



<b>SUBJECT</b> Right-Turn Acceleration Lanes	<b>FINAL NUMBER</b> TR07-11 (B)	<b>EFFECTIVE DATE</b> 11-26-2007	<b>VALIDATION DATE</b> 00/00/0000	<b>SUPERSEDES</b> New
<b>WEB LINK(S)</b> <a href="http://www.oregon.gov/ODOT/HWY/TECHSERV/">http://www.oregon.gov/ODOT/HWY/TECHSERV/</a>				
<b>TOPIC/PROGRAM</b> Traffic Manual Highway Design Manual	<b>APPROVED SIGNATURE</b>  Edward L. Fischer, P.E., PTOE State Traffic Engineer			

**PURPOSE**

This bulletin provides guidance to project delivery teams and Region Access Management Engineers (RAME) concerning criteria for consideration of right-turn acceleration lanes on state highways as part of Statewide Transportation Improvement Program (STIP) and Oregon Transportation Investment Act (OTIA) projects and access management issues associated with the development review process.

**DEFINITIONS**

**Right-Turn Acceleration Lane:** An added lane for right-turning vehicles joining the traveled way of the highway from a side street for the purpose of enabling drivers to make the necessary change between the speed of operation on the highway and the lower speed of the turning movement.

**Rural Expressway:** A subset of state highway classifications that are defined in the Oregon Highway Plan and located outside of city limits. Their purpose is to provide for high speed, high volume travel between cities and connections to ports and major recreation areas with minimal interruptions.

**Volume to Capacity (V/C) Ratio:** The ratio of traffic flow rate to capacity of the road to handle that traffic flow, calculated using the ODOT Analysis Procedures Manual methodology

**EXPLANATION**

The Oregon Transportation Commission, through ODOT's Chief Engineer has delegated the State Traffic Engineer and State Roadway Engineer with the authority to install traffic control devices (State Traffic Engineer) and determine roadway design standards (State Roadway Engineer) on state highways. The Traffic Operations Leadership Team (TOLT) and Roadway Leadership Team (RLT) have become concerned that project teams have been requesting design exceptions for non-standard acceleration lanes as part of STIP and OTIA projects. Additionally, developers have

been requesting right-turn acceleration lanes as mitigation to traffic impacts associated with residential and commercial development along state highways.

## **REFERENCES**

ODOT Traffic Manual, Chapter 6, Section 6.37 (Turn Lanes)  
ODOT Highway Design Manual, Chapter 9 (Intersection and Interchange Design)  
ODOT Analysis Procedures Manual  
Oregon Highway Plan  
AASHTO Policy on Geometric Design of Highways and Streets, 2001 Edition

