Appendix A

Temporary Traffic Control Signal Documentation

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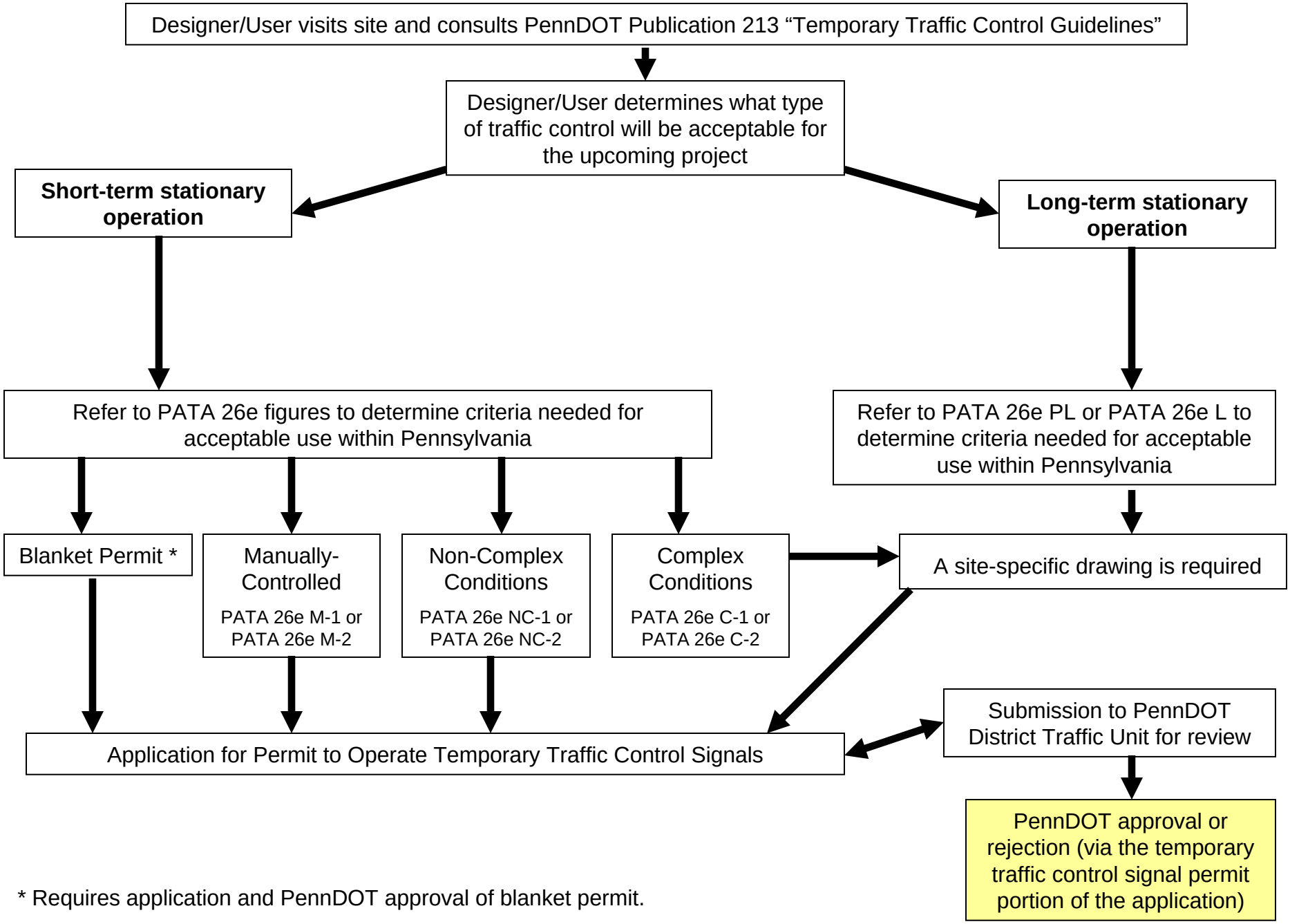
Temporary Traffic Control Signal Requirements and Timeframes

Type of Application	*Publication 213 Figure*	*PennDOT Approval Required Prior to Use*	*Advance Site Visit Required by User*	*Application Required*	*Site-Specific Drawing Required*	*Deadline for District Receipt of All Required Materials*
Long-Term Stationary Operation Fixed Supports	PATA 26e L	X	X	X	X	At least 15 working days prior to desired usage
Long-Term Stationary Operation Trailer-Mounted Portable Traffic Control Signals	PATA 26e PL	X	X	X	X	At least 15 working days prior to desired usage
Short-Term Stationary Operation Pedestal-Mounted Portable Traffic Control Signals Manually-Controlled	PATA 26e M-1	X	X	X		At least 3 full working days prior to desired usage
Short-Term Stationary Operation Trailer-Mounted Portable Traffic Control Signals Manually-Controlled	PATA 26e M-2	X	X	X		At least 3 full working days prior to desired usage
Short-Term Stationary Operation Pedestal-Mounted Portable Traffic Control Signals Non-Complex Conditions	PATA 26e NC-1	X	X	X		At least 3 full working days prior to desired usage
Short-Term Stationary Operation Trailer-Mounted Portable Traffic Control Signals Non-Complex Conditions	PATA 26e NC-2	X	X	X		At least 3 full working days prior to desired usage
Short-Term Stationary Operation Pedestal-Mounted Portable Traffic Control Signals Complex Conditions	PATA 26e C-1	X	X	X	X	At least 15 working days prior to desired usage
Short-Term Stationary Operation Trailer-Mounted Portable Traffic Control Signals Complex Conditions	PATA 26e C-2	X	X	X	X	At least 15 working days prior to desired usage
Short-Term Stationary Operation Pedestal-Mounted Portable Traffic Control Signals Blanket Permit		X	X	X		At least 15 working days for initial blanket permit request; at least 3 full working days prior to each usage under the blanket permit
Short-Term Stationary Operation Trailer-Mounted Portable Traffic Control Signals Blanket Permit		X	X	X		At least 15 working days for initial blanket permit request; at least 3 full working days prior to each usage under the blanket permit

