grade.
- 24) **Low volume roadway** - A roadway with average daily traffic volume of less than 400 vehicles.
- 25) **Maximum speed** - Highest speed recorded in a spot speed check.
- 26) **Mean speed** - Average of the speed of all vehicles included in each speed check.
- 27) **Median speed** - Speed at or below which 50% of the vehicles in a spot speed check were observed to travel. Median speed and 50<sup>th</sup> percentile speed are synonymous.
- 28) **Mile point equation** - A location on the state highway where a change in the mile point occurs at a point (the mile point ahead equals another mile point behind). This

occurs where shortening or lengthening a highway alignment was necessary to keep mile points in sequence and the whole highway does not need to be re-mile posted.

- 29) **Milepost log** - A log of text and graphics representing road features, traffic controls, accesses, and construction details of a road by milepost along the road alignment. For state highways, there is a milepost log on each highway, frontage road, or connection, published by Road Inventory & Classification Services Unit, ODOT. The state mile point log doesn't include traffic controls or all road features. The current version is available through the state highway inventory reports.
- 30) **Mode speed** - Most frequently occurring speed for a spot speed check.
- 31) **Narrow residential roadway** means a two-way roadway that is (1) located in a residence district; and (2) not more than 18 feet wide at any point between two intersections or between an intersection and the end of the roadway (see ORS 801.368).
- 32) **ODOT** - Oregon Department of Transportation.
- 33) **Order** - Official document prepared and issued by ODOT or the road authority as per ORS 810.180 that delineates the highway segment(s) and establishes the speed in a speed zone(s). This is commonly known as a **speed zone order**.
- 34) **OTC** - Oregon Transportation Commission. It is the Oregon Department of Transportation's governing body. The state traffic engineer has delegated authority from the OTC to set speed zones within established guidelines designated in Oregon Administrative Rules (OARs) 734-020-0010 thru 0019.
- 35) **Pace or Pace limits** - A 10-mph increment that includes the greatest percentage of vehicles observed in a spot speed check.
- 36) **Paved road** - A regularly maintained solidified hard surfaced road typically solid bituminous (asphalt concrete), oil mat or Portland cement concrete.
- 37) **Prima facie evidence** - Information or material that would, if uncontested, establish a fact or raise a presumption of a fact. In the case of speed zoning, some posted speeds may be enforced as a basic rule violation, in which case speeds in excess of the posted speed would be considered prima facie evidence of violation. (See ORS 811.105).
- 38) **Recommended speed** - Speed that has been determined from an engineering study. Recommended speeds shall be in multiples of 5 mph.
- 39) **Rescission** - A cancellation or repeal of a previously valid speed zone order. This can occur when a road authority wants to rescind the order and allow the roadway to

operate under statutory speed or when a new designated speed zone order is issued, and the old order is rescinded (the new order supersedes all previous orders).

- 40) **Residence district** - As defined in ORS 801.430. Note that a statutory residence speed does not apply to arterials.
- 41) **Road authority** - Governing body authorized to exercise authority over a road, highway, street, or alley under ORS 810.010. Sometimes referred to as a road jurisdiction.
- 42) **Rural** - An area outside of city limits for purposes of speed zoning. This may differ from functional class urban and rural designations; federal functional class considers communities of 5000 or more population rather than city limits or outside of the urban growth boundary.
- 43) **Rural community** - An area outside city limits with a concentration of land uses such as residential, businesses, industrial or other public uses. The segment is either contiguous to a business district or residence district; or an unincorporated community which includes a permanent residential dwelling but also has at least two other land uses in separate buildings that provide commercial, industrial, or public services for the community, surrounding area or persons traveling through the area.
- 44) **School zone exception** - Portion of a speed zone which is signed as a school zone or school crossing, where the statutory speed shall be 20 mph per provisions of ORS 811.111.
- 45) **Sections** – For speed zoning purposes, the roadway is broken into divisions called sections when the recommended speed changes. A new section is created each time the recommended speed changes. (For instance, a Section that was designated 35 mph could be broken up into 3 sections, a recommended 25 mph speed zone in middle between two 35 mph speed zones on either end, would make the first 35 mph Section A, the 25 mph would be Section B and then next 35 mph would be Section C). If it is necessary to split a section into further subdivisions, such as when it has multiple jurisdictions, then the section is divided into segments, each with different jurisdictions and the same speed is listed for each segment within that section.
- 46) **Segments** – For speed zoning purposes, each section may be broken into subdivisions called segments, typically when the jurisdiction changes. Different jurisdictions are footnoted such as 1/City of XXXX and 2/ODOT or XXXX County. This typically happens as a road goes in and out of city limits. School speed zones on state highways are also described in segments that fall within a specific speed zone section.

- 47) **Speed limit** - Maximum speed that is authorized by statute or designated by the ODOT or the Road Authority. All posted speeds in Oregon are speed limits, see ORS 811.111.
- 48) **Speed zone** - A specific section of highway where a designated speed is posted.
- 49) **Speed Zone Review Panel** - Panel formed by ODOT per OAR 734-020-0015 to act as a hearing body to decide contested speed zoning decisions. Members include representatives from League of Oregon Cities (LOC), Association of Oregon Counties (AOC), Oregon State Police (OSP), Oregon Transportation Safety Committee and ODOT.
- 50) **State Speed Control Board (SSCB)** - Former established board with the authority to set speed zones on all city streets and county roads. The SSCB was replaced in 1994 by delegation to the state traffic engineer, with contested cases being heard by the speed zone review panel.
- 51) **State Traffic Engineer** – Engineer who has delegated authority to designate speed limits on all roads in Oregon or to grant authority to qualified jurisdictions to designate speed limits.
- 52) **Statutory speed** - Speed maximum permissible speed allowed by statute for roadways with certain characteristics, such as residential, school, business, interstate. The statutory speed is the legal speed, whether posted or not, on any section of road if there is no written speed zone order establishing a different designated speed (see designated speeds). Examples of a statutory speed would be a residential speed of 25 mph, a business district speed of 20 mph, school speed 20 mph, etc. See ORS 811.105 and 811.111.
- 53) **Straight line chart** - A graphical representation of the mile post log.
- 54) **Transit stops** - Any stops for public mass transit (bus, light rail, or trolley) that operate with fixed schedules and routes open to the general public along the segment being investigated. For speed zoning it does not include stops for paratransit, special transit for medical needs or any door-to-door services.
- 55) **Transition speed zone** - A speed zone or speed zones established to make a change in posted speed less abrupt for drivers. For example, instead of going directly from a 55-mph section to a 25 mph, it may be necessary to establish one or more transition speed zones in between, such as 45 mph and 35 mph. Transition speed zones must be a minimum of 1000 feet in length.

- 56) **Unestablished speed zone** - A posted speed zone not designated by order or established as per statute.
- 57) **Urban Area** - Areas inside an incorporated city limits for purposes of speed zoning. This may differ from functional class urban and rural designations; federal functional class takes into account communities of 5000 or more population rather than city limits and usually includes area within the urban growth boundary.
- 58) **Urban growth boundary** - An area outside of city limits that designates the area set aside for urban development in the future. It may have somewhat dense development or be very sparse development.
- 59) **Unpaved road** - A road which has a surface that does not meet the definition of a paved road. The road surface may be dirt, rock, gravel, or other non-solidified material and may have a dust palliative applied.
- 60) **Variable Speed Zone** - Posted speeds that change via changeable message signs. The speed changes based on congestion, road conditions, reduced visibility, or weather conditions.
- 61) **Z mileage** - A segment of state highway where a project has lengthened the road in the middle due to realignment, Z mileage is created. At each end of the Z mileage segment are mile point equations.

## Appendix B –Request Examples

Requests for speed zone investigations may be submitted by a city or county with jurisdiction for the roadway (ORS 810.010). These requests may be submitted by authorized representatives of the road authority at the following link:

<https://ecmnet.odot.state.or.us/SpeedZone/Home/RequestForm>

A constituent should contact their local jurisdiction (city or county) if the speed zone investigation is being requested within city limits. Outside of city limits, a constituent should contact the county for county roads and ODOT for state highways. The online form looks like the following:

## Image of Speed Zone Online Request form


For use by Road Authority

The screenshot shows the 'Speed Zone Request' form for Road Authority use. The form is titled 'Speed Zone Request' and includes a header with the Oregon Department of Transportation logo and version information (Version: 1.0.0.0, Release: 05/1/2019). The form is divided into several sections:

- Requestor Information:** Includes fields for Agency Name, Contact Title, First Name, Last Name, Telephone Number, and Email. There is also a field for Additional Jurisdictions.
- Name of Roadway:** A field for the Name of Roadway.
- Speed Recommendations:** Includes fields for Initial Speed, Low Speed, Requested Speed, Reason, Existing Posted Speed, Entering Speed, Exiting Speed, Average Daily Traffic Volume (ADTV), Roadway Classification, Engineering Speed, Reason, Enforcement Speed, Reason, and Resident Speed. There is also a checkbox for 'Are there special plans to enforce the proposed speed zoning?' and a 'Submit' button.

At the bottom of the form, there is a CAPTCHA question: 'I'm not a robot' and a 'Submit' button. The footer of the form indicates '2019 - ODOT'.

# Image of Delegated Authority Request Form

OREGON DEPARTMENT OF TRANSPORTATION		
 <h2>Delegation of Speed Zone Authority Request</h2>		
<p>To request delegation of Speed Zoning Authority under OAR 734-020-0013, please complete the following, including digital signatures and return along with appropriate documentation to:</p> <p><a href="mailto:ODOTSpeedZoning@odot.oregon.gov">ODOTSpeedZoning@odot.oregon.gov</a></p>		
<b>GENERAL INFORMATION</b>		
1 AGENCY NAME _____		
2 CONTACT NAME AND TITLE _____		3 TELEPHONE NUMBER _____
4 E-MAIL ADDRESS _____		
5 STREET ADDRESS _____	6 CITY _____	7 ZIPCODE _____
8 NAME AND SIGNATURE OF RESPONSIBLE REGISTERED PROFESSIONAL ENGINEER* _____		
<small>*DIGITAL SIGNATURE IS ACCEPTANCE OF THE DEPARTMENT'S DELEGATION PROCESS AS DEFINED IN OAR 734-020-0013</small>		
9 INVESTIGATOR(S) OR UNIT RESPONSIBLE FOR ORDER AND REPORT WRITING _____		
<b>ACKNOWLEDGMENT OF RULE RELATED UNDERSTANDING</b>		
10 HAVE THOSE LISTED IN #8 & #9 COMPLETED THE TRAINING PROVIDED ON THE ODOT SPEED ZONING WEBSITE? _____		11 DATE OF COMPLETION _____
12 THE PARTY LISTED IN #9 HAS ACCESSED AND REVIEWED THE DEPARTMENT'S SPEED ZONE MANUAL ON THE ODOT SPEED ZONING WEBSITE.		
13 THE ENGINEER LISTED IN #8 AND THE PARTY LISTED IN #9 HAVE READ AND UNDERSTAND THE CRITERIA LISTED IN THE OREGON ADMINISTRATIVE RULES LISTED BELOW.		
ENGINEER	INVESTIGATOR(S)	14 SIGNATURE OF INVESTIGATOR OR REPRESENTATIVE LISTED IN #9 AFFIRMING COMPLETION OF TRAINING AND RULE COMPREHENSION
	OAR 734-020-0013	
	OAR 734-020-0014	
	OAR 734-020-0015	
15 SIGNATURE OF ENGINEER IN #8 AFFIRMING COMPLETION OF TRAINING AND RULE COMPREHENSION		
_____		
form date: 3/2022		

## Appendix C – Crash Data

Crash Data is available online or by contacting:

Crash Analysis and Reporting (CAR) Unit ODOT Mill Creek Office  
555 13<sup>th</sup> Street NE Salem, Oregon 97301

Email request to the ODOT CAR Unit at [ODOTDSCrashRequestGroup@odot.state.or.us](mailto:ODOTDSCrashRequestGroup@odot.state.or.us)

Crash data and statistics are available online at  
<https://www.oregon.gov/odot/Data/Pages/Crash.aspx>.

