TE-162 (4-20)

pennsylvania
DEPARTMENT OF TRANSPORTATION
www.penndot.gov

TEMPORARY TRAFFIC CONTROL ZONE REGULATORY SPEED LIMIT REDUCTION EVALUATION

Department Use Only

Submission Date:

Tracking Number:

Note: Complete a separate TE-162 Form for each road requesting a speed limit reduction.

A - LOCATION INFORMATION

MPMS: District: County: Municipality:

State Route: Section: Segment: Offset: TO Segment: Offset:

Other Location Information:

B - REFERENCE INFORMATION

VEHICLE CODE TITLE 75 PA. C.S., SECTIONS 6109(D), 6122(B)	PUBLICATION 46, SECTIONS CHAPTER 2.4, 11.3
TITLE 67, CHAPTER 212, SECTIONS 212.4, 212.5(B), 212.403	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SECTION 2B.13

C - ATTACHED LISTINGS

Check all applicable supporting documentation and attach to this form:

- ❑ Location Map
- ❑ Speed Study
- ❑ Temporary Traffic Control Plan/PATA Figure
- ❑ Transportation Management Plan
- ❑ Traffic Volumes
- ❑ Crash Analysis
- ❑ Traffic/Capacity Analysis
- ❑ Official Engineering and Traffic Study*
- ❑ Other

* Required for a speed limit reduction greater than 10 MPH.

D - SITE DATA

1. Regulatory speed limit for section of road being evaluated: mph

2. Average Travel Speed: Weekday: mph Weekend: mph ❑ Measured ❑ RITIS Probe Data

3. Start of construction Annual Daily Traffic (ADT): vehicles/day ❑ Measured ❑ Estimated

   Truck Percentage: % ❑ Measured ❑ Estimated

   Additional Traffic Information:

4. Type of temporary traffic zone operation: ❑ Short-Term ❑ Long-Term ❑ Mobile

   Location of operation (check all that apply): ❑ Median ❑ Travel Lane ❑ Shoulder

5. Travel lane width restrictions: ❑ Yes ❑ No

   Minimum travel lane width before construction: ft Minimum travel lane width during construction: ft

6. Temporary barrier used to separate traffic and workers: ❑ Yes ❑ No ❑ NA

7. Active operations during hours of darkness: ❑ Yes ❑ No

8. Maximum roadway grade of at least 0.5 miles in length: %

9. Stopping and/or intersection sight distance meets or exceeds design requirements for the existing speed limit: ❑ Yes ❑ No ❑ NA

10. Lane shifts/transitions/tapers meet or exceed design requirements for the existing speed limit: ❑ Yes ❑ No ❑ NA

11. Crossovers meet or exceed design requirements for the existing speed limit: ❑ Yes ❑ No ❑ NA

12. Temporary traffic control zone elements such as temporary road approaches, intersections, or intersection control have changed the roadway design speed: ❑ Yes ❑ No ❑ NA

13. Construction access points are within the activity area: ❑ Yes ❑ No ❑ NA

14. Stop control is utilized on at least one interchange ramp: ❑ Yes ❑ No ❑ NA

E - TEMPORARY TRAFFIC CONTROL ZONE REGULATORY SPEED REDUCTION CONSIDERATIONS

The following questions should be considered before requesting a temporary traffic control zone regulatory speed limit reduction. Include a response for each "No" answer under Section G - Engineering Justification. See Table 2 in the policy for more details regarding each question.