Process for Obtaining PennDOT Approval to Use Temporary Traffic Control Signals



* Requires application and PennDOT approval of blanket permit.

Blanket Permits

For repeat users of portable traffic control signals, PennDOT's appropriate Engineering District Office, at its discretion, may issue a blanket temporary traffic control signal permit covering multiple locations and dates of operation for up to a one-year period. These actions will only be considered by PennDOT's appropriate Engineering District Office if that user has properly used portable traffic control signals in a safe and efficient manner on numerous past occasions without problems and in compliance with PennDOT requirements.

All portable traffic control signal usage under the blanket permit must satisfy the criteria and provisions of PATA 26e M-1, PATA 26e M-2, PATA 26e NC-1, or PATA 26e NC-2, except for emergency work as defined in PennDOT Publication 212.

Blanket permits cannot be used for portable traffic control signal usage involving either long-term operations or short-term operations with complex conditions that are governed by PATA 26e PL, PATA 26e C-1, or PATA 26e C-2.

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APPLICATION FOR PERMIT TO OPERATE TEMPORARY TRAFFIC CONTROL SIGNALS

Applicant's Contact Information

Applicant's Name: _____

Applicant's Company:_____

Company Address:_____

Company Phone No.: _____Company Fax No.:_____

Cellular Phone No.: _____E-mail Address:_____

Name of Emergency Contact Person: _____ Cellular Phone No.: _____
(Must be available 24 hrs./day, 7 days/week during period of usage.)

Description of Traffic Control Device

Type of Device		Mounted on Fixed Supports		Trailer-Mounted		Pedestal-Mounted		Automated Flagger Assistance Device (AFAD)		Other (explain)
(check one)										

Traffic Control Device Manufacturer: _____ Manufacturer's Model No.: _____

PennDOT Approval No.: _____

Work Zone Information

Was a site visit performed prior to submitting this application? Yes ___ No ___

Date of Traffic Control Device Usage: Begin _____ End_____

Engineering District: _____County: _____Municipality:_____

On State Route (SR): _____ Direction: _____

From: Segment: _____ Offset: _____

To: Segment: _____ Offset: _____

On Local Road: _____ Direction: _____

From: _____

To: _____

Normal Speed Limit: _____mph ADT: _____ veh/day

Maximum Length of One-Lane, Two-Way Traffic Section _____ feet
(Between *STOP HERE ON RED* Signs)

Type of Operation: Long-Term Stationary _____ Short-Term Stationary _____

Other (please describe): _____

The traffic control device will be used to control: One-Lane, Two-Way Traffic _____
(Check all that apply) No More than Two Approaches _____
Other (please describe): _____

Will all signal faces exceed the thresholds for signal face visibility specified on the Publication 213 figure? Yes ___ No ___

Does the site contain an intersection within the one-lane, two-way traffic section? Yes ___ No ___

Does the site contain an uncontrolled commercial driveway within the one-lane, two-way traffic section? Yes ___ No ___

Is any roadway approach to the traffic control device on a steep downgrade (5% or more)? Yes ___ No ___

Does the site contain an at-grade railroad crossing within 300 feet of the work zone? Yes ___ No ___

Proposed work description:

Traffic Control Device Operational Information

Mode of Operation	Manually-Controlled	Pre-Timed	Actuated	Other (explain)
(please check one)				

PennDOT Publication Figure: PATA _____ will be followed.

All-red clearance time is _____ seconds based on
assumed traffic speed of _____ mph within one-lane, two-way section.

The proposed minimum green time shall be at least 10 seconds.

The proposed maximum green time shall be determined based on field conditions.

The proposed yellow change interval shall be five (5) seconds unless otherwise indicated by PennDOT.

Applicant Certification

The applicant certifies that the information provided on this application and accompanying documents is true and correct.

The applicant certifies that, if approved, the traffic control devices will be operated and maintained in compliance with PennDOT Publications 212 and 213, and the provisions of the temporary traffic control signal permit as issued by PennDOT.