The following crash data products are available on-line from the link above (see link to the “Crash Data System” on the above page). Here are descriptions of a few of the more popular reports:

- Comprehensive PRC (CDS380): *This is the original crash listing*, but now as many types of reports exist it is called the Comprehensive PRC (CDS380) as it gives all the crash information. You will receive information on crash location, including lat-long, date, type of crash, event, cause, errors, road characteristics, vehicle type, vehicle direction of travel, alcohol, or drug involvement: also, participant types, ages, gender, license, and injury severity.
- 3R or Crash Characteristics Summary: This is a summary report on crash characteristics. It reports on several characteristics of each crash within the designated year range and highway and mile point ranges requested.
- Summary by Year (CDS 150): This report gives a crash count by year and collision type. It includes crash severity, number injured or killed, truck involved, road surface, day, dark, intersection or intersection-related, and off road.
- VDL Vehicle Direction: Report lists crashes by highway and milepost. Date, time, road character, off road, collision type, injury severities, vehicle types, and direction of travel for up to three vehicles.

Other reports and data extracts are available by request to the CAR Unit. Contact the CAR Unit for assistance. Spatial Crash Data is available online in TransGIS -

<https://gis.odot.state.or.us/transgis>

Note: Bicycle and Pedestrian crashes are only counted in crashes in which a pedestrian or bicycle was struck by a motor vehicle, not where they might have been involved but not struck.

## Crash Listing Example

CRASH LISTING																				
Roadway: NE 162nd Avenue / SE 162nd Avenue			Collision Type												All Crashes*	Classification				
City: City of Gresham / City of Portland			Angle	Head-on	Rear-end	Sideswipe Meeting	Sideswipe Overtaking	Turning Movements	Parking Maneuver	Non-Collision	Fixed-Other Object	Pedestrian	Backing	Other		Bicycle Crashes*	Fatal K	Serious Injury A	Injury B and C	No Injury O
County: Multnomah County																				
From: NE Sandy Boulevard (NE Portland Hwy, US 30 Bypass)																				
To: SE Clatsop Street																				
Study Period: 1/1/18 to 12/31/20																				
	Year	Not Investigated																		
Section A	2020																			
From: NE Sandy Boulevard (NE Portland Hwy, US 30 Bypass)	2019																			
To: 50 feet north of UPRR crossing	2018																			
	Total																			
Section A	2020																			
From: 50 feet north of UPRR crossing	2019			2			1	1								4		3	1	
To: NE Halsey Street	2018	1		1			3			1						6		5	1	
	Total	1		3			4	1		1						10		8	2	
Section B	2020	1														1		1		
From: NE Halsey Street	2019			2	1		4									7		6	1	
To: NE Glisan Street	2018			2												2			2	
	Total	1		4	1		4									10		7	3	
Section C	2020	5		11		2	4			2	2					26		1	16	
From: NE Glisan Street	2019	1		11		4	12			2	1					31			18	
To: 200 feet south of SE Stark Street	2018	4		21		2	13			1	3					44		1	25	
	Total	10		43		8	29			5	6					101		2	59	
Section C	2020	Not Investigated																		
From: 200 feet south of SE Stark Street	2019																			
To: SE Clatsop Street	2018																			
	Total																			
Section E	2020																			
From:	2019																			
To:	2018																			
	Total																			
Section F	2020																			
From:	2019																			
To:	2018																			
	Total																			

\*Bicycle Crashes are included within the other collision types and are not added twice.

Compiled By: Lisa Nguyen

Date: July 14th, 2022

## Appendix D – Spot Speed Checks

Spot speed checks are used to determine the speed characteristics of a roadway. See [section 402.6 Determine the Speed Characteristics](#) for more details on spot speed checks.

# Spot Speed Check Form Example

## OREGON STATE DEPARTMENT OF TRANSPORTATION Traffic-Roadway Section SPOT SPEED CHECK

City: \_\_\_\_\_ Route: \_\_\_\_\_ Hwy #: \_\_\_\_\_ MP: \_\_\_\_\_  
 Date: \_\_\_\_\_ Day: \_\_\_\_\_ Time: \_\_\_\_\_  
 Weather: \_\_\_\_\_ Sign Speed: \_\_\_\_\_ Observer: \_\_\_\_\_  
 Location Description: \_\_\_\_\_  
 Remarks: \_\_\_\_\_

\_\_\_\_\_ Pavement Width \_\_\_\_\_ ft. \_\_\_\_\_  
 \_\_\_\_\_ Shoulder Width \_\_\_\_\_ ft. \_\_\_\_\_  
 Bicycles: \_\_\_\_\_  
 Pedestrians: \_\_\_\_\_

M P H	Passenger Cars						Trucks						Bus	
	Bound	Tot.	%	Bound	Tot.	%	Bound	Tot.	%	Bound	Tot.	%	Bd	Bd
70 +				70 +			70 +			70 +				
69				69			69			69				
68				68			68			68				
67				67			67			67				
66				66			66			66				
65				65			65			65				
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46				46			46			46				
45				45			45			45				
44				44			44			44				
43				43			43			43				
42				42			42			42				
41				41			41			41				
40				40			40			40				
39				39			39			39				
38				38			38			38				
37				37			37			37				
36				36			36			36				
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27				27			27			27				
26				26			26			26				
25				25			25			25				
24				24			24			24				
23				23			23			23				
22				22			22			22				
21				21			21			21				
20				20			20			20				
19-				19-			19-			19-				

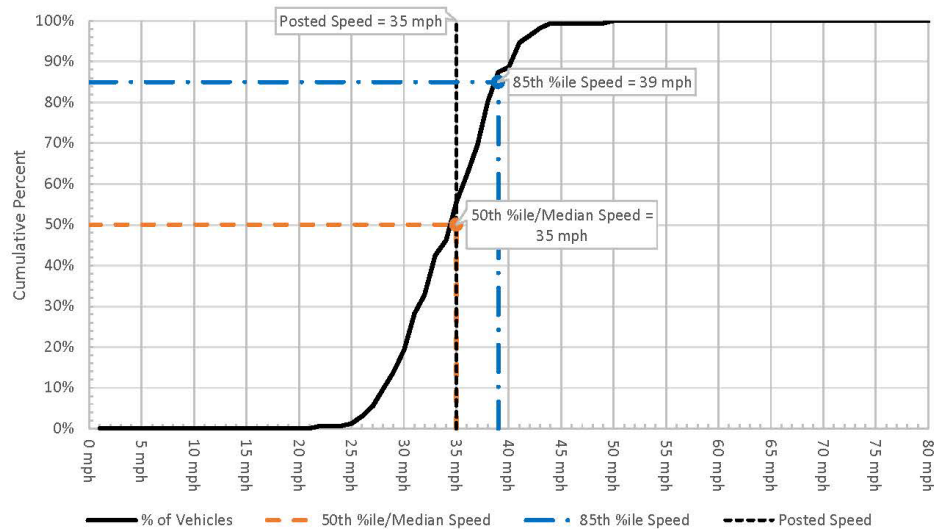
# Spot Speed Check Summary Example

Oregon Department of Transportation

## Spot Speed Measurement Report

Roadway	NW 1st Street	Date	July 13, 2021
City	Mill City	Time	08:00 AM - 09:45 AM
County	Washington	Weather	Sunny
Location	NW Main Street (1)	Investigator	Jane Doe
Direction of Travel	Westbound & Eastbound	Agency/Company	ODOT

### Combined Direction Speed Profile



### Summary Statistics

Direction	Westbound	Combined	Eastbound
Total # of Vehicles	92 vehicles	167 vehicles	75 vehicles
50th %ile/Median Speed	35 mph	35 mph	33 mph
85th %ile Speed	39 mph	39 mph	39 mph
Mean Speed	35 mph	35 mph	34 mph
Standard Deviation	5 mph	5 mph	4 mph
Pace Limits*	30 mph - 39 mph	30 mph - 39 mph	30 mph - 39 mph
% In Pace	71%	74%	77%
Max Speed	50 mph	50 mph	44 mph
Posted Speed	35 mph	35 mph	35 mph
% Exceeding Posted Speed	48%	44%	40%

\*10 mph range containing the largest number of sampled vehicles.

Edition: June 2020

## Appendix E – Footnoting Jurisdictional Boundaries on Speed Zone Orders

On the investigation report, use footnotes to designate the road authority and the interested jurisdiction. If just one agency is involved, no footnotes are necessary. The footnotes and jurisdictional breaks are shown on all engineering studies and speed zone orders for state highways.

“Road Authority” and “Interested Jurisdiction” are defined in OAR 734-020-0014 (speed zone definitions) as:

“Road authority” means the governing agency which has the jurisdiction to place, maintain and operate traffic control devices as defined in Oregon Revised Statute 810.010.

“Interested jurisdiction” means any governing agencies, other than the Road Authority, which may have interest in the speed on a highway by virtue of being within the city limits or having responsibility for maintaining the highway.

Below is ORS 810.010 that describes road authority designations:

810.010 Jurisdiction over highways; exception. This section designates the bodies responsible for exercising jurisdiction over certain highways when the vehicle code requires the exercise of jurisdiction by the road authority. This section does not control where a specific section of the vehicle code specifically provides for exercising jurisdiction in a manner different than provided by this section. Except as otherwise specifically provided under the code, the responsibilities designated under this section do not include responsibility for maintenance. Responsibility for maintenance is as otherwise provided by law. The following are the road authorities for the described roads:

- (1) The Department of Transportation is the road authority for all state highways in this state including interstate highways.
- (2) The county governing body is the road authority for all county roads outside the boundaries of an incorporated city.
- (3) The governing body of an incorporated city is the road authority for all highways, roads, streets, and alleys, other than state highways, within the boundaries of the incorporated city.

