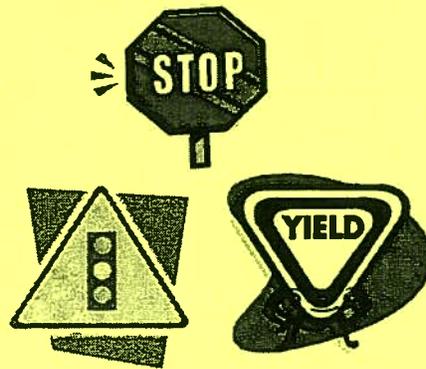


Pend Oreille

County

2012



Temporary Traffic Control

Policy

Approved by:

Don Ramsey



Pend Oreille County

PUBLIC WORKS DEPARTMENT

P. O. Box 5065 Newport, Washington 99156-5065
Phone: 509-447-6460 Fax: 509-447-5890

Don Ramsey PE.
County Engineer,

December 5, 2012

It is the policy of Pend Oreille County to use the 2009 MUTCD for temporary traffic control operation's in this county.

All operations requiring traffic control will abide by the following requirements:

1. Traffic control plans will be completed prior to commencement of operations.
2. Traffic control plans will be reviewed by a TCS or County Engineer.
3. Plans that deviate from standard TCP's shall be approved by a TCS or County Engineer.
4. All plans and reports will be on the job site at all times.
5. The attached TCP's (TCP1, TCP2, TCP5, TCP6 and TCP14) should be declared and deployed on the appropriate forms.
6. Any questions about traffic control should be referred to a Traffic Control Supervisor or the County Engineer.
7. All flagger's are required to be prepared for operations.
8. After completion of all work, a copy of all Traffic Control Forms shall be sent to the office.

Current Traffic Control Supervisors

Tom McCaffrey 509-671-2029
Paul Hillestad 509-671-0909

PART 6

TEMPORARY TRAFFIC CONTROL

CHAPTER 6A. GENERAL

Section 6A.01 General

Support:

- 01 Whenever the acronym "TTC" is used in Part 6, it refers to "temporary traffic control."

Standard:

- 02 **The needs and control of all road users (motorists, bicyclists, and pedestrians within the highway, or on private roads open to public travel (see definition in Section 1A.13), including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) through a TTC zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.**

Support:

- 03 When the normal function of the roadway, or a private road open to public travel, is suspended, TTC planning provides for continuity of the movement of motor vehicle, bicycle, and pedestrian traffic (including accessible passage); transit operations; and access (and accessibility) to property and utilities.

- 04 The primary function of TTC is to provide for the reasonably safe and effective movement of road users through or around TTC zones while reasonably protecting road users, workers, responders to traffic incidents, and equipment.

- 05 Of equal importance to the public traveling through the TTC zone is the safety of workers performing the many varied tasks within the work space. TTC zones present constantly changing conditions that are unexpected by the road user. This creates an even higher degree of vulnerability for the workers and incident management responders on or near the roadway (see Section 6D.03). At the same time, the TTC zone provides for the efficient completion of whatever activity interrupted the normal use of the roadway.

- 06 Consideration for road user safety, worker and responder safety, and the efficiency of road user flow is an integral element of every TTC zone, from planning through completion. A concurrent objective of the TTC is the efficient construction and maintenance of the highway and the efficient resolution of traffic incidents.

- 07 No one set of TTC devices can satisfy all conditions for a given project or incident. At the same time, defining details that would be adequate to cover all applications is not practical. Instead, Part 6 displays typical applications that depict common applications of TTC devices. The TTC selected for each situation depends on type of highway, road user conditions, duration of operation, physical constraints, and the nearness of the work space or incident management activity to road users.

- 08 Improved road user performance might be realized through a well-prepared public relations effort that covers the nature of the work, the time and duration of its execution, the anticipated effects upon road users, and possible alternate routes and modes of travel. Such programs have been found to result in a significant reduction in the number of road users traveling through the TTC zone, which reduces the possible number of conflicts.

- 09 Operational improvements might be realized by using intelligent transportation systems (ITS) in work zones. The use in work zones of ITS technology, such as portable camera systems, highway advisory radio, variable speed limits, ramp metering, traveler information, merge guidance, and queue detection information, is aimed at increasing safety for both workers and road users and helping to ensure a more efficient traffic flow. The use in work zones of ITS technologies has been found to be effective in providing traffic monitoring and management, data collection, and traveler information.

Standard:

- 10 **TTC plans and devices shall be the responsibility of the authority of a public body or official having jurisdiction for guiding road users. There shall be adequate statutory authority for the implementation and enforcement of needed road user regulations, parking controls, speed zoning, and the management of traffic incidents. Such statutes shall provide sufficient flexibility in the application of TTC to meet the needs of changing conditions in the TTC zone.**

Support:

- 11 Temporary facilities, including pedestrian routes around worksites, are also covered by the accessibility requirements of the Americans with Disabilities Act of 1990 (ADA) (Public Law 101-336, 104 Stat. 327, July 26, 1990. 42 U.S.C. 12101-12213 (as amended)).

Guidance:

- 12 *The TTC plan should start in the planning phase and continue through the design, construction, and restoration phases. The TTC plans and devices should follow the principles set forth in Part 6. The management of traffic incidents should follow the principles set forth in Chapter 6I.*

Option:

- 13 TTC plans may deviate from the typical applications described in Chapter 6H to allow for conditions and requirements of a particular site or jurisdiction.

Support:

- 14 The provisions of Part 6 apply to both rural and urban areas. A rural highway is normally characterized by lower volumes, higher speeds, fewer turning conflicts, and less conflict with pedestrians. An urban street is typically characterized by relatively low speeds, wide ranges of road user volumes, narrower roadway lanes, frequent intersections and driveways, significant pedestrian activity, and more businesses and houses.
- 15 The determination as to whether a particular facility at a particular time of day can be considered to be a high-volume roadway or can be considered to be a low-volume roadway is made by the public agency or official having jurisdiction.