The applicant agrees that it will indemnify, save harmless and defend (if requested) the Commonwealth of Pennsylvania, its agents, representatives and employees, from all suits, actions or claims of any character, name or description, damages, judgments, expenses, attorneys' fees and compensation arising out of personal injury, death or property damage, sustained or alleged to have been sustained in whole or in part by any and all persons whatsoever as a result of or arising out of any act, omission, neglect or misconduct of the applicant, its officers, agents, contractors or employees, during the period of temporary traffic control signal usage.

BY: _____ _____
Signature of Applicant Date

Sworn before me this _____ day of _____, 20_____

Notary: _____

PennDOT Acknowledgement

This application is: Accepted: _____ Temporary Traffic Signal Permit Attached: _____

Rejected: _____ Application was rejected because:

If rejected, please correct immediately and submit to PennDOT. Temporary traffic control device usage cannot begin without prior approval.

TEMPORARY TRAFFIC CONTROL SIGNAL PERMIT

In accordance with the Vehicle Code, the Pennsylvania Department of Transportation (PennDOT) hereby approves the operation of a temporary traffic control signal as follows:

Location:

Date(s) of Operation:

This permit is issued to, and accepted by, _____, hereinafter known as the Permittee, as follows:

The operation and maintenance of this temporary traffic control signal by the Permittee shall be in accordance with requirements contained on the attached sheets and application, PennDOT's figures governing the use of temporary traffic control signals as contained in PennDOT Publication 213, and the following special requirements:

All work performed by the Permittee with respect to the operation and maintenance of this temporary traffic control signal shall be under and subject to the direction of PennDOT. The said Permittee shall use due diligence in the execution of the work authorized under this permit and shall not obstruct or endanger travel along the said road. All operations must be conducted so as to permit safe and reasonable free travel at all times over the road within the limits of the work herein permitted.

The Permittee agrees to indemnify, save harmless and defend (if requested) the Commonwealth of Pennsylvania, its agents, representatives and employees, from all suits, actions or claims of any character, name or description, damages, judgments, expenses, attorneys' fees and compensation arising out of personal injury, death or property damage, sustained or alleged to have been sustained in whole or in part by any and all persons whatsoever as a result of or arising out of any act, omission, neglect or misconduct of the Permittee, its officers, agents, contractors or employees, during the period of temporary traffic control signal usage.

PennDOT reserves the right to revoke this permit or to suspend the operation of the temporary traffic control signal if the Permittee shall at any time willfully or negligently fail to comply with the conditions contained in this permit or PennDOT Publication 213, or fail to make any changes in the operation of this signal, or to remove it, when so ordered by PennDOT. The Permittee shall maintain the signal in a safe condition at all times. The Permittee shall not make any change in the operation of the temporary traffic control signal as defined in the permit drawings without prior written approval of PennDOT. PennDOT reserves the right to inspect this temporary traffic control signal usage at any time.

Date:_____

Approved:_____
Secretary of Transportation
Commonwealth of Pennsylvania

By: _____
District Executive
Pennsylvania Department of Transportation

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DEPARTMENT OF TRANSPORTATION

APPLICATION INSTRUCTIONS FOR PERMIT TO OPERATE TEMPORARY TRAFFIC CONTROL SIGNALS

Applicant's Contact Information

- **Applicant's Name:** is the individual who will be responsible for the proper placement of the work zone traffic control devices.
- **Applicant's Company:** the Company the Applicant represents.
- **Company Address:** the official mailing address of the Applicant's company.
- **Company Phone No.**: the phone number of the Applicant's company.
- **Company Fax No.:** the fax number of the Applicant's company.
- **Cellular Phone No.:** the Applicant's cellular phone number.
- **Email Address:** the Applicant's e-mail address.
- **Name of Emergency Contact Person:** the person that will be available 24 hrs./day, 7 days/week during the period of usage and who will be responsible for the continued proper usage of the device.
- **Cellular Phone No.:** the emergency contact person's cellular phone number.

Description of Traffic Control Device

Type of Device		Mounted on Fixed Supports		Trailer-Mounted		Pedestal-Mounted		Automated Flagger Assistance Device (AFAD)		Other (explain)
(check one)										

Descriptions of the devices are as follow:

- **Mounted on Fixed Supports**: As defined in the Manual on Uniform Traffic Control Devices (MUTCD), it is a temporary traffic control signal that is temporarily mounted on fixed supports. The fixed supports are typically span wires mounted on temporarily-installed poles. These devices are normally used for long-term stationary applications where appropriate field conditions exist.
- **Trailer-Mounted:** Trailer-mounted portable traffic control signal systems consist of two trailers, with each trailer having a vertical upright and a horizontal arm to accommodate the mounting of at least two signal heads. These devices may be used for short-term stationary and long-term stationary applications where the appropriate conditions exist.
- **Pedestal-Mounted:** Pedestal-mounted portable traffic control signal systems consist of four units, with a pedestal-mounted signal head on each unit. These devices may be used for short-term stationary applications where appropriate field conditions exist.
- **Automated Flagger Assistance Device (AFAD)**: A manually-controlled device operated by one or more individuals to safely stop and control traffic through a

work zone. These devices may be used for short-term stationary applications where appropriate field conditions exist.