(4) Any other municipal body, local board or local body is the road authority for highways, other than state highways, within its boundaries if the body or board has authority to adopt and administer local police regulations over the highway under the Constitution and laws of this state.

(5) Any federal authority granted jurisdiction over federal lands within this state under federal law or rule is the road authority for highways on those lands as provided by the federal law or rule. [1983 c.338 §145; 1985 c.16 §45]

The following examples show the format to use when footnoting different jurisdictional boundary situations on the report. For the purpose of the definitions, the words highway, road and street are synonymous.

## Footnoting Examples

### Example 1

You have conducted a speed zone investigation on a local road in the City of Cove and Union County. Both jurisdictions are responsible for maintenance within their jurisdictional boundaries. You would footnote as shown in the image below:

		Existing	Recommended
From:	Cove Highway	35 mph	30 mph <u>1</u> /
To:	Antler Road		
From:	Antler Road	45 mph	30 mph <u>2</u> /
To:	100 feet west of Tick Creek		
<u>1</u> / City of Cove – Road Authority			
<u>2</u> / Union County – Road Authority			

### Example 2

You have conducted a speed zone investigation on a local road in the City of Cove and Union County. Union County is responsible for maintenance within both jurisdictional boundaries. You would footnote as shown in the image below:

		Existing	Recommended
From:	Cove Highway	35 mph	30 mph <u>1/</u> <u>2/</u>
To:	Antler Road		
From:	Antler Road	45 mph	30 mph <u>3/</u>
To:	100 feet west of Tick Creek		
<u>1/</u> City of Cove – Road Authority			
<u>2/</u> Union County – Interested Jurisdiction			
<u>3/</u> Union County – Road Authority			

Note: The “interested jurisdiction” footnote would indicate the section within the city limits where the county is responsible for maintenance.

## Example 3

You have conducted a speed zone investigation on a local road in the City of Cove and Union County. The city limits line follows the center line of the roadway for a portion of the investigated section. Union County is responsible for maintenance of all the segments. You would footnote as in the image below:

		Existing	Recommended
From:	Cove Highway	35 mph	30 mph <u>1/</u> <u>2/</u>
To:	Antler Road		
From:	Antler Road	35 mph	30 mph <u>3/</u> <u>2/</u>
To:	Coleman Road		
From:	Coleman Road	45 mph	30 mph <u>4/</u>
To:	100 feet west of Tick Creek		
<u>1/</u> City of Cove – Road Authority			
<u>2/</u> Union County – Interested Jurisdiction			
<u>3/</u> City of Cove and Union County – Road Authorities; City limits coincident with centerline			
<u>4/</u> Union County – Road Authority			

## Example 4

You have conducted a speed zone investigation on a **state highway** within the City of Cove. You would footnote as shown in the image below:

		Existing	Recommended
A	From: Arlene Avenue To: 100 feet east of Hunter Avenue	35 mph	30 mph <u>1/</u>
B	From: 100 feet east of Hunter Avenue To: Brewster Avenue	45 mph	40 mph <u>1/</u>
<u>1/</u> City of Cove – Interested Jurisdiction			

The interested jurisdiction footnote would indicate that the section is within the city limits. If you wish, you could add a footnote showing that ODOT is the road authority.

## Example 5

You have conducted a speed zone investigation on a **rural state highway** that extends through the City of Cove. You would footnote as shown in the image below:

		Existing	Recommended
A	From: Blizzard Creek Road To: 100 feet west of Arlene Avenue	55 mph	50 mph <u>1/</u>
B	From: 100 feet west of Arlene Avenue To: 100 feet east of Hunter Avenue	35 mph	30 mph <u>2/</u>
C	From: 100 feet east of Hunter Avenue To: Brewster Avenue	45 mph	40 mph <u>2/</u>
<u>1/</u> ODOT – Road Authority			
<u>2/</u> City of Cove – Interested Jurisdiction			

When a section has both a road authority and an interested jurisdiction, you can combine both agencies into one footnote number, if you wish. If there is just one road authority and no interested jurisdiction, no jurisdiction footnotes are required.

## **Appendix F – Housekeeping Changes**

Existing speed zone orders may need to have the information on the order, other than the designated speed, updated. These updates are called “housekeeping” changes. See [Section 708 Housekeeping Reports](#) for more information on housekeeping changes.

### **Noting the Need for Future Updates**

If a housekeeping change needs to be made but resources are not available to do the required field work and/or prepare the housekeeping report, request a note that the correction is required be added to the speed zone database. Additionally, submit a memo to the state traffic engineer on the needed changes, recommending they be field verified the next time there is a speed zone review of any portion of that order.

## Example of First Page of Report for Housekeeping Purposes

OREGON DEPARTMENT OF TRANSPORTATION  
REPORT OF SPEED ZONE INVESTIGATION  
Coker Butte Road  
Crater Lake Avenue to Foothill Road  
City of Medford / Jackson County  
May 30, 2021

Recommendation: Rescind SSRP Order #1199D, dated May 8, 1996 and establish the following speed zoning as listed below. Recommendation to establish a new order is for housekeeping purposes.

Investigated

	Existing	Recommended
From: Crater Lake Avenue (Crater Lake Hwy No. 22)	45 mph	45 mph <u>1/ 2/</u>
To: 300 feet west of <u>Springbrook Road</u>		
From: 300 feet west of <u>Springbrook Road</u>	45 mph	45 mph <u>3/ 4/</u>
To: Foothills Road		

1/ City of Medford – Road Authority

2/ Jackson County – Interested Jurisdiction

3/ Jackson County – Road Authority

4/ Housekeeping – Retain existing speeds in new order due to recent project changed starting point of 45 mph speed zoning.

Historical Background:

Investigation requested by: James Philp, Traffic & Development Engineer, Jackson County Requested Speed: None (Housekeeping)

Previous Action: Established SSRP Order #1199D, dated May 8, 1996

## Appendix G – Survey of Oregon Unincorporated Communities

In OAR 734-020-0015 under Section (3)(b), the rules around the establishment of speed zones on rural state highways describe how the speed may fall within the range of recommended speeds depending on whether it is a state highway and how the roadway is functionally classed. Under Section (3)(c)(A) and (B), the rules offer exceptions to the ranges offered. One of the exceptions under (3)(c)(A) covers segments located within a rural community. A rural community is defined in OAR 734-020-0014 as an area outside city limits with a concentration of land uses such as residential, business, industrial or other public uses. The segment is: (a) contiguous to a business district or resident district; or (b) an unincorporated community which includes a permanent residential dwelling but also has at least two other land uses in separate buildings that provide commercial, industrial, or public services for the community, surrounding area or persons traveling through the area. Examples of these types of areas have been identified by the Oregon Department of Land Conservation and Development (DLCD) as an “Unincorporated Community” as listed in the Survey of Oregon Unincorporated Communities. The information below describes how the list of unincorporated communities was developed.

### Background

In 1993, DLCD conducted a statewide survey of unincorporated communities (these areas were called "rural communities" at that time). The purpose of the survey was to gather information about such areas to assist in writing land use planning rules for such communities. The survey included a list of community names for each county and provided information about land uses and public facilities in these areas.

The Land Conservation and Development Commission (LCDC) adopted administrative rules for unincorporated communities in 1994 (OAR 660, Division 22). Because the survey had been conducted prior to the drafting of the related rules, counties had listed some areas in the survey that do not meet the formal definition of "unincorporated community." As such, not all the areas listed in the survey are subject to LCDC's rural communities' rules.

In 1997, LCDC revised the “unincorporated community” rules. The revised rules refer to the survey of unincorporated communities. During the public review process for these amendments several counties requested that LCDC add certain communities to the DLCD survey. These communities had not been listed in the original (1993) survey but are similar to the other community areas listed on that survey. LCDC agreed to amend the survey to include these additional areas.

The survey is on file at DLCD as the official document referenced by the amended unincorporated communities' rules. As with the 1993 survey, not all the areas listed in this, the amended (1997) survey, will qualify as an "unincorporated community" using the definition in

Division 22. The 1993 survey, which is also available from DLCD, includes additional land use and public facilities information for each of the communities surveyed at that time.

## Appendix H – Example of an Alternative Investigation Report

OREGON DEPARTMENT OF TRANSPORTATION (or agency performing investigation)		
Alternative Investigation Method Report of Speed Zone Investigation		
ROAD NAME		
List the from/to boundaries of the investigation		
City of _____ (may not be used State Highways or on Arterials)		
Date of Report		
Requestor/Contact Name, Title, Phone #, Email Address		
<u>Section Investigated (or Not Investigated)</u>	<u>Existing</u>	<u>Recommended</u>
Section A From: Begin point by road or feature name w/ distance & direction	Posted speed (MPH)	Speed (MPH)
To: End point by road or feature name w/ distance & direction		
Not investigated sections listed on the current order should be listed here also. 1/ Use footnotes to show if County has jurisdiction in part of investigated section		
<u>Roadway Data:</u>		
Section length	List length of investigation section	
Federal Functional Classification	List federal Functional class (may not be arterial, interstate or other freeway/expressway)*	
*If applicable, a statement of whether the highway has widely spaced public road intersections and with few private driveways leading to businesses or residences		
Context	Context as determined by Engineer	
Land use	Description of the type and density of adjacent lane use*	
*If applicable, indicate if either sparse/inconsistent land use or limited access applies		
Typical roadway cross section	i.e., EOP or curb; Shoulder width; travel lane 1 width; travel lane 2 width; shoulder width; EOP or Curb	
ADT	Average daily traffic and year	
Pedestrian Activity	Use descriptions High, Medium or Low from the field investigation to describe the relative use of the segment by pedestrians for the roadway.	
Bicycle Activity	Use descriptions High, Medium or Low from the field investigation to describe the relative use of the segment by bicycles for the roadway. This includes, but is not limited to, those on skates, scooters and personal assistive devices.	
<u>Analysis of Speed Characteristics of Free Flowing Traffic:</u>		

Analysis of Speed Characteristics of Free Flowing Traffic:

Date, time of day &amp; location (s) of speed checks

85 <sup>th</sup> Percentile Speed	Average for Section
50 <sup>th</sup> Percentile Speed	Average for Section
Pace Limits <u>2</u> /	Average for Section
% within Pace Limits	Average for Section
Maximum Speed Observed	High for Section
% Exceeding Posted Speed	Average for Each Posted Speed
Posted Speed	List Posted Speed(s)
Recommended Speed	List Recommended Speed

Crash Data:

Study Period	Last 3 full yrs min.
yr-yr Total Crashes	# for study period
yr-yr Fatal K Crashes	# for study period
yr-yr Serious Injury A Crashes	# for study period
yr-yr Injury B and C Crashes	# for study period
yr-yr No Injury O Crashes	# for study period
yr-yr Section Crash Rate (R)	Crashes/MVM
yr Comparable Crash Rate (r) <u>1</u> /	From Rate Table
Deviation (R-r)	R-r, if <0, =0

1/ List Urban/Rural Functional Classification or No comparable rate available2/ Ten mile-per-hour range containing the largest number of sampled vehicles.