CHAPTER 6B. FUNDAMENTAL PRINCIPLES

Section 6B.01 Fundamental Principles of Temporary Traffic Control

Support:

- 01 Construction, maintenance, utility, and incident zones can all benefit from TTC to compensate for the unexpected or unusual situations faced by road users. When planning for TTC in these zones, it can be assumed that it is appropriate for road users to exercise caution. Even though road users are assumed to be using caution, special care is still needed in applying TTC techniques.
- 02 Special plans preparation and coordination with transit, other highway agencies, law enforcement and other emergency units, utilities, schools, and railroad companies might be needed to reduce unexpected and unusual road user operation situations.
- 03 During TTC activities, commercial vehicles might need to follow a different route from passenger vehicles because of bridge, weight, clearance, or geometric restrictions. Also, vehicles carrying hazardous materials might need to follow a different route from other vehicles. The Hazardous Materials and National Network signs are included in Sections 2B.62 and 2B.63, respectively.
- 04 Experience has shown that following the fundamental principles of Part 6 will assist road users and help protect workers in the vicinity of TTC zones.

Guidance:

- 05 *Road user and worker safety and accessibility in TTC zones should be an integral and high-priority element of every project from planning through design and construction. Similarly, maintenance and utility work should be planned and conducted with the safety and accessibility of all motorists, bicyclists, pedestrians (including those with disabilities), and workers being considered at all times. If the TTC zone includes a grade crossing, early coordination with the railroad company or light rail transit agency should take place.*

Support:

- 06 Formulating specific plans for TTC at traffic incidents is difficult because of the variety of situations that can arise.

Guidance:

- 07 *The following are the seven fundamental principles of TTC:*

1. *General plans or guidelines should be developed to provide safety for motorists, bicyclists, pedestrians, workers, enforcement/emergency officials, and equipment, with the following factors being considered:*
 - A. *The basic safety principles governing the design of permanent roadways and roadsides should also govern the design of TTC zones. The goal should be to route road users through such zones using roadway geometrics, roadside features, and TTC devices as nearly as possible comparable to those for normal highway situations.*
 - B. *A TTC plan, in detail appropriate to the complexity of the work project or incident, should be prepared and understood by all responsible parties before the site is occupied. Any changes in the TTC plan should be approved by an official who is knowledgeable (for example, trained and/or certified) in proper TTC practices.*
2. *Road user movement should be inhibited as little as practical, based on the following considerations:*
 - A. *TTC at work and incident sites should be designed on the assumption that drivers will only reduce their speeds if they clearly perceive a need to do so (see Section 6C.01).*
 - B. *Frequent and abrupt changes in geometrics such as lane narrowing, dropped lanes, or main roadway transitions that require rapid maneuvers, should be avoided.*
 - C. *Work should be scheduled in a manner that minimizes the need for lane closures or alternate routes, while still getting the work completed quickly and the lanes or roadway open to traffic as soon as possible.*
 - D. *Attempts should be made to reduce the volume of traffic using the roadway or freeway to match the restricted capacity conditions. Road users should be encouraged to use alternative routes. For high-volume roadways and freeways, the closure of selected entrance ramps or other access points and the use of signed diversion routes should be evaluated.*
 - E. *Bicyclists and pedestrians, including those with disabilities, should be provided with access and reasonably safe passage through the TTC zone.*
 - F. *If work operations permit, lane closures on high-volume streets and highways should be scheduled during off-peak hours. Night work should be considered if the work can be accomplished with a series of short-term operations.*
 - G. *Early coordination with officials having jurisdiction over the affected cross streets and providing emergency services should occur if significant impacts to roadway operations are anticipated.*
3. *Motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing TTC zones and incident sites. The following principles should be applied:*

- A. Adequate warning, delineation, and channelization should be provided to assist in guiding road users in advance of and through the TTC zone or incident site by using proper pavement marking, signing, or other devices that are effective under varying conditions. Providing information that is in usable formats by pedestrians with visual disabilities should also be considered.
 - B. TTC devices inconsistent with intended travel paths through TTC zones should be removed or covered. However, in intermediate-term stationary, short-term, and mobile operations, where visible permanent devices are inconsistent with intended travel paths, devices that highlight or emphasize the appropriate path should be used. ~~Providing traffic control devices that are accessible to and usable by pedestrians with disabilities should be considered.~~
 - C. Flagging procedures, when used, should provide positive guidance to road users traversing the TTC zone.
4. To provide acceptable levels of operations, routine day and night inspections of TTC elements should be performed as follows:
 - A. Individuals who are knowledgeable (for example, trained and/or certified) in the principles of proper TTC should be assigned responsibility for safety in TTC zones. The most important duty of these individuals should be to check that all TTC devices of the project are consistent with the TTC plan and are effective for motorists, bicyclists, pedestrians, and workers.
 - B. As the work progresses, temporary traffic controls and/or working conditions should be modified, if appropriate, in order to provide mobility and positive guidance to the road user and to provide worker safety. The individual responsible for TTC should have the authority to halt work until applicable or remedial safety measures are taken.
 - C. TTC zones should be carefully monitored under varying conditions of road user volumes, light, and weather to check that applicable TTC devices are effective, clearly visible, clean, and in compliance with the TTC plan.
 - D. When warranted, an engineering study should be made (in cooperation with law enforcement officials) of reported crashes occurring within the TTC zone. Crash records in TTC zones should be monitored to identify the need for changes in the TTC zone.
 5. Attention should be given to the maintenance of roadside safety during the life of the TTC zone by applying the following principles:
 - A. To accommodate run-off-the-road incidents, disabled vehicles, or emergency situations, unencumbered roadside recovery areas or clear zones should be provided where practical.
 - B. Channelization of road users should be accomplished by the use of pavement markings, signing, and crashworthy, detectable channelizing devices.
 - C. Work equipment, workers' private vehicles, materials, and debris should be stored in such a manner to reduce the probability of being impacted by run-off-the-road vehicles.
 6. Each person whose actions affect TTC zone safety, from the upper-level management through the field workers, should receive training appropriate to the job decisions each individual is required to make. Only those individuals who are trained in proper TTC practices and have a basic understanding of the principles (established by applicable standards and guidelines, including those of this Manual) should supervise the selection, placement, and maintenance of TTC devices used for TTC zones and for incident management.
 7. Good public relations should be maintained by applying the following principles:
 - A. The needs of all road users should be assessed such that appropriate advance notice is given and clearly defined alternative paths are provided.
 - B. The cooperation of the various news media should be sought in publicizing the existence of and reasons for TTC zones because news releases can assist in keeping the road users well informed.
 - C. The needs of abutting property owners, residents, and businesses should be assessed and appropriate accommodations made.
 - D. The needs of emergency service providers (law enforcement, fire, and medical) should be assessed and appropriate coordination and accommodations made.
 - E. The needs of railroads and transit should be assessed and appropriate coordination and accommodations made.
 - F. The needs of operators of commercial vehicles such as buses and large trucks should be assessed and appropriate accommodations made.