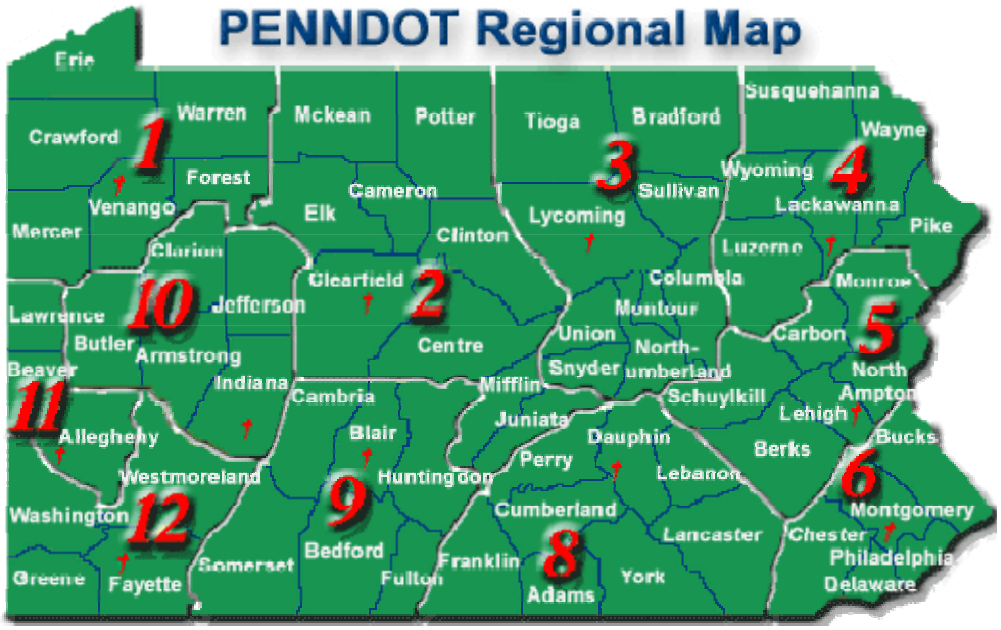
- **Other (explain):** Other applications which do not fall into the criteria listed above. Please give a detailed description so that proper evaluation may be made.
- **Traffic Control Device Manufacturer:** the manufacturer of the device that will be used for work zone traffic control.
- **PennDOT Approval No.:** the PennDOT device approval number as indicated in PennDOT Publication 35 "Approved Construction Materials (Bulletin 15)". This number can be accessed through the internet at the listing below:

  ftp://ftp.dot.state.pa.us/public/pdf/BOCM_MTD_LAB/PUBLICATIONS/PUB_35/BULLETIN_15.pdf

  If problems exist with finding an approval number, please contact either the appropriate PennDOT Engineering District Office or PennDOT Central Office at (717) 783-0333.

Work Zone Location Information

- **Was a site visit performed prior to this application request?:**
  - **Yes:** A proper field visit was made prior to the submission of this application to determine if the device was acceptable and met all of the criteria specified in Publication 213 to safely and efficiently operate the device.
  - **No:** A proper field visit was not made prior to the submission of this application.
- **Date (s) of Traffic Control Device Usage:** Please specify the approximate date and/or dates and times that you would like to use this device. Upon approval of this application, if dates are modified, please contact the appropriate Engineering District representative.
- **Engineering District:** The Engineering District that will be reviewing the completed application.



- **County:** the county where the traffic control device would be used.
- **Municipality:** the municipality where the traffic control device would be used.
- **On State Route (SR):** the state highway where the traffic control device would be deployed. For further guidance, please refer to the following link and select the appropriate county map:

  http://www.dot.state.pa.us/Internet/Bureaus/pdPlanRes.nsf/infoBPRCartoCountyType3

- **Direction:** the direction of travel which may be either North/Southbound or East/Westbound. The link above may help you with the determination of the travel direction.
- **From Segment:** the roadway segment on the State Route the device will be deployed. These segment numbers may be found either on small markers posted along the roadway or from straight-line diagrams.
- **Offset:** the roadway location from the beginning of the segment to the approximate location of the device in feet.
- **From Segment:** the roadway segment on the State Route the device will be deployed. These segment numbers may be found either on small markers posted along the roadway or from straight-line diagrams.
- **Offset:** the roadway location from the beginning of the segment to the approximate location of the device in feet.
- **On Local Road:** Use the local road name. Identify the nearest intersecting roadways when determining the local roadway location.
- **Normal Speed Limit:** this is the legal speed limit on the roadway prior to the beginning of the work. If no speed limit is posted on the roadway, please mark unposted.
- **ADT:** This is also known as Average Daily Traffic. This number can be found by accessing the following link below and selecting the appropriate county map:

http://www.dot.state.pa.us/Internet/Bureaus/pdPlanRes.nsf/infoBPRTrafficInfoTrafficVolumeMap

If problems exist with finding an ADT number, please contact either the appropriate PennDOT Engineering District Office or PennDOT Central Office at (717) 783-0333.