Recommended Speed: Recommended speed must fall within range of recommended speeds listed by context/functional classification under OAR 734-020-0015

Current Order: List current posted speed and speed zone order number, if applicable.

Factors Influencing Recommendation: State the OAR citation used to base the recommendation. List all deciding factors from above lists and any other information, which, in the professional judgement of the Engineer preparing the study, are relevant to the designation of the speed zone or the investigation.

---

Signature and date of Investigator (if different from the Engineer)

---

Signature and date of Engineer

In addition to the above report, please provide the following:

- Basic Map

From Google is acceptable, showing location of speed zone and speed checks

- Typical Photos

Typical photos representative of typical lanes, shoulders, land use with labeled location

- Provide interested jurisdiction concurrence (if applicable)

Attach Documentation

Other Information: The above information must be included in the Alternative Investigation as a minimum, but other relevant information may also be included. Include the "other information" here or attached as a separate page.

## Appendix I – Example Report Summary Cover Letter

For each investigated section, the report summary cover letter presents results and reasons for recommendation along with any other considerations. The OAR citation used to make the recommendation must be listed within this letter.



### INTER OFFICE MEMO

### TECHNICAL SERVICES

Traffic-Roadway Section

Office Phone: (503) 986-3609

DATE: June 20, 2021

TO: Michael Kimlinger, PE, State Traffic Roadway Engineer

FROM: John Doe, PE, Region Traffic Engineer  
Jane Smith, Traffic Investigator

SUBJECT: Speed Zone Recommendation, Request ID#XXXXXX  
Powerline Road  
Columbia River Hwy (US 730) to Radar Road  
City of Umatilla / Umatilla County

A speed zone investigation had been conducted at the subject location and report attached for your review and approval. The investigation was conducted in response to a request from Larry Clucas, City Administrator for the City of Umatilla with concurrence from Hal Phillips, Roadmaster for Umatilla County. The City has requested ODOT establish a 25 mph speed zone from the Columbia River Hwy (US 730) to Pine Tree Avenue and a 35 mph speed zone from Pine Tree Avenue to Radar Road.

Section A, from the Columbia River Highway to 0.14 mile south of Pine Street is of residential culture with moderate density. The roadway is typically 20 feet wide with single 10 foot travel lanes. There were no reported crashes in the three-year crash study period. The spot speed data yields an average 85% speed of 39 mph and a 50% speed of 35 mph. Pace limits were from 31-40 mph with 78% of the vehicles in pace. After consideration of the speed data and crash history, I recommend retaining existing 35 mph speed zoning. This recommendation is based on OAR 734-020-0015(2)(d), the 50<sup>th</sup> percentile speed is 35 or greater.

Section B, from 0.14 mile south of Pine Street to Radar Road is of rural culture with sparse density. This section has two intersecting streets that will eventually be used to serve residential areas. The roadway is typically 20 feet wide with single 10 foot travel lanes. There was one reported crash in the three-year crash study period. The spot speed data yields an average 85% speed of 53 mph. Pace limits were from 44-53 mph with 62% of the vehicles in pace. After consideration of the 85<sup>th</sup> percentile speed, crash history and need for a transition speed zone, I recommend establishing a 45 mph speed zone based on OAR 734-020-0015(8)(a), transition speed zone.

If you concur with this recommendation, please note your concurrence on the attached report.

## Appendix J – Section Description Example for roadway with multiple names

Section	Existing	Recommended
---------	----------	-------------

Investigated

### On 5<sup>th</sup> Street

A	From: Beginning Road To: Next Road	XX mph	YY mph <u>1</u> /
	From: Next Road To: 150 ft. E of Third Street	XX mph / YY mph	YY mph <u>2</u> /

Not Investigated

B	From: 150 ft. E of Third Street To: New 4 <sup>th</sup> Avenue	AA mph	AA mph <u>1</u> /
---	---	--------	-------------------

### On New 4<sup>th</sup> Avenue

	From: 5 <sup>th</sup> Street To: 150 ft. N of Industrial Road	AA mph	AA mph <u>1</u> /
C	From: 150 ft. N of Industrial Road To: 100 ft. S of Transition Street	BB mph	BB mph <u>3</u> /

Per provisions of ORS 811.111 Subsection 1(e) and ORS 810.200 the following segment(s) within the section above shall be 20 mph. (State Highways Only, School Zone)

From: 50 feet south of Industrial Road MP XX.XX  
To: 300 feet north of Transition Street MP XX.XX

Investigated

D	From: 100 ft. S of Transition Street To: End Road	XX mph (stat)	YY mph <u>3</u> /
---	--	---------------	-------------------

- 1/ City One – Road Authority  
2/ City One – Road Authority and County - Interested Jurisdiction  
3/ County – Road Authority

# Appendix K – Standard Report Outline

## Report Outline Template Example

Agency Conducting Study Standard Report of Speed Zone Investigation Name of Highway, Street or Road Begin Point of Full Report to End Point of Full Report Roadway Authority and Interested Jurisdiction Name(s) Report date			
<u>Recommendation:</u> (Retain, Revise or Establish speed zone orders) as shown below:			
<u>Section</u>	<u>Existing</u>	<u>Recommended</u>	
<u>Investigated (or Not Investigated)</u>			
A    From: Begin point*    MP (state <u>hwy</u> ) To: <u>End point*</u>	Posted speed (MPH)	Speed (mph)	
* By road or feature name with distance and direction.			
Include below Section, if School Zone on State Highway within Section above: Per provisions of ORS 811.111 Subsection 1(e) and ORS <u>810.200</u> the following segment(s) within the section above shall be 20 mph.			
From: Begin point by road or feature name MP XX.XX To: End Point by Road or feature name MP XX.XX			
<u>Historical Background:</u> Investigation Requested by: Name, title, Jurisdiction Requested Speed: (MPH) (If more than one section investigated, list by section) Previous Action: Existing Speed Zone Orders			
<u>Investigation:</u>	<u>Section/Part of Sec.</u>		
Section Length	0.00 miles/ #feet if <550'		
85% Speed	MPH		
50% Speed	MPH		
<u>yr-yr</u> Section Crash Rate*	Crashes per Million Vehicle Miles (MVM)		
(Latest year) Average Daily Traffic	Nearest 50 <u>veh</u> /day		
Context	(See description)		
Culture Type and Density	(See description)		
Horizontal Alignment	(See description)		
Vertical Alignment	(See description)		
Curve Signs & Speed Riders	(See description)		
Existing Posted Speed	MPH		
Recommended Speed	MPH		

<u>Roadway Data:</u>	<u>Section/Part of Sec.</u>
Surface	type
Lanes	#travel, note median
Width	Nearest ft.
Parking	(See description)
Shoulders	(See description)
Intersecting Streets	# side streets -exclude ends (see note)
Paved	# side streets
Stopped	# side streets
Signalized and Other	# streets
Pedestrian Activity	High, Med, Low
Bicycle Activity	High, Med, Low
Bicycle Lanes	%
Sidewalks	%
Marked Crosswalks	#
Enhanced Crosswalks	#
Transit	Yes/No
 <u>Crash Data:</u>	 <u>Section/Part of Sec.</u>
Study Period	Last 3 full yrs min.
<u>yr-yr</u> Total Crashes	# for study period
<u>yr-yr</u> Fatal K Crashes	# for study period
<u>yr-yr</u> Serious Injury A Crashes	# for study period
<u>yr-yr</u> Injury B and C Crashes	# for study period
<u>yr-yr</u> No Injury O Crashes	# for study period
<u>yr-yr</u> Section Crash Rate* (R)	Crashes/MVM
<u>yr</u> Comparable Crash Rate (r) <u>1/</u>	From Rate Table
Deviation (R-r)	R-r, if <0, =0
*Crashes per million vehicle miles	
 <u>Spot Speed Data:</u>	 <u>Section/Part of Sec.</u>
85% Speed	Avg. for Section
50% Speed	Avg. for Section
Pace Limits <u>2/</u>	Avg. for Section
% in Pace	Avg. for Section
Maximum Speed	High for Section
Posted Speed	List all for Section

<u>Spot Speed Data:</u>	<u>Section/Part of Sec.</u>
% Exceeding Posted Speed	List Avg%/Each posted speed
Computed 85% Speed <u>3</u> /	<del>85%</del> (Deviation) (or 85%)
Recommended Speed	MPH

-----

Use footnotes for the following in all cases (use more footnotes as needed)

1/ Urban/Rural Functional Class/No comparable rate

2/ Ten mile-per-hour range containing the largest number of sample vehicles.

3/ 85% speed minus deviation (if Deviation is zero or negative, list 85% speed)

Factors Influencing Recommendation:

List all deciding factors from above lists including the OAR citation used to base recommendation

## Report Outline Example

OREGON DEPARTMENT OF TRANSPORTATION  
Report of Speed Zone Investigation  
**HILL ROAD**  
Alexandria Street to Baker Creek Road  
City of McMinnville / Yamhill County  
January 6, 2022

Recommendation: Rescind SZ Order 1297D dated November 13, 1997 and establish the following speed zoning:

		<u>Existing</u>	<u>Recommended</u>
<u>Not Investigated</u>			
A	From: Alexandria Street To: 0.26 mile south of Redmond Hill Road	35 mph	35 mph <u>1/</u>
A	From: 0.26 mile south of Redmond Hill Road To: 50 feet south of Redmond Hill Road	35 mph	35 mph <u>1/</u>
A	From: 50 feet south of Redmond Hill Road To: 500 feet north of NW Wallace Road	35 mph	35 mph <u>2/</u>
<u>Investigated</u>			
B	From: 500 feet north of NW Wallace Road To: 250 feet south of Baker Creek Road	45 mph	40 mph <u>2/</u>
B	From: 250 feet south of Baker Creek Road To: Baker Creek Road	45 mph	40 mph <u>2/</u>

1/ Yamhill County (road authority); City of McMinnville (interested jurisdiction)

2/ City of McMinnville (road authority); Yamhill County (interested jurisdiction)

Historical Background:

Investigation Requested by: Larry Sherwood, Engineering Services Manager, City of McMinnville.  
Requested Speed: 35 mph; This former rural county road has been upgraded to urban standards and is adjacent to substantial new residential developments. A new round-about was installed at the intersection of NW Baker Creek Road and NW Hill Road.

Previous Action: Existing SZ Order 1297D dated November 13, 1997.