1. Can lateral buffer space greater than two feet be provided between the travel lane and the work area when positive protection is not used? ❑ Yes ❑ No ❑ NA
2. Can additional traffic control devices be used to improve work area separation and motorist guidance at merging tapers? ❑ Yes ❑ No ❑ NA
3. Can additional warning devices, such as temporary rumble strips or PCMS be used to warn motorists of changing conditions in the activity area? ❑ Yes ❑ No ❑ NA
4. Can the shoulder or work area width be reduced to maintain the existing travel lane widths and/or number of lanes? ❑ Yes ❑ No ❑ NA
5. Can decision point conflicts and confusion areas be eliminated or minimized? ❑ Yes ❑ No ❑ NA
6. Can construction access points be minimized or designed to provide acceleration/deceleration lanes? ❑ Yes ❑ No ❑ NA
7. Can effective merge areas be designed to minimize queuing before entering the temporary traffic control zone and to provide adequate distance for vehicles to accelerate/decelerate at on/off-ramps? ❑ Yes ❑ No ❑ NA
8. Can temporary illumination be added to improve visibility during unprotected nighttime work or where major geometric changes or high volume access points exist? ❑ Yes ❑ No ❑ NA
9. Can a pilot vehicle be used on the operation to control motorists speeds? ❑ Yes ❑ No ❑ NA
10. Can temporary ITS applications including smart temporary traffic control zone systems be deployed to improve motorists awareness of changing conditions? ❑ Yes ❑ No ❑ NA

F - PROPOSED TEMPORARY TRAFFIC CONTROL ZONE REGULATORY SPEED LIMIT

1. Proposed temporary traffic control zone speed limit: MPH Type of Reduction: ❑ Continuous ❑ Variable

2. Is the proposed temporary traffic control zone speed limit applicable for all phases and duration of the project: ❑ Yes ❑ No

If no, explain:

G - ENGINEERING JUSTIFICATION

Provide responses for "No" answers from Section E and document justification for the reduced temporary traffic control zone speed limit.

H - APPROVALS

District Traffic Engineer: Date: ❑ Approved ❑ Disapproved

Remarks:

Is automated speed enforcement being proposed within the temporary traffic control zone? ❑ Yes ❑ No

Note: If yes, the Highway Safety and Traffic Operations Division Chief must concur.

Highway Safety and Traffic Operations Division Chief: Date: ❑ Approved ❑ Disapproved

Remarks:

Note 1: This Temporary Traffic Control Zone Regulatory Speed Reduction Evaluation becomes the permit to implement the regulatory speed reduction when it has been approved and signed.

Note 2: If the requested temporary traffic control zone regulatory speed reduction is greater than 10 MPH, a signed and sealed engineering and traffic study completed by a Professional Engineer must accompany the Temporary Traffic Control Zone Regulatory Speed Reduction Permit per PA Title 67 Section 212.405.

TE-162 from Evaluation Guidelines

The TE-162 *Temporary Traffic Control Zone Regulatory Speed Limit Reduction Evaluation form* defines the minimum data required to be evaluated to determine if a temporary traffic control zone regulatory speed limit reduction is appropriate. The evaluator shall complete Form TE-162 for each road where a temporary traffic control zone regulatory speed limit reduction is requested. As the evaluator begins to populate Form TE-162, they should reference both **Tables 1** and **2** within these guidelines to aid in the completion of the form. The numbered rows in both tables correspond to the cell numbers in Section D and E of Form TE-162 respectively. **Table 1** elaborates on the minimum data to be provided and potential data sources for Section D of Form TE-162. **Table 2** elaborates on temporary traffic control zone regulatory speed limit reduction considerations that should be weighed in Section E of Form TE-162 before making a request.

The evaluator will need to exercise engineering judgement as to which considerations from **Table 2,** if any, are applicable to their specific project based on the work activities and data provided in Section D of Form TE-162. If minimal considerations from **Table 2** are applicable or appropriate due to the type of work or associated costs to implement, the evaluator needs to justify their decisions in Section G of Form TE-162 and clearly document why a temporary traffic control zone regulatory speed limit reduction is needed. Specifically, the evaluator needs to address the following elements within Section G, Engineering Justification:

- **Design Safety –** Can the temporary traffic control zone be designed per Publication 213 to accommodate the posted regulatory speed limit?

- **Traffic Safety –** What safety benefit would a temporary traffic control zone regulatory speed limit reduction provide for motorists beyond that realized through standard or enhanced temporary traffic control zone safety and traffic control methods?