- **Maximum Length of One-Lane, Two-Way Traffic Section:** this is the approximate distance between "STOP HERE ON RED" signs in feet. This is very important for determining the proper all-red clearance interval needed to safely and efficiently move traffic through the work zone.
- **Does the sight distance requirement exceed the thresholds specified in the drawing?:**
  - **Yes:** The sight distance requirements have been met as indicated on the correct Publication 213 drawing.
  - **No:** The sight distance requirements could not be met as indicated on the correct Publication 213 drawing.
- **Does the site contain intersections within the work zone?:**
  - **Yes:** The site contains an intersection within the work zone.
  - **No:** The site does not contain an intersection within the work zone.
- **Does the site contain uncontrolled commercial driveways within the work zone?:**
  - **Yes:** The site contains uncontrolled commercial driveways within the work zone.
  - **No:** The site does not contain uncontrolled commercial driveways within the work zone.
- **Is any roadway approach to the traffic control device on a steep downgrade (5% or more)?**
  - **Yes:** the site contains a steep downgrade of 5% or more.
  - **No:** the site does not contain a steep downgrade of 5% or more.

- **Does the site contain at-grade railroad crossings within 300 feet of the work zone?**
  - **Yes:** the site contains an at-grade railroad crossing within 300 feet of the work zone.
  - **No:** the site does not contain an at-grade railroad crossing within 300 feet of the work zone.
- **Provide a Brief Description of the Construction Operation:** Please provide a description of the work being performed in the work zone.

Traffic Control Device Operation Information

Type of Operation	Manually-Controlled	Pre-Timed	Actuated	Other (explain)
(please check one)				

- **Manually-Controlled**: The traffic control device will be operated at all times by an individual who will ensure the safe and efficient travel through the work zone.
- **Pre-Timed:** The traffic control device will operate automatically in a pre-determined timing pattern(s) based on time of day, and will continue to operate that way throughout the day.
- **Actuated:** The traffic control device will operate using sensors and will change green time as traffic demand warrants.
- **AFAD:** The traffic control device will be operated at all times by an individual(s) who will ensure the safe and efficient travel through the work zone.
- **Other (explain):** Other applications that do not fall into the criteria listed above. Please give a detailed description so that proper evaluation may be made.
- **PennDOT Publication Figure:** the determination of the correct figure to be followed from PennDOT Publication 213.
- **All-red clearance time:** This is to ensure that the proper clearance time is being used when using a temporary traffic signal. This should be determined by using the charts specified on the appropriate Publication 213 figure.

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EXAMPLE PROBLEM

APPLICATION FOR PERMIT TO OPERATE TEMPORARY TRAFFIC CONTROL SIGNALS

Applicant's Contact Information

Applicant's Name: John Smith

Applicant's Company: Smith Contracting Company, Inc.

Company Address: 400 North Street Harrisburg, PA 17120

Company Phone No.: (717) 783-0333 Company Fax No.: (717) 705-0686

Cellular Phone No.: (717) 783-0555 E-mail Address: jsmith@smithcontracting.com

Name of Emergency Contact Person: James Smith (Must be available 24 hrs./day, 7 days/week during period of usage.) Cellular Phone No.: (717) 777-5555

Description of Traffic Control Device

Type of Device		Mounted on Fixed Supports		Trailer-Mounted		Pedestal-Mounted		Automated Flagger Assistance Device (AFAD)		Other (explain)
(check one)										

Traffic Control Device Manufacturer: Traffic Control Signals, Inc. Manufacturer's Model No.: TCS1

PennDOT Approval No.: TCS-001P

Work Zone Information

Was a site visit performed prior to submitting this application? Yes X No ___

Date of Traffic Control Device Usage: Begin 06/10/2008 End 6/12/2008

Engineering District: 8-0 County: Dauphin Municipality: Lower Paxton Twp.

On State Route (SR): 1023 Direction: North/Southbound

From: Segment: 40 Offset: 1000

To: Segment: 40 Offset: 1500

On Local Road: N/A Direction: N/A

From: N/A

To: N/A

Normal Speed Limit: 35 mph ADT: 3,500 veh/day

Maximum Length of One-Lane, Two-Way Traffic Section 500 feet
(Between *STOP HERE ON RED* Signs)

Type of Operation: Long-Term Stationary _____ Short Term Stationary Non-Complex

Other (please describe): _____

The traffic control device will be used to control: (Check all that apply)
One-Lane, Two-Way Traffic X
No More than Two approaches X
Other (please describe): _____

Will all signal faces exceed the thresholds for signal face visibility specified on the Publication 213 figure? Yes X No ___

Does the site contain an intersection within the one-lane, two-way traffic section? Yes ___ No X

Does the site contain an uncontrolled commercial driveway within the one-lane, two-way traffic section? Yes ___ No X

Is any roadway approach to the traffic control device on a steep downgrade (5% or more)? Yes ___ No X

Does the site contain an at-grade railroad crossing within 300 feet of the work zone? Yes ___ No X

Proposed work description:
Bridge patching project which consists of daylight operations. Upon completion of the day, two-lane, two-way operation will be restored.

Traffic Control Device Operational Information

Mode of Operation	Manually-Controlled	Pre-Timed	Actuated	Other (explain)
(please check one)			X	

PennDOT Publication Figure: PATA ___26e NC-1____ will be followed.

All-red clearance time is ___23_____ seconds based on
assumed traffic speed of __15____ mph within one-lane, two-way section.

The proposed minimum green time shall be at least 10 seconds.