<u>Investigation:</u>	<u>Section B</u>
Section Length	0.53 mile
85% Speed	47 mph
50% Speed	42 mph
2017-2019 Section Crash Rate	1.03
2018 Average Daily Traffic	5000
Context	Inconsistent (Limited Access)
Culture Type & Density	Moderate Residential
Horizontal Alignment	0 curves
Vertical Alignment	Level
Curve Signs & Speed Riders	None
Existing Posted Speed	45 mph
Recommended Speed	40 mph

<u>Roadway Data:</u>	<u>Section B</u>
Surface	AC
Lanes	2 w/ raised planted median, LTL at intersections
Width	34' – 36' BL to BL
Parking	Partially Prohibited
Shoulders	5' – 6' paved BL
Intersecting Streets	2
Paved	2
Stopped	2
Signalized and Other	0
Pedestrian Activity	Med
Bicycle Activity	Med
Bicycle Lanes	100%
Sidewalks	50% (100% on NB shoulder)
Marked Crosswalks	0
Enhanced Crosswalks	0 <u>4/</u>
Transit	No

<u>Crash Data:</u>	
Study Period	1/1/2017 – 12/31/2019
2017-2019 Total Crashes	3
2017-2019 Fatal K Crashes	0
2017-2019 Serious Injury A Crashes	0
2017-2019 Injury B and C Crashes	2
2017-2019 No Injury O Crashes	1
2017-2019 Section Crash Rate (R)	1.03
2017 Comparable Crash Rate (r) <u>1/</u>	2.91 <u>1/</u>
Deviation (R-r)	0

<u>Spot Speed Data:</u>	
85% Speed	47 mph
50% Speed	42 mph
Pace Limits <u>2/</u>	37 – 46 mph
% in Pace	75%
Maximum Speed	61 mph
Posted Speed	45 mph
% Exceeding Posted Speed	23%
Computed 85% Speed <u>3/</u>	47 mph
Recommended Speed	40 mph

- 1/ Section B – Urban Minor Arterial (County - Yamhill (McMinnville))  
2/ Ten mile-per-hour range containing the largest number of sample vehicles  
3/ 85% speed minus deviation/85% speed  
4/ 2 w/ islands @ roundabouts for Baker Cr Rd & Wallace Rd (at each end of section)

Factors Influencing Recommendation: requested speed, 50<sup>th</sup> percentile speed and context

Section B – OAR 734-020-0015 (2)(d) The 50th percentile speed is 35 or greater.

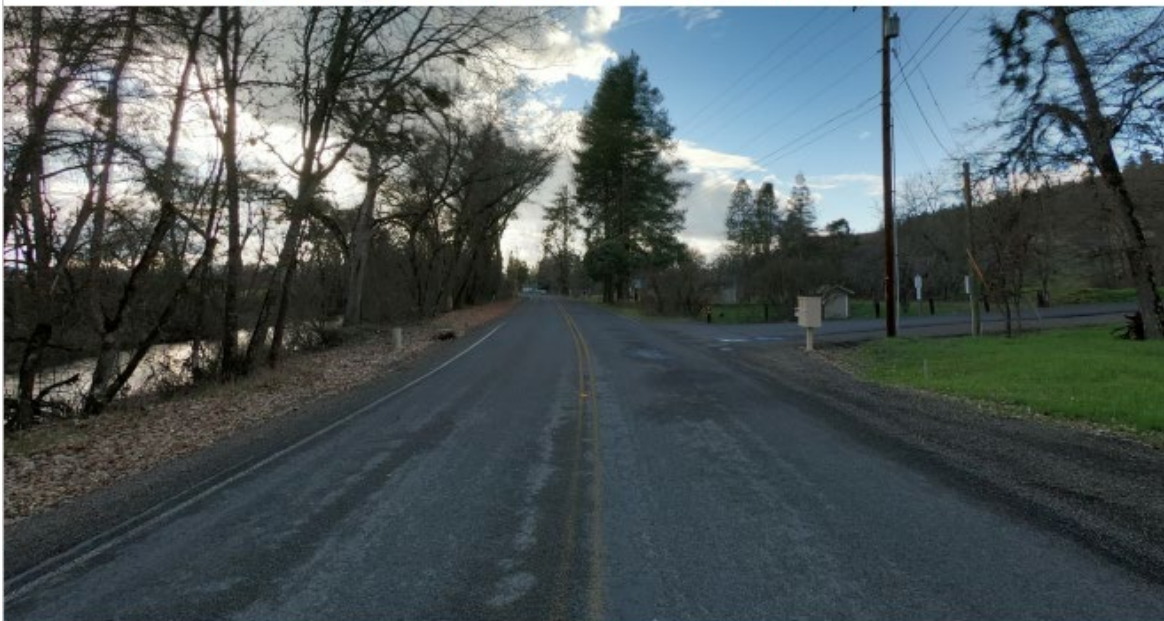
## Appendix L – Example Photograph Page(s)

Typical Views  
Nick Young Road  
100 feet west of Hannon Road to 0.60 mile west of Hannon Road  
Jackson County

Image Date: February 6th, 2024



(1) Looking eastbound from 175 feet west of Hanna Road.



(2) Looking westbound from 175 feet west of Hanna Road.

## Appendix M – School Speed Zone Record

Date	Region	District	Jurisdiction(s)
School Speed Zone Record			
On State Highway System in Statutory Speed Area			

The region traffic engineer under delegated authority from the state traffic engineer, has determined that a school speed limit of 20 MPH is appropriate on certain section(s) of the highway named below:

Highway Name: \_\_\_\_\_

Highway Number: \_\_\_\_\_

Route Number: \_\_\_\_\_

More specifically, school speed zoning, with the appropriate traffic control devices, shall be placed on the following roadway segment(s) of said highway in compliance with provisions of Subsection 1e of ORS 811.111:

---

### Location of Termini

From (Description)	MP	To (Description)	MP

---

Region Traffic Engineer

Date

## **Appendix N – Field Investigation Checklist**

### **Review before starting field investigation:**

- Request received from:
  - Local jurisdiction.
  - Local agency or private constituent (on rural state highways).
- All relevant established speed zones orders on the road being investigated.
- Previous investigations of the requested area.
- Map or aerial view through Google Earth or TransGIS showing all road connections and jurisdiction changes, areas of development and potential speed check location(s).
- Crash history if possible (3 year minimum). Identify types of crashes, locations, high crash locations, and severity. This can be done through TransGIS – high crash locations may suggest additional speed checks.
- Verify equipment (and batteries) such as camera, GoPro, DMI, laser/radar gun, walk out wheel, etc.
- Verify proper documents; blank photo log, speed check sheets, road log, copy of existing order and new request, notebook.
- Verify vehicle road worthiness.
- Calibrate the distance meter (DMI) if necessary, preferably for 1 mile, in feet. Be sure to use a surveyed set of marks.

### **Drive through:**

- Drive entire requested area and nearby segments. Check for road work, obstructions, anything that would impact free flowing speeds. Look for speed check locations.
- Note topography, culture, high crash areas, traffic flow, and comfortable speeds.

### **Document the following:**

- Number of horizontal curves: on state highways, ball bank if not signed or advisory speed is questionable. If there is a concern on a local jurisdiction road, include comment in report summary cover letter.
- Vertical alignment
- Sight distances less than adequate if no advance signing.
- Other areas where driving requirements are different than majority of the roadway.
- Parking prohibitions

- Bicycle/Pedestrian facilities.

**Mile point log:** Milepost and describe all accesses, traffic control and driver information (not required, see NOTE below):

- Use centerline of intersections noting intersection type and alignment (lt./rt.), type of stop or signal, surface type of intersecting street.
- Use centerline of driveways. If there are too many to note practically, note 'avg. 100 feet left' or "numerous" if at very irregular intervals, with begin/end mile points.
- Log all traffic signs: location, logo, condition, and sizing (if nonstandard or oversize).

NOTE: The point is to document driving conditions, conflicts, instructions, and information. These instructions were created before Google Streetview existed and there was no way to capture this information with just taking photos. Check Google Streetview before leaving the office to see if anything has changed since image capture date. If conditions are the same, you may use Google Streetview or similar tools to assist filling out the report.

#### Typical Sections:

- Take shoulder-to-shoulder sections along the length of the investigation.
- Determine where the roadway/shoulder width extremes are in each investigated portion and take the sections at these locations.
- Record the widths, at right angles to centerline, of each: shoulder (including gutters), bike lane, travel lane median, island, etc.

#### Photos:

- Keep a log listing of each photo by number and photo location (distance from nearest cross street and/or milepost).
- Typically take photos where you measure your Typical Sections and at the beginning of the investigated section and the end.
  - Photos should be taken from outside the vehicle in the center of the roadbed (if safe).
  - If divided road, take four photos: two in each direction on each roadbed. More photos are better than less.
- Take both road ahead and road back at reasonable intervals to establish the character of the road and roadside culture, and to pick up any signing or features (crosswalks, school zones, non-standard signs that may impact speed) to be noted in the report text.
  - Intervals should generally be 1/4 mile minimum.
  - Take photos on both sides of a speed zone boundary and show the speed signs in the shots.

- Take photos from centerline, if safe to do so, or from the outside of a curve.
- It's helpful to show the existing posted speed and warning signs in the photos.
- If one of the pair of photos shows the back side of signs or one side of an intersection, it is a good idea to move to the other side of the sign or intersection for the second shot to show the message on the sign and the details of the intersection.
- If sight distance is restricted where public roadways intersect the investigated roadway, take photos at those intersections to show the sight distance.
- Keep numbering of photos in the report consistent for ease of understanding. For instance, all odd numbered photos face north, and even numbered photos face south.
- Photos should be numbered and listed on the map and photo pages in the same direction as you list the speed zones.
- If high volume of traffic and it feels unsafe to take photos, you may use online street-level imagery such as Google Streetview, Bing Maps or ODOT's video log.
  - Make sure to list on the photo page if use other source.
  - This should not be the normal practice.

#### Video:

If GoPro or other video camera available, capture starting outside the investigated section and continue past end of investigated section. Take separate videos for each direction. Try to get DMI in frame and speedometer (feature that can be added in GoPro).


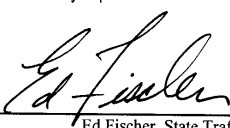
**Spot speed checks:** See both the report and spot speed guidelines.

- Plan your parking places and radar cone (laser gun) direction from the drive-through data. Try to park in an inconspicuous area and avoid signalized and stopped intersection vicinities.
- Do not use the vehicle's flashers. Do not stand on roadside wearing PPE. Avoid being noticed; do not look like enforcement.
- Record speeds on free flow vehicles only; single vehicles, the first vehicle in a pod, etc.
  - Do not record speeds of passing vehicles -- the radar reading is not reliable.
  - Record the number of pedestrians and bicycles.
  - Commercial vehicle speeds should be recorded separately and included in the report only if a significant ( $\geq 20\%$ ) traffic source, specifically named in complaint or disproportionately represented in the crash data.
- Checks should normally be taken every 1/2 mile.