Standard:

08 Before any new detour or temporary route is opened to traffic, all necessary signs shall be in place.
 09 All TTC devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, TTC devices that are no longer appropriate shall be removed or covered.

CHAPTER 6C. TEMPORARY TRAFFIC CONTROL ELEMENTS

Section 6C.01 Temporary Traffic Control Plans

Support:

01 A TTC plan describes TTC measures to be used for facilitating road users through a work zone or an incident area. TTC plans play a vital role in providing continuity of effective road user flow when a work zone, incident, or other event temporarily disrupts normal road user flow. ~~Important auxiliary provisions that cannot conveniently be specified on project plans can easily be incorporated into Special Provisions within the TTC plan.~~

02 TTC plans range in scope from being very detailed to simply referencing typical drawings contained in this Manual, standard approved highway agency drawings and manuals, or specific drawings contained in the contract documents. The degree of detail in the TTC plan depends entirely on the nature and complexity of the situation.

Guidance:

03 *TTC plans should be prepared by persons knowledgeable (for example, trained and/or certified) about the fundamental principles of TTC and work activities to be performed. The design, selection, and placement of TTC devices for a TTC plan should be based on engineering judgment.*

04 *Coordination should be made between adjacent or overlapping projects to check that duplicate signing is not used and to check compatibility of traffic control between adjacent or overlapping projects.*

05 *Traffic control planning should be completed for all highway construction, utility work, maintenance operations, and incident management including minor maintenance and utility projects prior to occupying the TTC zone. Planning for all road users should be included in the process.*

06 *Provisions for effective continuity of accessible circulation paths for pedestrians should be incorporated into the TTC process. Where existing pedestrian routes are blocked or detoured, information should be provided about alternative routes that are usable by pedestrians with disabilities, particularly those who have visual disabilities. Access to temporary bus stops, travel across intersections with accessible pedestrian signals (see Section 4E.09), and other routing issues should be considered where temporary pedestrian routes are channelized. Barriers and channelizing devices that are detectable by people with visual disabilities should be provided.*

Option:

07 Provisions may be incorporated into the project bid documents that enable contractors to develop an alternate TTC plan.

08 Modifications of TTC plans may be necessary because of changed conditions or a determination of better methods of safely and efficiently handling road users.

Guidance:

09 *This alternate or modified plan should have the approval of the responsible highway agency prior to implementation.*

10 *Provisions for effective continuity of transit service should be incorporated into the TTC planning process because often public transit buses cannot efficiently be detoured in the same manner as other vehicles (particularly for short-term maintenance projects). Where applicable, the TTC plan should provide for features such as accessible temporary bus stops, pull-outs, and satisfactory waiting areas for transit patrons, including persons with disabilities, if applicable (see Section 8A.08 for additional light rail transit issues to consider for TTC).*

11 *Provisions for effective continuity of railroad service and acceptable access to abutting property owners and businesses should also be incorporated into the TTC planning process.*

12 *Reduced speed limits should be used only in the specific portion of the TTC zone where conditions or restrictive features are present. However, frequent changes in the speed limit should be avoided. A TTC plan should be designed so that vehicles can travel through the TTC zone with a speed limit reduction of no more than 10 mph.*

13 *A reduction of more than 10 mph in the speed limit should be used only when required by restrictive features in the TTC zone. Where restrictive features justify a speed reduction of more than 10 mph, additional driver notification should be provided. The speed limit should be stepped down in advance of the location requiring the lowest speed, and additional TTC warning devices should be used.*

14 *Reduced speed zoning (lowering the regulatory speed limit) should be avoided as much as practical because drivers will reduce their speeds only if they clearly perceive a need to do so.*

Support:

- 15 Research has demonstrated that large reductions in the speed limit, such as a 30 mph reduction, increase speed variance and the potential for crashes. Smaller reductions in the speed limit of up to 10 mph cause smaller changes in speed variance and lessen the potential for increased crashes. A reduction in the regulatory speed limit of only up to 10 mph from the normal speed limit has been shown to be more effective.

Section 6C.02 Temporary Traffic Control Zones**Support:**

- 01 A TTC zone is an area of a highway where road user conditions are changed because of a work zone, an incident zone, or a planned special event through the use of TTC devices, uniformed law enforcement officers, or other authorized personnel.
- 02 A work zone is an area of a highway with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last TTC device.
- 03 An incident zone is an area of a highway where temporary traffic controls are imposed by authorized officials in response to a traffic incident (see Section 6I.01). It extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where road users return to the original lane alignment and are clear of the incident.
- 04 A planned special event often creates the need to establish altered traffic patterns to handle the increased traffic volumes generated by the event. The size of the TTC zone associated with a planned special event can be small, such as closing a street for a festival, or can extend throughout a municipality for larger events. The duration of the TTC zone is determined by the duration of the planned special event.