The proposed maximum green time shall be determined based on field conditions.

The proposed yellow change interval shall be five (5) seconds unless otherwise indicated by PennDOT.

Applicant Certification

The applicant certifies that the information provided on this application and accompanying documents is true and correct.

The applicant certifies that, if approved, the traffic control devices will be operated and maintained in compliance with PennDOT Publications 212 and 213, and the provisions of the temporary traffic control signal permit as issued by PennDOT.

The applicant agrees that it will indemnify, save harmless and defend (if requested) the Commonwealth of Pennsylvania, its agents, representatives and employees, from all suits, actions or claims of any character, name or description, damages, judgments, expenses, attorneys' fees and compensation arising out of personal injury, death or property damage, sustained or alleged to have been sustained in whole or in part by any and all persons whatsoever as a result of or arising out of any act, omission, neglect or misconduct of the applicant, its officers, agents, contractors or employees, during the period of temporary traffic control signal usage.

BY: _____ _____
Signature of Applicant Date

Sworn before me this _____ day of _____, 20_____

Notary: _____

PennDOT Acknowledgement

This application is: Accepted: _____ Temporary Traffic Signal Permit Attached: _____

Rejected: _____ Application was rejected because:

If rejected, please correct immediately and submit to PennDOT. Temporary traffic control device usage cannot begin without prior approval.

Guidelines for the Selection of Temporary Traffic Control Signals in Work Zones

Background

It is common for construction, maintenance, and utility operations to require the closing of a traffic lane during the course of their work. For the duration of the lane closure, traffic must be either diverted to another route via a detour, or merged into other lanes. When the lane closure is located on two-lane, two-way roadways and detour routes are not practical, then alternating traffic on the remaining open lane is the typical operational choice.

Purpose

The purpose of these guidelines and the accompanying selection chart are to provide guidance for selecting the appropriate temporary traffic signal control for short-term and long-term lane closures on two-lane, two-way roadways. These guidelines supplement PennDOT Publication 213 and assist in the determination of the minimum requirements for work zone traffic control for various traffic and roadway parameters. Definitions of terminology and distance charts for various parameters are also available in this document.

MUTCD Guidance on Temporary Traffic Control Signals

"Section 4D.20 Temporary Traffic Control Signals

Standard:
A temporary traffic control signal shall be defined as a traffic control signal that is installed for a limited time period. A portable traffic control signal shall be defined as a temporary traffic control signal that is designed so that it can be easily transported and reused at different locations.

Support:
A temporary traffic control signal is generally installed using methods that minimize the costs of installation, relocation, and/or removal. Typical temporary traffic control signals are for specific purposes, such as for one-lane, two-way facilities in temporary traffic control zones (see Chapter 4G), for a haul-road intersection, or for access to a site that will have a permanent access point developed at another location in the near future.

Standard:
Advance signing shall be used when employing a temporary traffic control signal.

A temporary traffic control signal shall:

A. *Meet the physical display and operational requirements of a conventional traffic control signal.*
B. *Be removed when no longer needed.*

C. Be placed in the flashing mode when not being used if it will be operated in the steady mode within 5 working days; otherwise, it shall be removed.

D. Be placed in the flashing mode during periods when it is not desirable to operate the signal, or the signal heads shall be covered, turned, or taken down to indicate that the signal is not in operation.

Guidance:
A temporary traffic control signal should be used only if engineering judgment indicates that installing the signal will improve the overall safety and/or operation of the location. The use of temporary traffic control signals by a work crew on a regular basis in their work area should be subject to the approval of the jurisdiction having authority over the roadway.

A temporary traffic control signal should not operate longer than 30 days unless associated with a longer-term temporary traffic control zone project.

For use of temporary traffic control signals in temporary traffic control zones, reference should be made to Section 6F.80."

"Section 6F.80 Temporary Traffic Control Signals

Standard:
Temporary traffic control signals (see Section 4D.20) used to control road user movements through TTC zones and in other TTC situations shall meet the applicable provisions of Part 4.

Support:
Temporary traffic control signals are typically used in TTC zones such as temporary haul road crossings; temporary one-way operations along a one-lane, two-way highway; temporary one-way operations on bridges, reversible lanes, and intersections.

Standard:
One-lane, two-way vehicular traffic flow (see Chapter 4G) requires an all-red interval of sufficient duration for road users to clear the portion of the TTC zone controlled by the traffic control signals. Safeguards shall be incorporated to avoid the possibility of conflicting signal indications at each end of the TTC zone.

Guidance:
Where pedestrian traffic is detoured to a temporary traffic control signal, engineering judgment should be used to determine if pedestrian signals or accessible pedestrian signals (see Section 4E.06) are needed for crossing along an alternate route.

When temporary traffic control signals are used, conflict monitors typical of traditional traffic control signal operations should be used.

Option:
Temporary traffic control signals may be portable or temporarily mounted on fixed supports.

Standard:
The supports for temporary traffic control signals shall not encroach into the minimum required width of a "pedestrian access route" of 1200 mm (48 in) or an "alternate circulation path" of 900 mm (36 in).