- Take them closer together if there is a definite change for over 1/4 mile in driving conditions such as roadside culture, road cross section, etc., such that speeds could be expected to change.
  - Checks can be taken farther apart if driving conditions remain virtually the same.
- Curves are not speed checked. Take speed checks in tangent sections. It is safest to allow the curves themselves to be the deciding factor for the driver. Guidance in the MUTCD should be followed to determine if curve signing is required.
- When the road alignment is all curves and a speed can be maintained which is the safe driving speed through the curves, it can be recommended. Caution should be observed in deciding this recommendation. If there are curves with safe speeds below the recommendation, particularly if they are without warning signing, it is better not to post a speed which drivers then may expect to be able to maintain.
- If section is being heavily enforced, attempt to contact officer, and explain what you are doing and ask if they can come back after you have completed spot speed check.
- To get reliable data, spot speed checks should be taken in normal weather, at free flow periods rather than “rush hours.”
  - Be sure to record the weather conditions and beginning/ending times for each speed check. Rain is fine, downpour is not. Follow wiper rule, wipers on low okay to take speed check, wipers on high, not okay to take speed check.
  - Speed checks should not be taken during ice or snow events.

# Appendix O – Speed Zone Order Examples

## Temporary Order for Annual Events Example

<p><b>Whereas</b>, the Oregon Department of Transportation, pursuant to the provisions of ORS 810.180(8), has determined that existent conditions constitute a hazard to the public traveling over such sections of highway at greater than the speed(s) designated below; and</p> <p><b>Whereas</b>, the State Traffic Engineer has been authorized to act on behalf of the Oregon Transportation Commission; and</p> <p><b>Whereas</b>, the data, facts, and information obtained in connection with said section(s) of highway are on file in the office of the Traffic Management Section of the Oregon Department of Transportation in Salem, Oregon; and</p> <p><b>Whereas</b>, based upon said determination of danger to the public, the Traffic Engineer has found that when the speed designated in ORS 811.105 or ORS 811.112 or by [permanent] written order is greater than the speed(s) designated below, a temporary speed reduction to lessen the risk to the public is desirable;</p> <p>It is <b>Therefore Ordered</b> that the designated speed for the following section(s) of highway temporarily be as follows:</p>	<div style="text-align: center;">  <p>— Temporary —</p> <h3 style="margin: 0;">Speed Zone Order</h3> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Date August 19, 2009</td> <td style="width: 50%;">Order No. J8175</td> </tr> <tr> <td colspan="2" style="text-align: center;">Jurisdiction(s)</td> </tr> <tr> <td>Marion Co. (OTC)</td> <td>Mount Angel</td> </tr> </table>	Date August 19, 2009	Order No. J8175	Jurisdiction(s)		Marion Co. (OTC)	Mount Angel			
Date August 19, 2009	Order No. J8175									
Jurisdiction(s)										
Marion Co. (OTC)	Mount Angel									
<p>Name <u>Hillsboro-Silverton Hwy (OR 214)</u></p> <p>Project Name <u>Mount Angel Oktoberfest Days</u> Project (Not Speed Zone) Location <u>MP 45.23 - MP 46.45</u></p>										
<p>LOCATION OF TERMINI</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">From</th> <th style="width: 40%;">To</th> <th style="width: 20%;">Designated Speed (Miles Per Hour)</th> </tr> </thead> <tbody> <tr> <td>0.28 mile north of Industrial Way (MP 45.23)</td> <td>50 feet north of Industrial Way (MP 45.50)</td> <td>30</td> </tr> <tr> <td>50 feet south of Garfield Street (MP 46.30)</td> <td>Academy Street (MP 46.45)</td> <td>30</td> </tr> </tbody> </table> <p>This temporary speed zone is valid each year during the public event portion of the Mount Angel Oktoberfest. It temporarily supercedes the affected portions of Speed Zone Order No. J7743 dated December 14, 2005 during that time frame.</p> <p>Permanent speed zone signing under Speed Zone Order No. J7743 that conflicts with this order shall be covered for the duration of the temporary speed zone.</p> <p>This temporary speed zone is rescinded immediately upon the end of the Oktoberfest public event. Signs shall then be restored in accordance with permanent designated speed zoning under Speed Zone Order No. J7743.</p> <p style="text-align: center;"><i>This rescinds previous temporary Speed Zone Order 1457D of 2/23/1999</i></p>		From	To	Designated Speed (Miles Per Hour)	0.28 mile north of Industrial Way (MP 45.23)	50 feet north of Industrial Way (MP 45.50)	30	50 feet south of Garfield Street (MP 46.30)	Academy Street (MP 46.45)	30
From	To	Designated Speed (Miles Per Hour)								
0.28 mile north of Industrial Way (MP 45.23)	50 feet north of Industrial Way (MP 45.50)	30								
50 feet south of Garfield Street (MP 46.30)	Academy Street (MP 46.45)	30								
<p><b>Be it further ordered</b> that the roadway authority or authorities responsible for the above section(s) of highway install appropriate signs giving notice of the designated speed(s) therefore as per ORS 810.180, Subsection 8(d).</p> <p><b>Be it further ordered</b> that signs installed pursuant to this order comply with the provisions of ORS 810.210 and 810.220.</p> <p><b>Be it further ordered</b> that any previous order made by the Department with respect to the designated speed for the above section(s) of highway which is in conflict with the provisions of this order is hereby superceded for the duration of this temporary order.</p> <div style="text-align: center; margin-top: 20px;">         Ed Fischer, State Traffic Engineer     </div>										

# Seasonal Speed Zone Order Example

**Whereas**, the Oregon Department of Transportation, has been requested to perform an investigation pursuant to the provisions of ORS 810.180, has caused an engineering and traffic investigation to be made for the section(s) of state highway, county highway, city highway, or highway under the jurisdiction of a federal agency described below (highway means public way); and

**Whereas**, the State Traffic Engineer has been authorized to act on behalf of the Oregon Transportation Commission; and

**Whereas**, the data, facts, and information obtained in connection with said engineering and traffic investigation are on file in the office of the Traffic Management Section of the Oregon Department of Transportation in Salem, Oregon; and

**Whereas**, based upon said engineering and traffic investigation, the Traffic Engineer has found that the speed designated in ORS 811.105 or ORS 811.111 is greater than is reasonable under the conditions found to exist upon the section(s) of highway for which a lesser speed is herein designated or that the speed designated in said statute is less than is reasonable under the conditions found to exist upon the section(s) of highway for which a greater speed is herein designated; and

**Whereas**, the provisions of ORS 810.180 respecting notice and hearing have been complied with:

It is **Therefore Ordered** that the designated speed for the following section(s) of highway be as follows:

Name Timberline Hwy (OR 173)

## LOCATION OF TERMINI

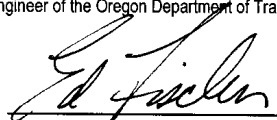
From	MP	To	MP	Designated Speed (Miles Per Hour)
<i>Winter Months (October 16 - April 14) on Roadbed No. 1 (one-way southbound)</i>				
Timberline Lodge	0.12	Junction Roadbed No. 2 (MP 0.66)	0.54	35
<i>Winter Months (October 16 - April 14) on Roadbed No. 1 (two-way)</i>				
Junction Roadbed No. 2	0.54	Mount Hood Hwy #26 (US 26)	5.49	35
<i>Winter Months (October 16 - April 14) on Roadbed No. 2 (one-way northbound)</i>				
Timberline Lodge	0.12	Junction Roadbed No. 1 (MP 0.54)	0.66	35
<i>Summer Months (April 15 - October 15) on Roadbed No. 1 (one-way southbound)</i>				
Timberline Lodge	0.12	Junction Roadbed No. 2 (MP 0.66)	0.54	45
<i>Summer Months (April 15 - October 15) on Roadbed No. 1 (two-way)</i>				
Junction Roadbed No. 2	0.54	Mount Hood Hwy #26 (US 26)	5.49	45
<i>Summer Months (April 15 - October 15) on Roadbed No. 2 (one-way northbound)</i>				
Timberline Lodge	0.12	Junction Roadbed No. 1 (MP 0.54)	0.66	45
This rescinds OTC Resolution 53 of 12/19/1950				

**Be it further ordered** that the roadway authority or authorities responsible for the above section(s) of highway install appropriate signs giving notice of the designated speed(s) therefore as per ORS 810.180, Subsection 4(c) and/or Subsection 5(e).

**Be it further ordered** that signs installed pursuant to this order comply with the provisions of ORS 810.210 and 810.220.

**Be it further ordered** that any previous order made by the Department with respect to the designated speed for the above section(s) of highway which is in conflict with the provisions of this order is hereby rescinded.

**Be it further ordered** that the Traffic Engineer of the Oregon Department of Transportation is hereby delegated the authority to sign this order for and on behalf of the Department.

  
Ed Fischer, State Traffic Engineer




## Speed Zone Order

Date September 18, 2008 Order No. J8163

Jurisdiction(s)

Clackamas Co. (OTC)

# Delegated Authority Local Jurisdiction Order Example

 Speed Zone Order
No PDX13041
Jurisdiction(s)
City of Portland Clackamas County

Whereas, pursuant to ORS 810.180(5)(g), the Oregon Department of Transportation has delegated its authority to the City of Portland and Clackamas County to establish designated speed(s) for the below described section(s) of county or city highway as defined by ORS 801.305; and

Whereas, pursuant to ORS 810.180, an engineering and traffic investigation has been made; the data, facts, and information obtained in connection with said engineering and traffic investigation are on file in the office of the State Traffic-Roadway Engineer at the Oregon Department of Transportation and the delegated authority;

Whereas, based upon said engineering and traffic investigation, the delegated road authority with jurisdiction over the highway has found that the speed designated in ORS 811.105 or ORS 811.111 is greater than is reasonable under the conditions found to exist upon the section(s) of highway for which a lesser speed is herein designated or that the speed designated in said statute is less than is reasonable under the conditions found to exist upon the section(s) of highway for which a greater speed is herein designated; and

Whereas, the provisions of ORS 810.180 respecting notice and hearing have been complied with:

It is Therefore Ordered that the designated speed for the following section(s) of highway be as follows:

Name SE Luther Road

## LOCATION OF TERMINI

From	To	Designated Speed (Miles/Hour)
SE 72nd Avenue	0.18 mile east of SE 72nd Avenue	30 1
0.18 mile east of SE 72nd Avenue	0.21 mile east of SE 72nd Avenue	30 2
0.21 mile east of SE 72nd Avenue	SE 82nd Avenue	30 1
1 Clackamas County - Road Authority		
2 City of Portland - Road Authority		
School speed zones may be posted within the limits of this order as determined to be appropriate by the Road Authority based on ORS 811.111 and an engineering investigation as per the provisions of ORS 810.200.		
This rescinds Order 2082		

Be it further ordered that the roadway authority or authorities responsible for the above section(s) of highway install appropriate signs giving notice of the designated speed(s) therefore as per ORS 810.180, Subsection 5(e).

Be it further ordered that signs installed pursuant to this order comply with the provisions of ORS 810.210 and 810.220.

Be it further ordered that any previous order made by the Department or a delegated authority under ORS 810.180 with respect to the designated speed for the above section(s) of highway which is in conflict with the provisions of this order is hereby rescinded.