- **Worker Safety –** What safety benefit would a temporary traffic control zone regulatory speed limit reduction provide for workers that cannot be provided in the temporary traffic control zone design and operation?

- **ADA, Pedestrian, and Bike Safety (if applicable) -** What safety benefits would be provided for non-vehicular user groups that cannot be provided in the temporary traffic control zone design and operation?

REMEMBER: Completion/submission of Form TE-162 is only necessary when a proposed temporary traffic control zone regulatory speed limit is lower than the current posted regulatory speed limit of the roadway.

TE-162 from Evaluation Guidelines

Table 1 – Minimum Data for a Temporary Traffic Control Zone Speed Limit Reduction Evaluation

	Project Specific Data (Section D of TE-162 form)	Data Sources/Locations
1	Existing regulatory speed limit for the section of road being evaluated.	PennDOT Videolog Field View Verification
2	Existing average travel speed for the section of road being evaluated through the use of probe, sensor, or project specific data for typical weekday and weekend travel periods during the anticipated construction months. Specify whether the speed data was measured in the field or estimated from RITIS probe data.	RITIS – Probe data Project Speed Study
3	Traffic volume data (i.e. ADT and Truck Percentage) associated with the section of road being evaluated at the start of construction. Specify whether the data was measured in the field or estimated from previously collected vehicle count data/PennDOT TIRE.	PennDOT TIRE Project Traffic Counts
4	Type of work operation (i.e. short-term, long-term, mobile) and location of work activities (i.e. median, travel lane, shoulder).	Project Specific TTCP or Pub 213
5	Normal condition and minimum during construction travel lane width if travel lane restrictions are anticipated (worst case) for the section of road being evaluated.	Project Specific TTCP or Pub 213
6	Positive protection (temporary barrier) is being used to separate live traffic from workers.	Project Specific TTCP or Pub 213
7	Temporary traffic control zone has active operations during hours of darkness.	Project Specific TTCP or Pub 213
8	Maximum existing roadway grade % (+/-) of a segment at least 0.5 mile in length. When determining the maximum existing grade, average the grade as taken across a minimum 0.5-mile segment. (Average roadway grades greater than +/-3% may negatively impact capacity and heavy vehicle speeds).	Project Specific Plans
9	Stopping and/or intersection sight distance due to temporary alignment or intersection locations for the section of road being evaluated meets or exceeds design requirements for the existing regulatory speed limit.	Project Specific TTCP or Pub 213
10	Lane shifts/transitions/tapers meet or exceed design requirements for the existing regulatory speed limit for the section of road being evaluated.	Project Specific TTCP and Pub 213
11	Crossover design speed meets or exceeds design requirements for the existing regulatory speed limit for the section of road being evaluated.	Project Specific TTCP and Pub 213/ AASHTO Green Book
12	Temporary traffic control zone elements such as temporary road approaches, intersections, intersection control (such as a temporary signal), or flagging operations have changed the roadway design speed of the section of road being evaluated.	Project Specific TTCP or Pub 213
13	Construction access points within the activity area have no acceleration or deceleration areas to improve ingress and egress for the section of road being evaluated.	Project Specific TTCP or Pub 213
14	Stop control is provided on at least one interchange ramp termini due to lack of room for acceleration lanes.	Project Specific TTCP or Pub 213

Table 1 Notes: Web and network addresses for the each of the data sources listed above are as follows:
PennDOT Videolog: https://gis.penndot.gov/Videolog/
RITIS: https://www.ritis.org/login?r=Lw
PennDOT TIRE: https://gis.penndot.gov/TIRe
Pub 213: http://www.dot.state.pa.us/public/PubsForms/Publications/PUB%20213.pdf

TE-162 from Evaluation Guidelines

Table 2 – Temporary Traffic Control (TTC) Zone Regulatory Speed Reduction Considerations