Section 6C.03 Components of Temporary Traffic Control Zones**Support:**

- 01 Most TTC zones are divided into four areas: the advance warning area, the transition area, the activity area, and the termination area. Figure 6C-1 illustrates these four areas. These four areas are described in Sections 6C.04 through 6C.07.

Section 6C.04 Advance Warning Area**Support:**

- 01 The advance warning area is the section of highway where road users are informed about the upcoming work zone or incident area.

Option:

- 02 The advance warning area may vary from a single sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to a series of signs in advance of the TTC zone activity area.

Guidance:

- 03 *Typical distances for placement of advance warning signs on freeways and expressways should be longer because drivers are conditioned to uninterrupted flow. Therefore, the advance warning sign placement should extend on these facilities as far as 1/2 mile or more.*
- 04 *On urban streets, the effective placement of the first warning sign in feet should range from 4 to 8 times the speed limit in mph, with the high end of the range being used when speeds are relatively high. When a single advance warning sign is used (in cases such as low-speed residential streets), the advance warning area can be as short as 100 feet. When two or more advance warning signs are used on higher-speed streets, such as major arterials, the advance warning area should extend a greater distance (see Table 6C-1).*
- 05 *Since rural highways are normally characterized by higher speeds, the effective placement of the first warning sign in feet should be substantially longer—from 8 to 12 times the speed limit in mph. Since two or more advance warning signs are normally used for these conditions, the advance warning area should extend 1,500 feet or more for open highway conditions (see Table 6C-1).*
- 06 *The distances contained in Table 6C-1 are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted for field conditions, if necessary, by increasing or decreasing the recommended distances.*

Pend Oreille County-Traffic Control Log

CRP# / SP#		Project Name		Page
Contract Number	Rd Number	Day	Date	

Sta A	Setup				Sta B
	Station	Time	Station	Time	
◇	-		-		◇
◇	-		-		◇
◇	-		-		◇
◇	-		-		◇
◇	-		-		◇
Work Area					
◇	-		-		◇
◇	-		-		◇
◇	-		-		◇
◇	-		-		◇
◇	-		-		◇
Sta C	<input type="checkbox"/>	↑	One Way Traffic (one or more lanes)	↑	Sta D
	<input type="checkbox"/>	↓	Two Way Traffic (two or more lanes)	↑	

Legend

(List of Signs Used)

◇ 1	ROAD WORK AHEAD
◇ 2	ONE LANE ROAD
◇ 3	BE PREPARED TO STOP
◇ 4	FLAGGER
◇ 5	
◇ 6	
◇ 7	TRUCKS ENTERING ROAD
◇ 8	ROAD MACHINERY AHEAD

Cones Yes No
 Piloted Yes No

Per Approved Plan Yes No
 Plan Title _____
TC1 TC2 TC5 TC8 TC14 Other

Weather	Condition
6AM	
9AM	
12AM	
3PM	

Other Traffic Control Labor				
Name	Start	End	Hours	

D1 D2 D3 Survey _____

Road District Foreman _____

Traffic Control Supervisor's Signature _____

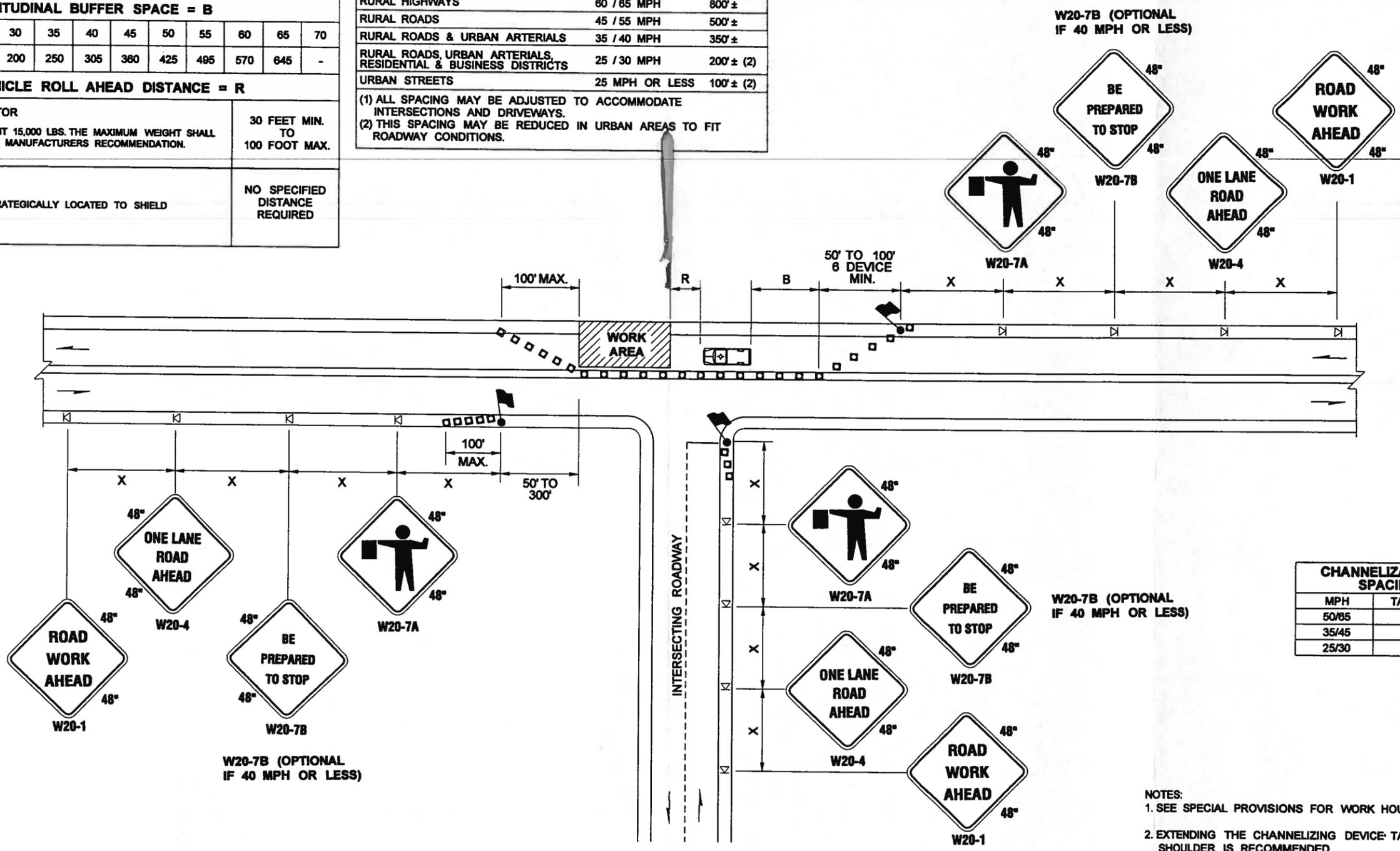
Type of Traffic Control	Time Set Up	Time(s) Checked	Time Removed