Be it further ordered that this order will remain in effect until and unless rescinded by the State Traffic-Roadway Engineer of the Oregon Department of Transportation or a delegated authority under ORS 810.180.

City Traffic Engineer

## Appendix P – Speed Zone Order Clauses

When a road authority has been delegated authority to investigate and set speeds on their roads, they will also issue a speed zone order. Below are clauses that ODOT uses when issuing an order and should be used accordingly when others are issuing orders. See order examples for suggested layout of order. There are additional clauses that ODOT uses for emergency and temporary type orders. Contact ODOT for examples.

### For standard orders:

Whereas, pursuant to ORS 810.180, the Oregon Department of Transportation has been requested to establish designated speed(s) for the below described section(s) of state, county, city, or federal agency highway as defined by ORS 801.305; and

Whereas, the State Traffic Engineer has been authorized to act on behalf of the Oregon Transportation Commission in matters regarding speed zoning; and

Whereas, pursuant to ORS 810.180, an engineering and traffic investigation has been made; the data, facts, and information obtained in connection with said engineering and traffic investigation are on file in the office of the State Traffic Engineer at the Oregon Department of Transportation in Salem, Oregon; and

Whereas, based upon said engineering and traffic investigation, the State Traffic Engineer has found that the speed designated in ORS 811.105 or ORS 811.111 is greater than is reasonable under the conditions found to exist upon the section(s) of highway for which a lesser speed is herein designated or that the speed designated in said statute is less than is reasonable under the conditions found to exist upon the section(s) of highway for which a greater speed is herein designated; and

Whereas, the provisions of ORS 810.180 respecting notice and hearing have been complied with:

It is Therefore Ordered that the designated speed for the following section(s) of highway be as follows:

See examples for Road Name, Location of Termini, and Designated Speed

(For local jurisdiction roads) School speed zones may be posted within the limits of this order as determined to be appropriate by the Road Authority based on ORS 811.111 and an engineering investigation as per the provisions of ORS 810.200.

(For state highways only) Per provisions of ORS 811.111 Subsection 1(e) and ORS 810.200 the following segment(s) within the section above shall be 20 mph:

Be it further ordered that the roadway authority or authorities responsible for the above section(s) of highway install appropriate signs giving notice of the designated speed(s) therefore as per ORS 810.180, Subsection 5(e). **Subsection 5(e) covers all public roadways except state highways outside of city limits and interstates.**

Be it further ordered that the roadway authority or authorities responsible for the above section(s) of highway install appropriate signs giving notice of the designated speed(s) therefore as per ORS 810.180, Subsection 4(c) and/or Subsection 5(e). **Subsection 4(c) covers state highways outside of city limits and 5(e) covers all other public roadways.**

Be it further ordered that signs installed pursuant to this order comply with the provisions of ORS 810.210 and 810.220.

Be it further ordered that any previous order made by the Department with respect to the designated speed for the above section(s) of highway which is in conflict with the provisions of this order is hereby rescinded.

Be it further ordered that this order will remain in effect until and unless rescinded by the State Traffic Engineer of the Oregon Department of Transportation.

## **Appendix Q – Allowable Speed Ranges based on the OAR**

The allowable range for recommended speeds is restricted by specific criteria outlined within the OAR 734-020-0015 and definitions in OAR 734-020-0014. The OAR primary criteria are location, type of facility and others such as crash rates. The engineer must consider the complete investigation when determining a recommended speed within an allowable range.

The engineer should utilize all collected data to determine where within the allowable speed range the recommended speed should be rather than defaulting to the lowest possible speed in the allowable range. The engineer cannot exceed the allowable ranges outlined in the OAR, but if there are sufficient reasons for recommending something outside the allowable ranges, the engineer can request to appeal to the speed zone review panel.

OAR 734-020-0015 sets up the initial division for allowable ranges between urban (inside city limits) in section (2) and rural (outside of city limits) in section (3). These divisions of allowable ranges are based on whether the highway segment is defined as inside city limits or are outside city limits.

Appendix R – Speed Zoning Process Flow Chart, is a flow chart of steps and decisions to help guide the Engineer to allowable speed ranges. The flow chart steps through the different decisions outlined in the OAR to get to the correct allowable range of recommended speeds for a particular location. There are several special situations that are built into the OAR, and flow chart, to allow flexibility for various conditions that exist.

Determining if highway segments are inside the city limits is straight forward in most cases, but there are two special situations. The first is that any highway functionally classed as “Other Freeways and Expressways” must use the rural/outside city limits method, regardless of whether they are within the city limits.

The second situation allows for a highway segment outside city limits to be considered inside the city limits. The segment may use the urban/inside city limits method in section (2) if it is between the city limits and the urban growth boundary (UGB) and the segment has the same context and roadway character as the adjacent segment within the city limits. This allows the use of the same methods on a highway that does not change character as it leaves the city limits.

The urban/inside city limits method defined in section (2) has two different types of allowable ranges, context ranges and 50<sup>th</sup> percentile speeds. Context ranges may be used if the 50<sup>th</sup> percentile speed is less than 35 mph as stated in subsection (2)(b).

Table of urban/inside city limits based on 50<sup>th</sup> percentile speed.

Allowable ranges in Urban/inside city limits	Criteria
Context ranges in (2)(b)	50 <sup>th</sup> percentile less than 35 mph
50 <sup>th</sup> percentile speed ranges in (2)(d)	50 <sup>th</sup> percentile speed 35mph or greater

If the 50<sup>th</sup> percentile speed is 35 mph or greater the allowable ranges must be based on the 50<sup>th</sup> percentile speed as stated in subsection (2)(d)).

Table of Allowable speed ranges by Context for (2)(b) (50<sup>th</sup> percentile speeds less than 35 mph)

Context Class	Urban Core	Urban Mix	Suburban Residential or Commercial	Suburban Fringe
Arterial	20-25 mph	25-30 mph	30-35 mph	35-45 mph
Collector	20-25 mph	25-30 mph	25-35 mph	30-40 mph
Local	20-25 mph	20-25 mph	25-35 mph	25-35 mph

Context ranges allowed in subsection (2)(b) have two special conditions in subsection (2)(c) that may provide more flexibility or be deemed more appropriate. Both the special conditions add the possibility of using 50<sup>th</sup> percentile speed ranges, the Engineer may use either the context or the 50<sup>th</sup> percentile speed ranges, whichever is more appropriate for the conditions.

The first condition in subsection (2)(c)(A), allows the Engineer some added flexibility if context ranges may be deemed inappropriate for the highway. This exclusion allows the Engineer the choice to use context ranges or 50<sup>th</sup> percentile if there is inconsistent context, the 50<sup>th</sup> percentile is 5 mph or more above the context speed range or the highway has limited access control. In these cases, it may be difficult to determine the proper context so that the 50<sup>th</sup> percentile speed may be more appropriate.

Table of allowable ranges for (2)(c)(A) –Inconsistent/5 mph above/Limited Access

May use:
Context Speed Ranges
OR
5 mph below 50 <sup>th</sup> percentile speed
To
10 mph above 50 <sup>th</sup> percentile speed

The second condition in subsection (2)(c)(B) is primarily for crash criteria and allows the engineer to have more flexibility in areas with applicable crash history. This condition also allows the engineer the choice to use context ranges or 50<sup>th</sup> percentile. If the crash rates, is 150% or higher than the comparable rate, or more than one fatal or serious injury speed related crash or the segment meets the ORS definition of a residence district.

Table of allowable ranges for (2)(c)(B) – Crash Criteria or Residence District

May use:
Context Speed Ranges
OR
10 mph below 50 <sup>th</sup> percentile speed
To
10 mph above 50 <sup>th</sup> percentile speed

For areas where 50<sup>th</sup> percentile speeds are 35 mph or greater in subsection (2)(d), the 50<sup>th</sup> percentile speed must be used for the allowable ranges. There is one applicable special condition and that is subsection (2)(c)(B). It is the same condition, as above, for crash criteria.

Table of allowable ranges for (2)(d) - 50<sup>th</sup> percentile speeds 35 mph or greater

Must use:
5 mph below 50 <sup>th</sup> percentile speed
To
10 mph above 50 <sup>th</sup> percentile speed

For the rural/outside of city limits method in subsection (3)(b) there are several divisions based on the type and functional class of the highway. In addition, there is a special context called rural community in subsection (3)(c)(A).

Rural Community is defined as a segment contiguous to a residence district or business district or an unincorporated community that includes a permanent residential dwelling and at least two other land uses (OAR 734-020-0014(28)). See the discussion of rural community for further information. The rural community allowable ranges are based on 50<sup>th</sup> percentile speeds.

Table of allowable ranges for (3)(c)(A) – Rural Community

May use:
10 mph below 50 <sup>th</sup> percentile speed
To
10 mph above 50 <sup>th</sup> percentile speed

If the highway is not within a rural community, then it is rural as defined in subsection (3)(b). The rural allowable ranges are divided into three subdivisions: (A) state highways; (B) non-state highways with functional class of arterial or other freeway and expressway; (C) and non-state highway with functional class collector or local.

The first two subdivisions are State highways in subsection (3)(b)(A) or Non-State highways functionally classed “arterial” or “other freeway and expressway” in subsection (3)(b)(B) are

both higher functional class highways. Allowable ranges are based on 85<sup>th</sup> percentile speeds. There is less flexibility in the allowable ranges of higher-class rural highways because research has shown that setting the speeds nearer the 85<sup>th</sup> percentile speed reduces crashes on these types of highways.

Table of allowable ranges for (3)(b)(A) – state highway and (3)(b)(B) – Non-State Arterials or Other Freeway and Expressway

Must use:
5 mph below 85 <sup>th</sup> percentile speed
To
5 mph above 85 <sup>th</sup> percentile speed

The third subdivision is a non-state highway, functionally classed collector or local in subsection (3)(b)(C). Allowable speed ranges are based on a mix of 50<sup>th</sup> percentile and 85<sup>th</sup> percentile speeds. The allowable speed ranges in the lower-class highways are more flexible because they generally have less volume, shorter trips and serve local land uses.