Guidance:
Temporary traffic control signals should only be used in situations where temporary traffic control signals are preferable to other means of traffic control, such as changing the work staging or work zone size to eliminate one-way vehicular traffic movements, using flaggers to control one-way or crossing movements, using STOP or YIELD signs, and using warning devices alone.

Support:
Factors related to the design and application of temporary traffic control signals include the following:

A. *Safety and road user needs;*
B. *Work staging and operations;*
C. *The feasibility of using other TTC strategies (for example, flaggers, providing space for two lanes, or detouring road users, including bicyclists and pedestrians);*
D. *Sight distance restrictions;*
E. *Human factors considerations (for example, lack of driver familiarity with temporary traffic control signals);*
F. *Road-user volumes including roadway and intersection capacity;*
G. *Affected side streets and driveways;*
H. *Vehicle speeds;*
I. *The placement of other TTC devices;*
J. *Parking;*
K. *Turning restrictions;*
L. *Pedestrians;*
M. *The nature of adjacent land uses (such as residential or commercial);*
N. *Legal authority;*
O. *Signal phasing and timing requirements;*
P. *Full-time or part-time operation;*
Q. *Actuated, fixed-time, or manual operation;*
R. *Power failures or other emergencies;*
S. *Inspection and maintenance needs;*

T. Need for detailed placement, timing, and operation records; and

U. Operation by contractors or by others.

Although temporary traffic control signals can be mounted on trailers or lightweight portable supports, fixed supports offer superior resistance to displacement or damage by severe weather, vehicle impact, and vandalism.

Guidance:
Other TTC devices should be used to supplement temporary traffic control signals, including warning and regulatory signs, pavement markings, and channelizing devices.

The design and placement of temporary traffic control signals should include interconnection to other traffic control signals along the subject roadway.

Temporary traffic control signals not in use should be covered or removed."

Key Terms and Definitions

Portable Traffic Control Signal- as defined in the MUTCD is a temporary traffic control signal that is designed so that it can be easily transported and reused at different locations. Types of portable signals are trailer-mounted and pedestal-mounted.

Temporary Traffic Control Signal on Fixed Supports – as defined in the MUTCD is a temporary traffic control signal that is temporarily mounted on fixed supports. They are typically constructed with span wires mounted on temporarily-installed poles.

Trailer-Mounted Portable Traffic Control Signal System – The system consists of two trailers, with each trailer having a vertical upright and a horizontal arm to accommodate the mounting of at least two signal heads.

Pedestal-Mounted Portable Traffic Control Signal System – The system consists of four units, with a pedestral-mounted signal head on each unit.

Automated Flagger Assistance Device (AFAD) – is a manually-controlled device operated by one or more individuals to safely stop and control traffic through a work zone.

Long-Term Stationary Operation – As defined in PennDOT Publication 213 is work that occupies a location more than 24 hours.

Short-Term Stationary Operation – As defined in PennDOT Publication 213 is work that occupies a location up to 24 hours.

Short-Term Stationary Operation for Temporary Traffic Control Signals – is defined as daylight work areas with work in active progress, emergency nighttime work areas with

work in active progress, or work areas of relatively short duration where work begins during daylight and continues in active progress during hours of darkness.

Long-Term Stationary Operation for Temporary Traffic Control Signals - is defined as all other stationary operations that do not meet the short-term stationary operation for temporary traffic control signals criteria.

Signal Phase – the right-of-way, yellow change, and red clearance intervals in a cycle that are assigned to an independent traffic movement or combination of movements.

Two-Phase Traffic Signal Operation – is defined as an operation when two different vehicle movements occur during the signal cycle. One-lane, two-way traffic control is often a two-phase operation assuming that additional phases are not needed for driveways and intersecting roads.

Multiple Phase Traffic Signal Operation – is defined as an operation when more than two vehicle movements occur during the signal cycle.

Traffic Signal Timing – the amount of time allocated for the display of a signal indication.

Yellow Change Interval – is the first interval following the green interval during which the yellow signal indication is displayed. It is used to warn traffic of an impending change in the right-of-way assignment. The duration of a yellow change interval shall be predetermined.

Red Clearance Interval – is an interval that follows a yellow change interval and proceeds the next conflicting green interval. It provides additional time before conflicting traffic movements, including pedestrians, are released. The duration of a red clearance interval shall be predetermined.

Temporary Traffic Control Signal Permit – is the PennDOT Engineering District Office acceptance that the proper documentation was received to ensure safe and effective use of temporary traffic control signals. This permit will allow proper use of the device in accordance with the provisions of the permit and PennDOT Publication 213.

Temporary Traffic Control Signal Application – is an application that allows the PennDOT Engineering District Office to obtain the minimum required information to ensure safe and efficient operation of the temporary traffic control signal.

Site-Specific Drawing – A drawing that clearly depicts the work zone and the anticipated operations. Typically, this is part of the Traffic Control Plan (TCP).

Performance Specification – Is the required product performance, which may include but is not limited to equipment, physical requirements, operational requirements, etc..

Manually-Controlled Portable Traffic Control Signal Operation – when a portable traffic control signal is being controlled manually.