Mobile Operation
 Short Duration (Less than 1 Hrs)
 Short Term stationary (More that 1 Hrs)
 Intermediate Term (1-3 Days)
 Long Term Stationary (3 Days or More)

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	-
BUFFER VEHICLE ROLL AHEAD DISTANCE = R										
TRANSPORTABLE ATTENUATOR MINIMUM HOST VEHICLE WEIGHT 15,000 LBS. THE MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION.										30 FEET MIN. TO 100 FOOT MAX.
PROTECTIVE VEHICLE MAY BE A WORK VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA.										NO SPECIFIED DISTANCE REQUIRED

SIGN SPACING = X (1)		
RURAL HIGHWAYS	60 / 65 MPH	800' ±
RURAL ROADS	45 / 55 MPH	500' ±
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350' ±
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200' ± (2)
URBAN STREETS	25 MPH OR LESS	100' ± (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.



CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50/65	40	80
35/45	30	60
25/30	20	40

W20-7B (OPTIONAL IF 40 MPH OR LESS)

W20-7B (OPTIONAL IF 40 MPH OR LESS)

W20-7B (OPTIONAL IF 40 MPH OR LESS)

- NOTES:
- SEE SPECIAL PROVISIONS FOR WORK HOUR RESTRICTIONS.
 - EXTENDING THE CHANNELIZING DEVICE TAPER ACROSS SHOULDER IS RECOMMENDED.
 - DEVICE SPACING ON THE DOWNSTREAM SHOULD BE 20 FEET.
 - ALL SIGNS ARE BLACK ON ORANGE.
 - NIGHT WORK REQUIRES ADDITIONAL ROADWAY LIGHTING AT FLAGGING STATIONS, SEE THE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.