Table of allowable ranges for (3)(b)(C) – Non-State Collector or Local Highways

Must use:
5 mph below 50 <sup>th</sup> percentile speed
To
5 mph above 85 <sup>th</sup> percentile speed

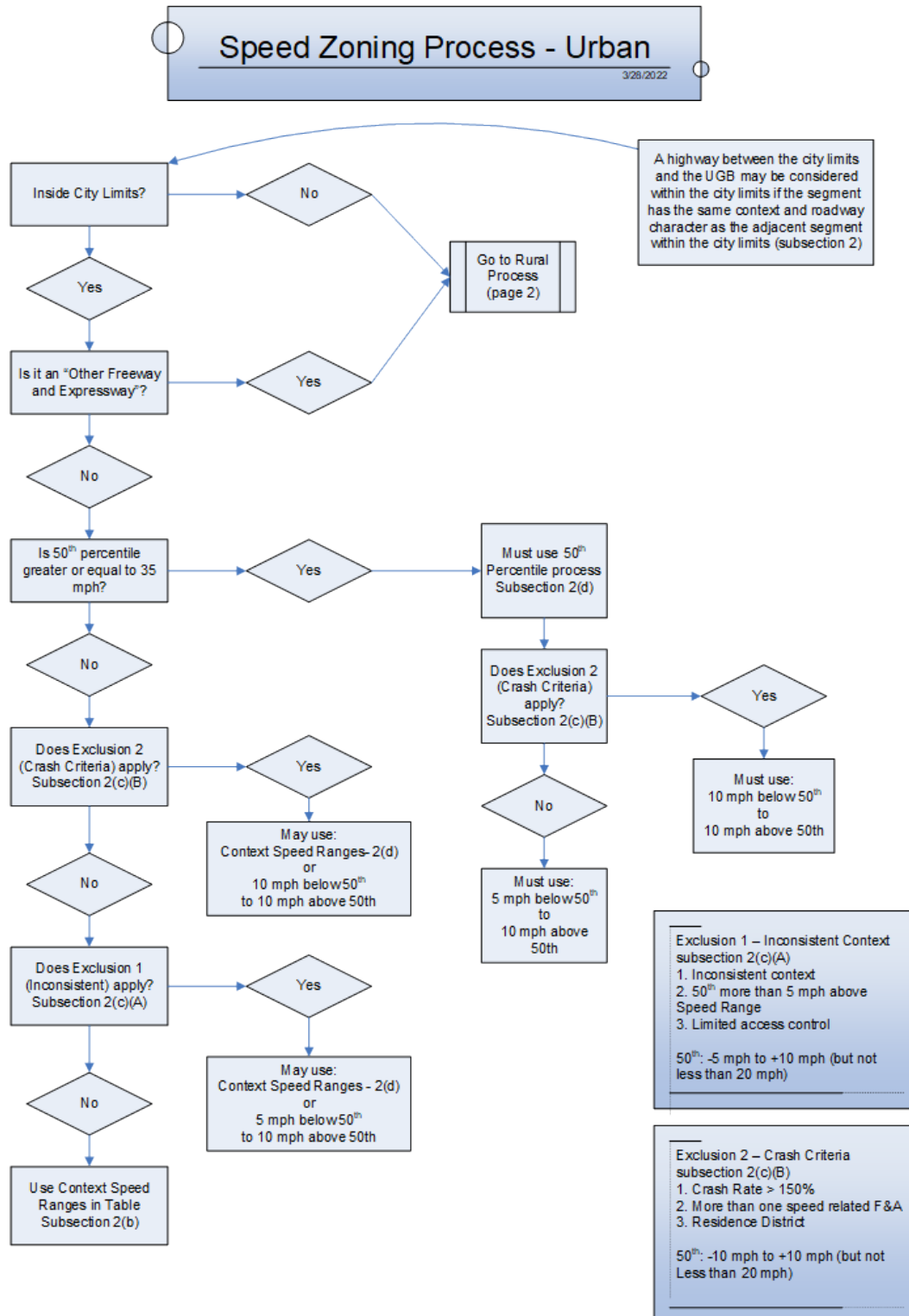
One special condition for crash criteria in subsection (3)(c)(B) applies to rural highways. The exclusion allows the Engineer to have more flexibility in allowable speed ranges in areas prone to higher crash potential.

Table of allowable ranges for (3)(c)(B) – Crash Criteria

May use:
10 mph below 85 <sup>th</sup> percentile speed
To
5 mph above 85 <sup>th</sup> percentile speed

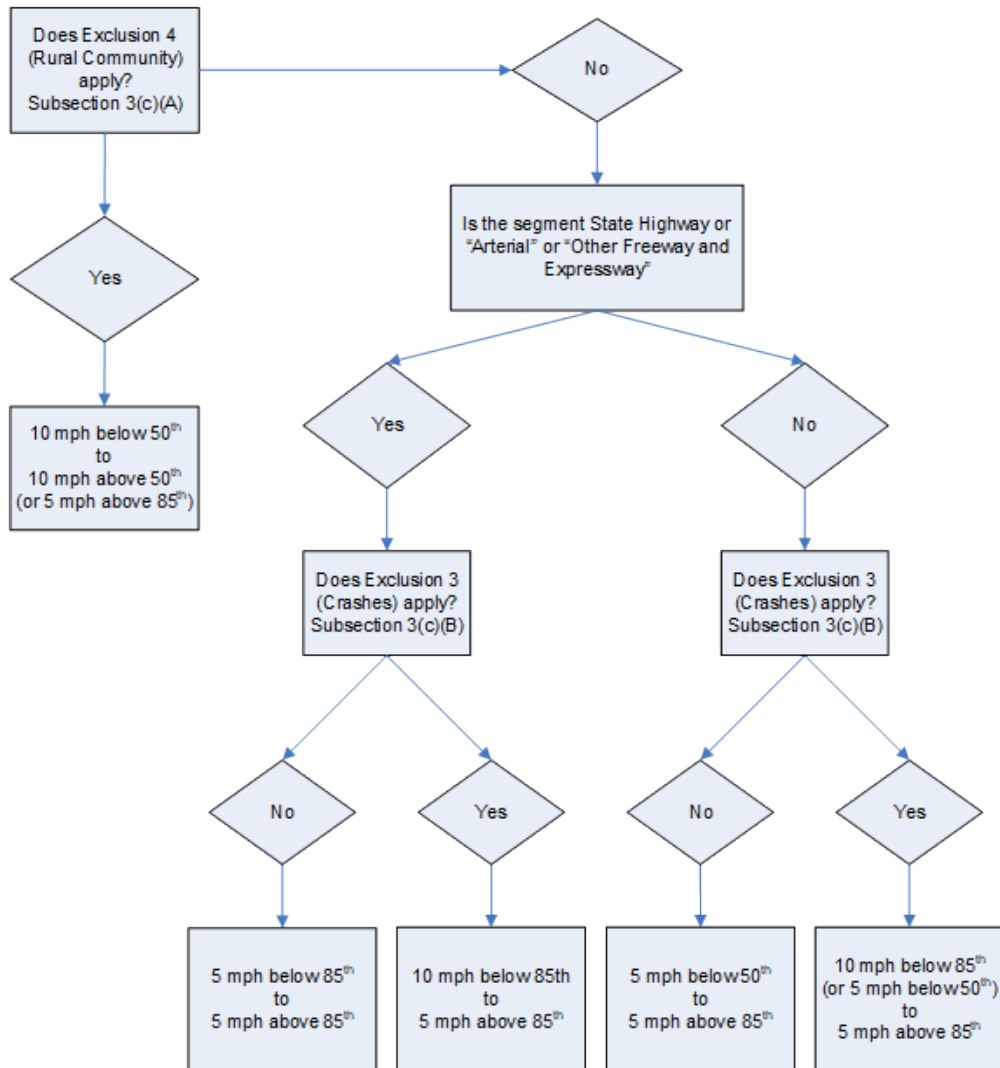
Note: When the crash criteria from subsection (3)(c)(B) is met on non-state collectors or local highways under subsection (3)(b)(C), the Engineer may choose to use either 10 mph below 85<sup>th</sup> or 5 mph below 50<sup>th</sup>. Both should be calculated and the calculation that results in the larger range should be used.

# Appendix R – Speed Zoning Process Flow Chart



## Speed Zoning Process - Rural

3/28/2022



**Exclusion 3 – Crash Criteria**  
subsection 3(c)(B)

1. Crash Rate > 150%
2. More than one speed related F&A
3. Limited Sight Distance Crashes

May be up to 10 mph below  
computed 85th

**Exclusion 4 – Rural Community**  
subsection 3(c)(A)

Meets Rural Community definition  
in OAR 734-020-0014:

1. Contiguous to Residence or  
Business district
2. at least one residence and two  
other uses

May be up to 10 mph below 50<sup>th</sup>

Note: If the upper or lower threshold  
has two possibilities, the second  
possibility is shown in parentheses.  
Use the threshold that gives the  
greatest possible range.

Note: 85<sup>th</sup> always refers to "Computed  
85<sup>th</sup>"

## Appendix S – OAR References for Recommended Speeds

The Engineer will want to document the OAR subsection relied upon for the recommended speed as follows:

### OAR 734-020-0015 (2) Speed Zone within City Limits –

- OAR 734-020-0015 (2)(b) Based on context.
- OAR 734-020-0015 (2)(d) The 50<sup>th</sup> percentile speed is 35 or greater.
- OAR 734-020-0015 (2)(c)(A)(i) The context of the highway is inconsistent, otherwise difficult to determine or very sparse development.
- OAR 734-020-0015 (2)(c)(A)(ii) The fiftieth percentile speed is 5 mph or more greater than the range maximum listed in (2)(b).
- OAR 734-020-0015 (2)(c)(A)(iii) The highway has widely spaced public road intersections and with few private driveways leading to businesses or residences.
- OAR 734-020-0015 (2)(c)(B)(i) The crash rate for the segment exceeds 150% of the average crash rate for the same functional class of highway within the jurisdiction of the road authority.
- OAR 734-020-0015 (2)(c)(B)(ii) There has been more than one fatal or serious injury speed related crash in the past three years.
- OAR 734-020-0015 (2)(c)(B)(iii) The segment is contiguous to a residence district.
- OAR 734-020-0015(8)(a) Transition Zones
- OAR 734-020-0015(8)(d) A designated speed zone may be extended or shortened up to 500 feet no more than once by performing a minor adjustment study within that segment.

### OAR 734-020-0015 (3) Speed Zone outside City Limits –

- OAR 734-020-0015 (3)(b)(A) State Highway
- OAR 734-020-0015 (3)(b)(B) Non-State Highways in the functional classes “Arterial” or “Other Freeway and Expressway”
- OAR 734-020-0015 (3)(b)(C) Non-State Highways in the functional classes “Collector” or “Local”
- OAR 734-020-0015 (3)(c)(B)(i) The crash rate for the segment exceeds 150% of the average crash rate for the same functional class of highway within the jurisdiction of the road authority.

- OAR 734-020-0015 (3)(c)(B)(ii) There has been more than one fatal or serious injury speed related crash in the past three years.
- OAR 734-020-0015 (3)(c)(B)(iii) There is limited stopping sight distance which has contributed to crashes.
- OAR 734-020-0015 (3)(c)(A) and 734-020-0014 (28)(a) Rural community, the segment is contiguous to a business district or a residence district.
- OAR 734-020-0015 (3)(c)(A) and 734-020-0014 (28)(b) Rural community, an unincorporated community that includes a permanent residential dwelling but also has at least two other land uses in separate buildings that provide commercial, industrial, or public services for the community, surrounding area or persons traveling through the area.
- OAR 734-020-0015 (8)(a) Transition zones.
- OAR 734-020-0015(8)(d). A designated speed zone may be extended or shortened up to 500 feet no more than once by performing a minor adjustment study within that segment.

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