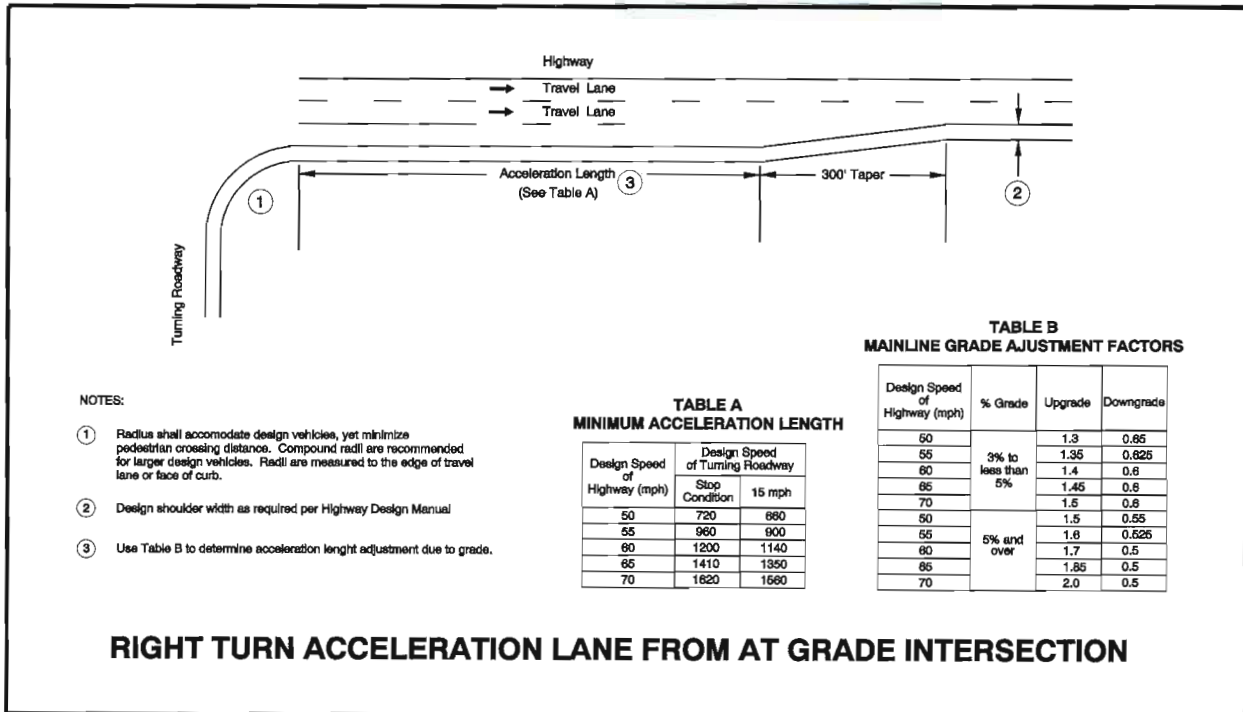
## **ACTION REQUIRED**

In response to these concerns, both the TOLT and RLT, in consultation with the Transportation Planning and Analysis Unit (TPAU), have developed the following criteria for when right-turn acceleration lanes can be considered (all of the criteria must be satisfied):

1. The posted speed on the main highway shall be 45 MPH or greater.
2. The V/C ratio of the right-turn movement without the acceleration lane shall exceed the maximum value listed in Tables 6 and 7 of the OHP for the corresponding highway category and location.
  - a. Exception 2a: If trucks represent at least 10% of all right-turning vehicles entering the highway, then the V/C criteria may be waived.
  - b. Exception 2b: If substandard sight distance exists at an intersection or right-turning vehicles must enter the highway on an ascending grade of greater than 3%, then the V/C criteria may be waived.
  - c. Exception 2c: If crash data in the vicinity of the intersection shows a history of crashes at or beyond the intersection attributed to right-turning vehicles entering the highway, then the V/C criteria may be waived.
3. The peak hour volume of right-turning vehicles from the side street onto the state highway shall be at least 10 vehicles/hour for Rural Expressways and 50 vehicles/hour for all other highways.
4. No other access points or reservations of access shall exist on either side of the highway within the design length, taper, and downstream from the end of the taper within the decision sight distance, based on the design speed of the highway.
  - a. Exception 4a: If positive separation between opposing directions of traffic exist such as raised medians or concrete barriers, then access control is only needed in the direction of the proposed acceleration lane.

The State Traffic Engineer shall determine if a right-turn acceleration lane proposal meets the above criteria. Proposals should be submitted to the State Traffic Engineer and include an engineering investigation with data supporting the above criteria and a drawing encompassing the intersection and design length of the acceleration lane showing all access points and reservations of access to the highway. Only proposals for right-turn acceleration lanes from public streets will be considered. If the State Traffic Engineer determines that a right-turn acceleration lane proposal meets the above criteria, the proposal will be forwarded to the State Roadway Engineer for consideration