ONE-LANE, TWO-WAY TRAFFIC CONTROL WITH FLAGGERS

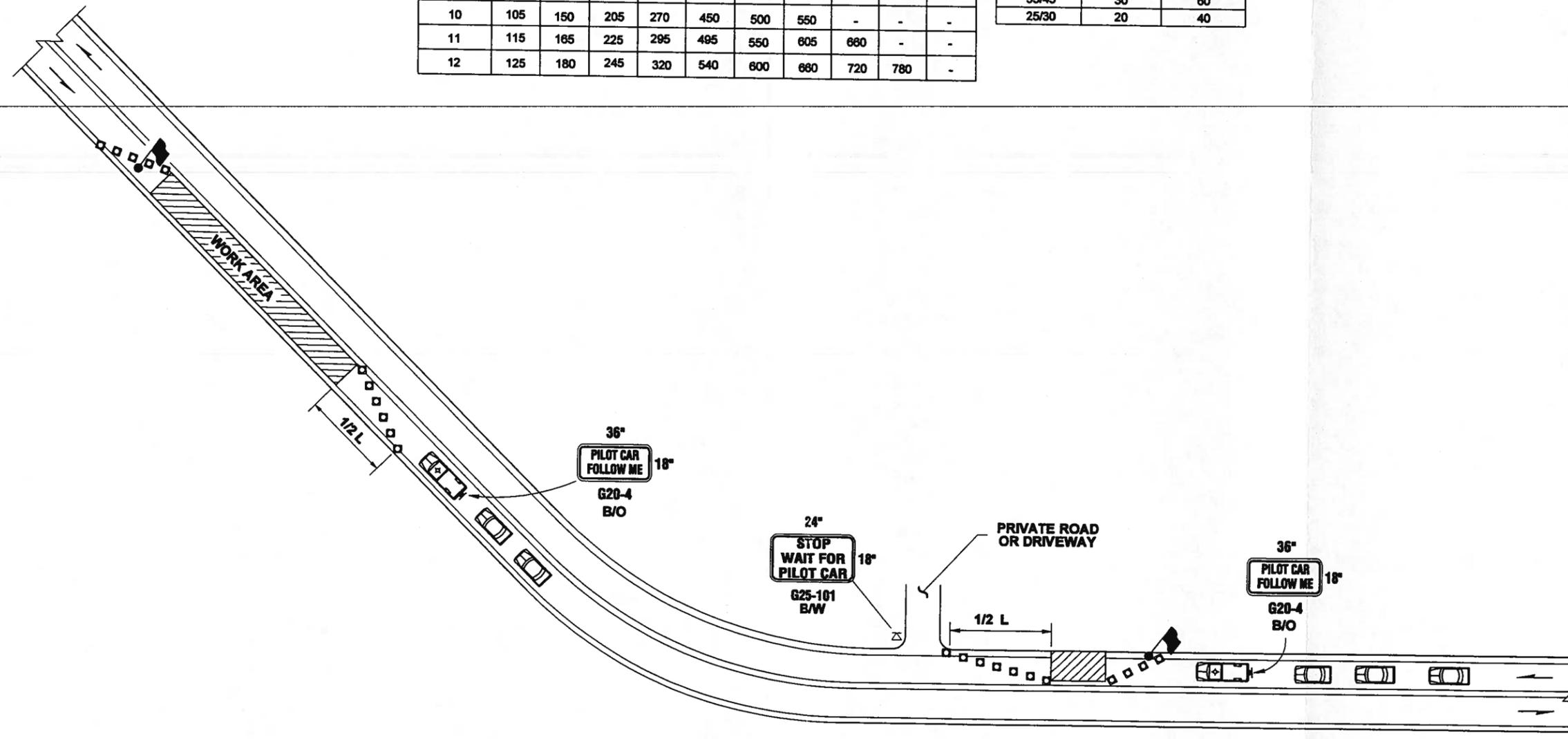
NOT TO SCALE

- LEGEND**
- FLAGGING STATION
 - TEMPORARY SIGN LOCATION
 - CHANNELIZING DEVICES
 - PROTECTIVE VEHICLE

FILE NAME	S:\Design R P& S\4-Standards\2-Plan Sheet Library\10-Work zone plans (WZ)\TC-1-21\TC-1\TC-1.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	Washington State Department of Transportation	Plot 1 TC1
TIME	11:26:59 AM			10	WASH			
DATE	10/8/2010			JOB NUMBER			TRAFFIC CONTROL PLAN	SHEET OF SHEETS
PLOTTED BY	Cyford			CONTRACT NO.	LOCATION NO.			
DESIGNED BY								
ENTERED BY								
CHECKED BY								
PROJ. ENGR.								
REGIONAL ADM.								
	REVISION		DATE	BY				

LANE WIDTH (feet)	MINIMUM TAPER LENGTH = L (feet)									
	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	-	-	-
11	115	185	225	295	495	550	605	680	-	-
12	125	180	245	320	540	600	680	720	780	-

CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50/65	40	80
35/45	30	60
25/30	20	40



- LEGEND**
- FLAGGING STATION
 - TEMPORARY SIGN LOCATION
 - CHANNELIZING DEVICES
 - PILOT VEHICLE
 - MOTORIST VEHICLE

PILOT CAR OPERATION

NOT TO SCALE

NOTES:

1. REFER TO SHEET TC1 FOR ADDITIONAL SIGNING AND FLAGGING DETAILS NOT SHOWN.
2. CHANNELIZING DEVICES ARE RECOMMENDED ALONG CENTERLINE TO SEPARATE TRAFFIC FROM WORK OPERATION. DEVICES ARE REQUIRED AT TAPERS TO SHIFT TRAFFIC MOVEMENT BETWEEN LANES AND TO PROTECT ALL FLAGGING STATIONS.
3. SIGN G25-101 IS RECOMMENDED FOR NON-STOP SIGN CONTROLLED APPROACHES SUCH AS PRIVATE ROADS AND DRIVEWAYS . THIS SIGN IS NOT REQUIRED TO BE ALUMINUM SUBSTRATE AND CAN BE MADE OF ALTERNATIVE MATERIALS.

FILE NAME: S:\Design R P& S\4-Standards\2-Plan Sheet Library\10-Work zone plans (WZ)\TC-1-2\TC-2\TC-2.dgn		REGION NO. STATE		FED.AID PROJ.NO.				TC2	
TIME: 8:18:58 AM	DATE: 10/8/2010	10	WASH						
PLOTTED BY: Cyfordl		JOB NUMBER:		LOCATION NO.		Washington State Department of Transportation		TRAFFIC CONTROL PLAN	
DESIGNED BY:		CONTRACT NO.							
ENTERED BY:		DATE		DATE		Washington State Department of Transportation		TRAFFIC CONTROL PLAN	
CHECKED BY:		BY							
PROJ. ENGR.		REVISION		DATE		Washington State Department of Transportation		TRAFFIC CONTROL PLAN	
REGIONAL ADM.									

SIGN SPACING = X (1)		
FREEWAYS & EXPRESSWAYS	55 / 70 MPH	1500' ± (OR PER MUTCD)
RURAL HIGHWAYS	60 / 65 MPH	800' ±
RURAL ROADS	45 / 55 MPH	500' ±