	Considerations in Lieu of Reducing the Speed Limit (Section E of TE-162)	Essential Elements			
		S	M	DC	$$
1	When positive protection is not applicable, provide a lateral buffer space between workers and live traffic, defined by channelization devices, to allow space for minor traffic intrusions or occasional encroachment by workers. A half lane width is desirable, but a minimum of 2 feet is an acceptable lateral buffer for existing speed limits posted 45 MPH or lower. For an existing speed limit greater than 45 MPH, positive protection or a minimum lateral buffer of a half lane width is preferred.	X	X		X
2	Use more closely spaced traffic control devices or sequential lighting on merging tapers to improve work area separation and motorist guidance.	X		X	X
3	Use additional warning devices such as temporary rumble strips or portable changeable message signs to warn motorists of changing conditions in the activity area.	X		X	X
4	Reduce temporary shoulder or work area width to maintain existing lane widths and/or number of travel lanes.	X	X		X
5	Minimize decision point conflicts or confusion by eliminating or modifying the condition; provide supplemental signing, pavement markings, delineation; or other relevant TTC devices.	X	X	X	X
6	Minimize construction access points and provide adequate acceleration and deceleration lanes for any required access points.	X	X		X
7	Design effective merge areas to minimize queuing before entering the temporary traffic control zone and to provide adequate distance for vehicles to accelerate/decelerate at on/off-ramps. Eliminate stop conditions on acceleration ramps.	X	X	X	X
8	Add temporary illumination to improve visibility during unprotected nighttime work or where major geometric changes or high-volume access points exist (i.e. crossovers, multiple lane drops, intersections, on/off ramps, and high-volume construction accesses).	X	X		X
9	Use a pilot car to control driver behavior and manage vehicle speeds through the TTC zone.	X	X	X	X
10	Deploy Smart Temporary Traffic Control Zone applications as suggested per FHWA (https://ops.fhwa.dot.gov/wz/workshops/accessible/pant_paper.htm) to warn motorists of changing conditions in the temporary traffic control zone.	X	X	X	X

Key: S = Safety, M = Mobility, DC = Driver Conformance, $$ = Cost

TE-162 from Evaluation Guidelines

Table 3 – Work Zone Conditions that may warrant a speed limit reduction (for use in Section G of TE-162 form)

Work Location	Work Zone Activities	Potential Warrant	Warrant Considerations
Construction Activities Outside of Shoulder.	Work activities that are more than 10 feet from the travel lane and beyond the shoulders but within the right-of-way. Example activities include: - landscaping work - utility work, - cleaning ditches - litter pickup - fencing work	Work outside of Clear Zone – Speed Limits unlikely to be reduced unless activities that distract drivers are occurring: - vehicles parked on the shoulder, - vehicles accessing the work site via the highway, - equipment traveling on or crossing the roadway to perform the work operations	- Temporary Speed Limit Reductions may be considered with for distracting activities. - Advisory Speed warnings (in lieu of regulatory speed limit reductions) should be considered for these activities.
		Work inside Clear Zone – Activities occurring outside of the shoulder but within clear zone	Treat as a construction activity on the shoulder and review appropriate warrants and justification.
Construction activities on the shoulder-no lane encroachment[1]	Work activities that are within 10 feet but no closer than 2 feet to the travel lane (within the shoulders but does not encroach on the travel lane). Example activities include: - culvert extensions - guiderail installation, - utility work, - sign installations	Long-Term Stationary Operations – channelizing devices only.	Channelizer only work zones will be considered for speed limit reductions. Speed limit reductions shall only be implemented when the temporary traffic control zone is an active work zone and workers are present.
		Long-Term Stationary Operations – barrier protected.	- Where barrier is provided, proximity of work relative to barrier type, deflection distance and placement should be evaluated. - Justification shall be provided as to why the above factors warrant a speed limit reduction.
		Horizontal curvature	- Speed limit reductions will be considered for horizontal curvature that may increase vehicle encroachments. - Consult Table 2 of SOL 494-20-02 (Temporary Traffic Control Zone Regulatory Speed Limit Policy) for additional guidance.
Construction activities on the shoulder-minor lane encroachment	Work activities that encroach on an area from the edge of the travel lane to 2 feet into the travel lane (reduced travel lane width). Example activities include: - shoulder paving - guiderail installations, - utility work - sign installations	Worker / equipment presence.	Speed limit reductions will be considered when workers / equipment are expected to be present for extended periods of time within 2 feet of the travel lane.
		Lane width reductions	- Speed limit reductions will be considered when lane widths are reduced less than 11'.[1]
		Temporary traffic control device (channelizing device or temporary barrier) encroaching on a lane open to traffic or temporary barrier within 1 foot of the edge of the travel lane.	- Speed limit reductions will be considered. - Type of protection device and proximity to workers should be indicated as part of this warrant.[1] - Consult Table 2 of SOL 494-20-02 (Temporary Traffic Control Zone Regulatory Speed
		Horizontal curvature	- Speed limit reductions will be considered for horizontal curvature that may increase vehicle encroachments. - Truck off-tracking should be considered when determining whether the minimum lane width is adequate, or the affected lane should be closed.[1] - Consult Table 2 of SOL 494-20-02 (Temporary Traffic Control Zone Regulatory Speed Limit Policy) for additional guidance.