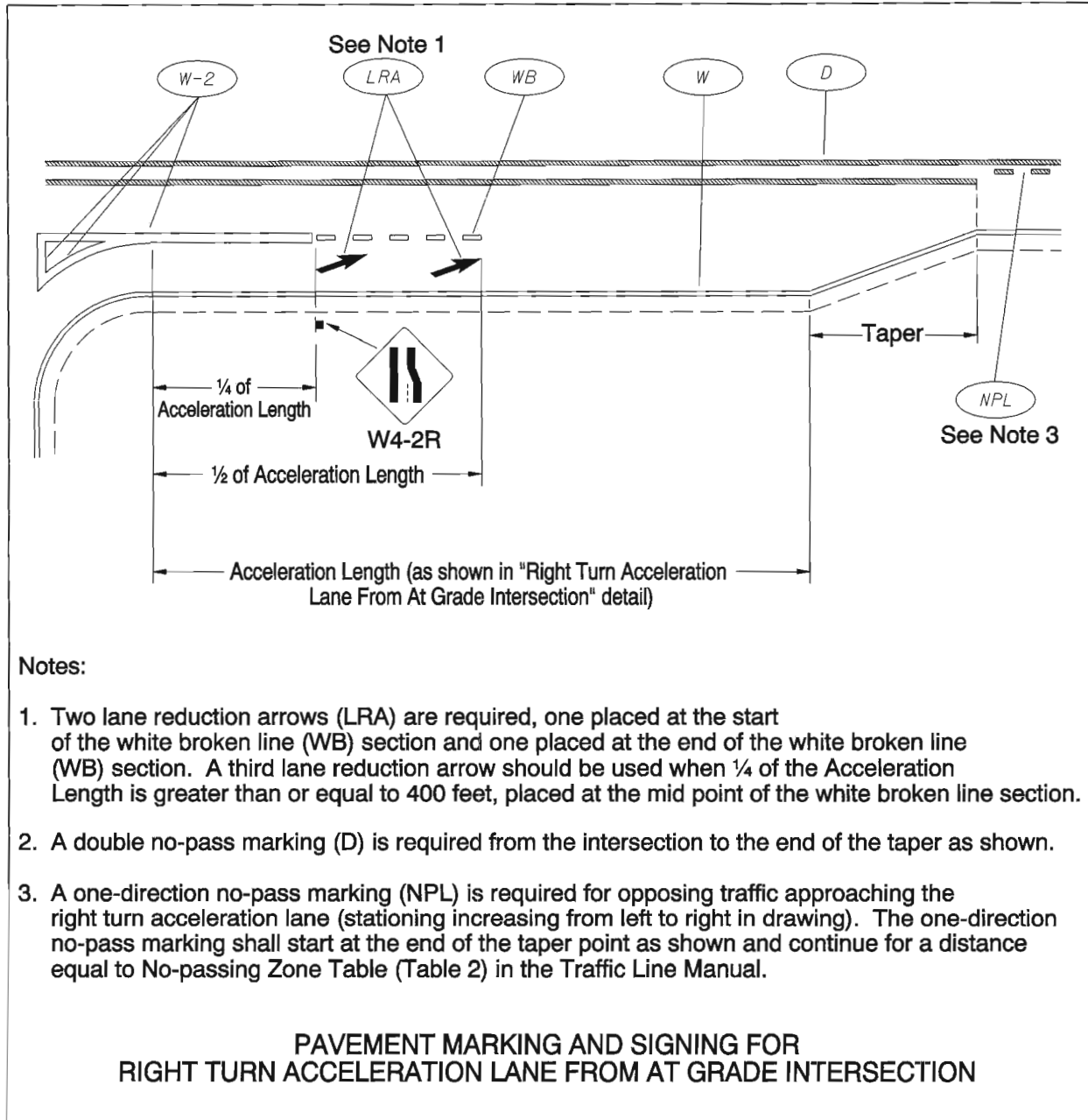
of design standards. All right-turn acceleration lane proposals shall require the joint approval of the State Traffic Engineer and State Roadway Engineer. Special consideration should be given to cyclists and pedestrians. Acceleration lanes create an unexpected condition for both pedestrians and cyclists. Every reasonable effort should be made to create conditions that make the crossing safer and easier for pedestrians and cyclists. The acceleration lane shall be designed in accordance with the attached drawing "Right Turn Acceleration Lane From At Grade Intersection".



**NOTES:**

- ① Radius shall accommodate design vehicles, yet minimize pedestrian crossing distance. Compound radii are recommended for larger design vehicles. Radii are measured to the edge of travel lane or face of curb.
- ② Design shoulder width as required per Highway Design Manual
- ③ Use Table B to determine acceleration length adjustment due to grade.

The signing and pavement markings for the acceleration lane shall be according to the drawing below, "Pavement marking and signing for right turn acceleration lane from at grade intersection".



Free-flow acceleration lanes may be considered in rural or suburban areas provided the turning radius is tightened and the angle of approach is kept as close to a right angle as possible. These combined elements will force right-turning drivers to slow down and

look ahead, where pedestrians and bicyclists may be present, before turning and accelerating onto the roadway.

### **IMPLEMENTATION**

The implementation of this bulletin will be closely monitored by TEOS staff, the TOLT, and RLT. Any revisions will be based on feedback from the Region Technical Centers, the TOLT, and RLT.

### **LIST OF STAKEHOLDERS PROVIDING REVIEW OF DRAFTS**

Traffic Operations Leadership Team  
Roadway Leadership Team  
Technical Leadership Team  
Area Managers Team  
Federal Highway Administration

### **CONTACT INFORMATION**

Title: Traffic Investigations Engineer  
Section: Traffic-Roadway Section, Traffic Engineering Services Unit  
Phone: (503) 986-3580  
E-Mail: [kevin.j.haas@odot.state.or.us](mailto:kevin.j.haas@odot.state.or.us)

Title: Senior Standards Engineer  
Section: Traffic-Roadway Section, Roadway Engineering Unit  
Phone: (503) 986-3738  
E-Mail: [david.j.polly@odot.state.or.us](mailto:david.j.polly@odot.state.or.us)