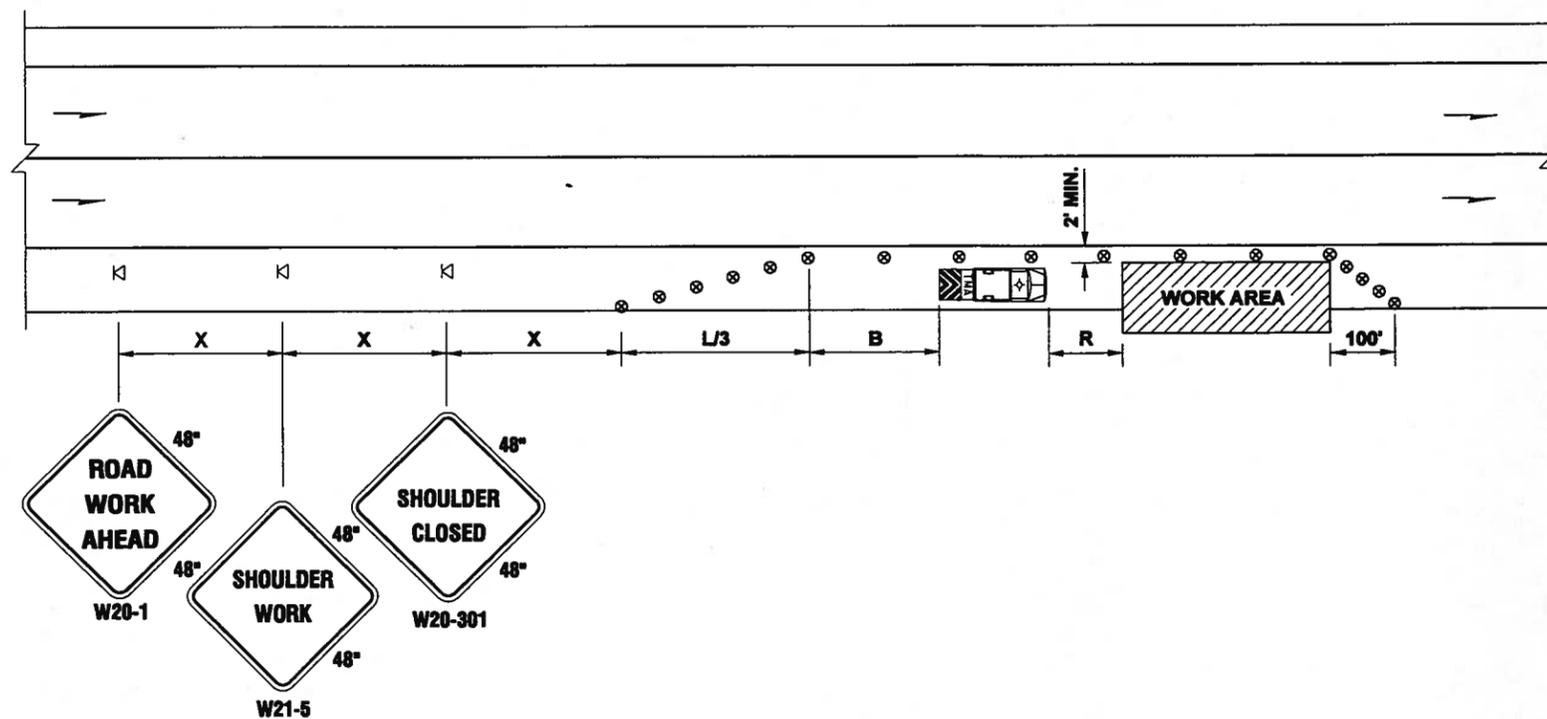
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.

MINIMUM SHOULDER TAPER LENGTH = L/3 (feet)										
SHOULDER WIDTH (feet)	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
8'	40	40	60	90	120	130	150	160	170	190
10'	40	60	90	90	150	170	190	200	220	240

USE A MINIMUM 3 DEVICES TAPER FOR SHOULDER LESS THEN 8'.

CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50/70	40	80
35/45	30	60

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	-	-	-	-	360	425	495	570	645	730
BUFFER VEHICLE ROLL AHEAD DISTANCE = R										
TRANSPORTABLE ATTENUATOR MINIMUM HOST VEHICLE WEIGHT 15,000 LBS. THE MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION.										30 FEET MIN. TO 100 FOOT MAX.
PROTECTIVE VEHICLE MAY BE A WORK VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA.										NO SPECIFIED DISTANCE REQUIRED



LEGEND

- ⊞ TEMPORARY SIGN LOCATION
- ⊗ TRAFFIC SAFETY DRUM
- TRANSPORTABLE ATTENUATOR

SHOULDER CLOSURE - HIGH SPEED

NOT TO SCALE

- NOTES:
- NO ENCROACHMENT IN TRAVELLED LANE. IF ENCROACHMENT IS NECESSARY, LANE SHALL BE CLOSED.
 - DEVICE SPACING FOR THE DOWNSTREAM TAPER SHOULD BE 20' O.C.
 - ALL SIGNS ARE BLACK ON ORANGE.

FILE NAME	S:\Design R P& S\4-Standard\2-Plan Sheet Library\10-Work zone plans (WZ)\ITC-1-21\ITC-6\ITC-6.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	Washington State Department of Transportation	TC6
TIME	8:34:38 AM			10	WASH			
DATE	10/8/2010			JOB NUMBER			SHEET OF SHEETS	
PLOTTED BY	Cyfordl			CONTRACT NO.	LOCATION NO.			
DESIGNED BY							TRAFFIC CONTROL PLAN	
ENTERED BY								
CHECKED BY								
PROJ. ENGR.								
REGIONAL ADM.	REVISION	DATE	BY					