		Pavement edge drop-off greater than 3 inches within 2 feet of the travel lane.	Speed Limit Reductions will be considered.[1]
		Reduced Stopping Sight Distance	Speed Limit Reductions will be considered when work zone or temporary device (such as longitudinal barrier) restricts stopping sight distance.[2] - Consult Table 2 of SOL 494-20-02 (Temporary Traffic Control Zone Regulatory Speed Limit Policy) for additional guidance.
Construction activities on the travel way – single or multi-lane closure	Work activities that require a lane closure. Examples include: - pavement repair - roadway widening - shoulder repair - utility work	Worker / equipment presence.	Speed limit reductions will be considered when workers / equipment are expected to be present for extended periods of time within 2 feet of the travel lane.
		Lane width reductions	- Speed limit reductions will be considered when lane widths are reduced less than 11'.[1]
		Temporary traffic control device (channelizing device or temporary barrier) encroaching on a lane open to traffic or temporary barrier within 1 foot of the edge of the travel lane.	- Speed limit reductions will be considered. - Type of protection device and proximity to workers should be indicated as part of this warrant.[1]
		Horizontal curvature	- Speed limit reductions will be considered for horizontal curvature that may increase vehicle encroachments. - Truck off-tracking should be considered when determining whether the minimum lane width is adequate or the affected lane should be closed.[1] - Consult Table 2 of SOL 494-20-02 (Temporary Traffic Control Zone Regulatory Speed Limit Policy) for additional guidance.
		Pavement edge drop-off of greater than 3 inches within 2 feet of the travel lane.	- Speed Limit Reductions will be considered.[1]
		Reduced Stopping Sight Distance	Speed Limit Reductions will be considered when work zone or temporary device (such as longitudinal barrier) restricts stopping sight distance.[1]
		Lane Shifts	- Speed Limit reductions will be considered when lane shifts cannot be designed to meet the posted speed limit. - Consult Table 2 of SOL 494-20-02 (Temporary Traffic Control Zone Regulatory Speed Limit Policy) for additional guidance.
		Temporary Crossovers	- Speed Limit reductions will be considered when temporary crossovers cannot be designed to meet the posted speed limit. - The evaluation shall consider the operation of the roadway between the crossover roadways including other warrants noted in this table. - Temporary operation of multi-lane highway as a two-lane operation on one side of a divided highway shall also be documented, including how the operation is achieved.[1] - Consult Table 2 of SOL 494-20-02 (Temporary Traffic Control Zone Regulatory Speed Limit Policy) for additional guidance.

1- Appropriate Traffic Control Plan / Typical Section sheets showing the warranting condition(s) should be attached to TE-162 form and indicated in Section F.