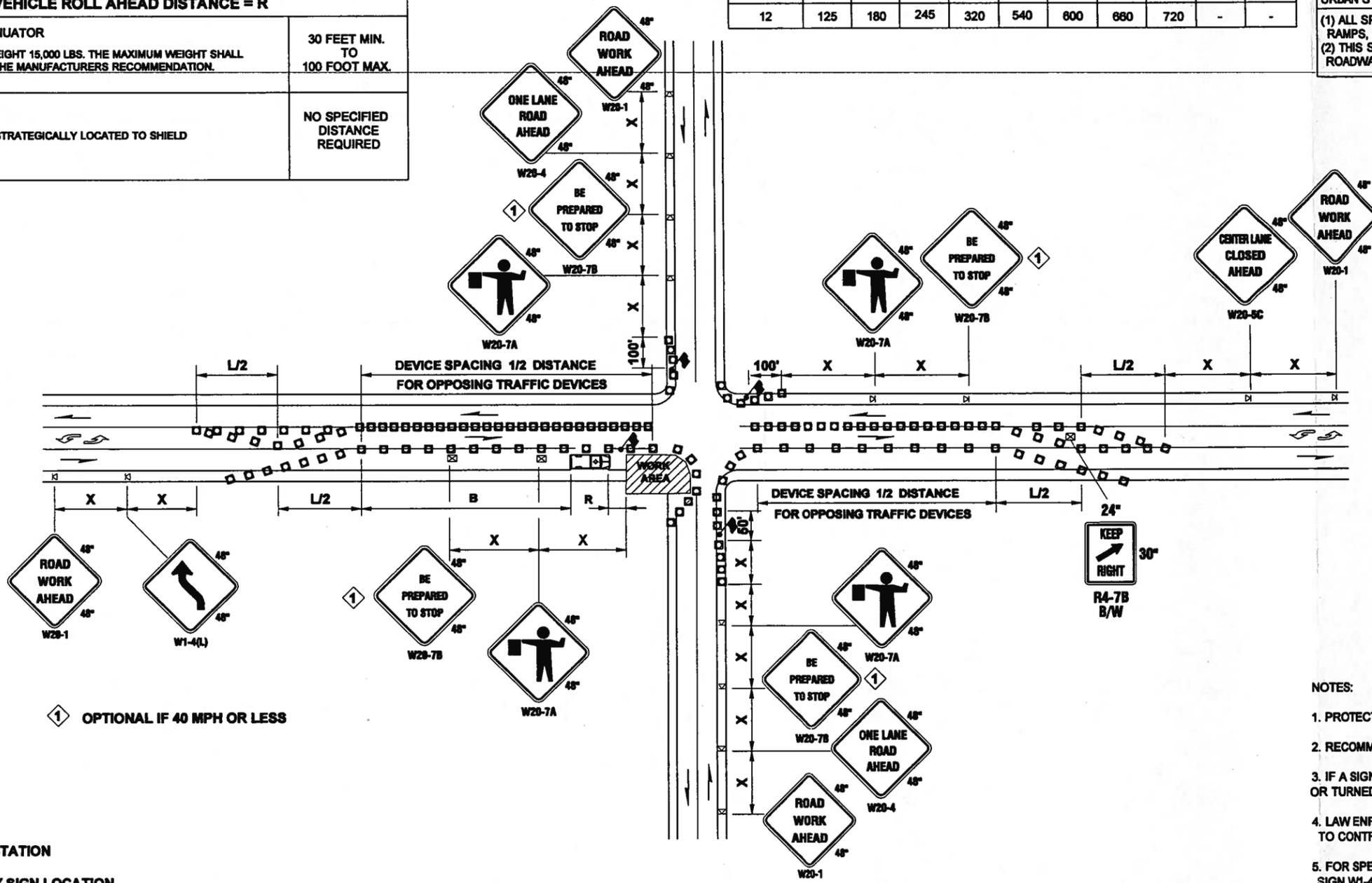
BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	-
BUFFER VEHICLE ROLL AHEAD DISTANCE = R										
TRANSPORTABLE ATTENUATOR MINIMUM HOST VEHICLE WEIGHT 15,000 LBS. THE MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION.								30 FEET MIN. TO 100 FOOT MAX.		
PROTECTIVE VEHICLE MAY BE A WORK VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA.								NO SPECIFIED DISTANCE REQUIRED		

LANE WIDTH (feet)	MINIMUM TAPER LENGTH = L (feet)									
	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	-	-	-
11	115	165	225	295	495	550	605	660	-	-
12	125	180	245	320	540	600	660	720	-	-

SIGN SPACING = X (1)		
RURAL HIGHWAYS	60 / 65 MPH	800' ±
RURAL ROADS	45 / 55 MPH	500' ±
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350' ±
RURAL ROADS & URBAN ARTERIALS	25 / 30 MPH	200' ± (2)
RESIDENTIAL & BUSINESS DISTRICTS		
URBAN STREETS	25 MPH OR LESS	100' ± (2)

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50/70	40	80
35/45	30	60
25/30	20	40



1 OPTIONAL IF 40 MPH OR LESS

LEGEND

- FLAGGING STATION
- TEMPORARY SIGN LOCATION
- CHANNELIZING DEVICES
- PROTECTIVE VEHICLE - RECOMMENDED
- TEMPORARY SIGN LOCATION (5' MOUNTING HEIGHT)

INTERSECTION LANE CLOSURE ~ THREE LANE ROADWAY

NOT TO SCALE

NOTES:

1. PROTECTIVE VEHICLE RECOMMENDED - MAY BE A WORK VEHICLE.
2. RECOMMEND EXTENDING DEVICE TAPER (L/3) ACROSS SHOULDER.
3. IF A SIGNAL IS PRESENT, IT SHALL BE SET TO "RED FLASH MODE" OR TURNED OFF DURING FLAGGING OPERATIONS.
4. LAW ENFORCEMENT OFFICER MAY BE USED IN LIEU OF FLAGGERS TO CONTROL INTERSECTION TRAFFIC.
5. FOR SPEED LIMIT OF 30 MPH OR LESS USE SIGN W1-3 IN LIEU OF SIGN W1-4.
6. MAINTAIN A MINIMUM OF ONE ACCESS POINT FOR EACH BUSINESS WITHIN WORK AREA LIMITS.
7. ALL SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

FILE NAME	S:\Design R P& S\4-Standards\2-Plan Sheet Library\10-Work zone plans (WZ)\TC-1-21\TC-14\TC-14.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	Washington State Department of Transportation	TC14
TIME	8:49:14 AM			10	WASH			
DATE	10/8/2010			JOB NUMBER			TRAFFIC CONTROL PLAN	SHEET OF SHEETS
PLOTTED BY	Cyfordl			CONTRACT NO.	LOCATION NO.			
DESIGNED BY								
ENTERED BY								
CHECKED BY								
PROJ. ENGR.								
REGIONAL ADM.	REVISION	DATE	BY					