Short-Term Portable Traffic Control Signal Operation under Blanket Permit – this allows a successful past user of portable signals to obtain agreement with PennDOT to provide notice of the placement of the portable signals with minimal documentation. Verification of the agreement between the user and PennDOT will be evaluated prior to approval of a blanket permit request.

Short-Term Stationary Portable Traffic Control Signal Operation for Non-Complex Conditions– the "non-complex" application will be verified through a number of physical and operational requirements that the site must meet to be considered. These checks allow PennDOT to verify safe and efficient use if installed properly.

Short-Term Stationary Portable Traffic Control Signal Operation for Complex Conditions– the "complex" application would be any short-term portable signal installation that does not met the requirements for "non-complex" applications.

Short-Term Emergency Operation – An emergency application defined in PennDOT Publication 212.

Long-Term Portable Traffic Control Signal Operation – All physical and operational requirements should be part of the Traffic Control Plan.

Temporary Traffic Control Signal – as defined in the MUTCD is a traffic control signal that is installed for a limited time period. Temporary traffic control signals may be portable or temporarily mounted on fixed supports. Common types of temporary traffic control signals are signals mounted on span wire with temporary supports and trailer-mounted portable signals.

Work in Active Progress – Workers, other than flaggers, are present and are actively engaged in performing the necessary work.

Temporary Traffic Control Signals for Long-Term Stationary Operations

In the design phase of every project that will have temporary traffic signals, it is required that both installations on fixed supports and trailer-mounted portable traffic control signals always be considered before completing the design of the Traffic Control Plan (TCP). In some instances, trailer-mounted portable signals or installations on fixed supports can be used. On the other hand, in certain instances, installations on fixed supports may be preferable to trailer-mounted signals, or vice-versa, depending on the nature of the project, site conditions, traffic conditions, and other specific factors.

Before developing a TCP with temporary traffic signals, it is absolutely essential that the designer visit the proposed worksite beforehand. The site visit will enable the designer to evaluate various factors that will help in the determination of whether the TCP should permit both temporary signal design options, or one or the other. These factors include lateral clearance, trailer or pole placement, signal operation (phasing and timing), and

others. Please also note that pedestal-mounted portable traffic control signals will not be considered for long-term stationary operations.

To establish the proper and acceptable temporary traffic control signal within a work zone, the following criteria should be considered:

Long-Term Stationary Operation Using Trailer-Mounted Portable Traffic Control Signals:

Pros:

- Systems can be deployed quickly.
- Especially conducive to deployments for emergencies.
- Systems can be easily set up and taken down each day, or for multiple construction phases.
- Equipment can be reused on future projects.
- Equipment capable of being leased.
- Cost savings potential.
- Capable of wireless radio or hardwire interconnect.
- Commonly equipped with monitoring system for location, low battery status, and conflicts using website and/or cell phone paging.
- Commonly equipped with batteries that are solar recharging.
- Commonly equipped with solar panels, rechargeable batteries, and ability to run via commercial power.
- Wireless remote commonly available.

Cons:

- Arm length can sometimes affect signal head placement.
- Arm length affects number of signal heads that can be placed overhead.
- Trailer size and/or arm length in conjunction with physical features can sometimes limit adequate placement.
- Manufacturers have different operating systems.
- More susceptible to vandalism.
- Less appropriate for long-duration jobs on multilane, high-speed roadways.

Long-Term Stationary Operation Using Temporary Traffic Control Signals on Fixed Supports:

Pros:

- Desirable signal head placement can be achieved.
- More than two overhead signals can be erected.
- Less susceptible to vandalism.
- Pole placement sometimes may be easier to accommodate than trailers due to physical features.
- Fixed supports may be more desirable for long duration deployments.

- More appropriate for multilane approaches.
- Employs common traffic signal control equipment and operational features.

Cons:

- Inability to set up and take down each day.
- Less appealing for short-duration jobs or jobs with short-duration, multiple set-ups.
- Equipment and material availability is sometimes an issue.
- Less cost savings potential.

If the designer determines that only one temporary signal design option is justified for a particular project, then the TCP shall be prepared accordingly, and written documentation shall be maintained in the project file outlining the reasons for this determination. It would also be desirable to clearly indicate on the TCP that the other option will not be permitted for the project.

If the designer determines that trailer-mounted portable signals or installations on fixed supports would be acceptable, then the TCP should clearly show the exact design and operation of both alternatives so that additional plans from the contractor would not be necessary. The TCP should include the design of all anticipated needed features. For example, if platforms or other special features will be needed, their design and placement should be in the TCP. Engineering judgment should be used and documented to determine the safest and most efficient operation for the work zone.

Temporary Traffic Control Signals for Short-Term Stationary Operations

Before developing and/or determining your traffic control plan (TCP) using PennDOT Publication 213, it is absolutely essential that the user visit the proposed worksite beforehand. The site visit will enable the user to evaluate various factors that will help in the determination of whether the TCP should permit temporary signal (portable signal) options, or other traffic control methods such as flaggers. These factors include lateral clearance, trailer or pedestal placement, signal operation (phasing and timing), and others. Please also note that installations on fixed supports are not considered viable for short-term stationary operations because of the amount of time and materials needed for installation.

If the user determines that portable traffic control signals will be an option and would like to pursue that option, then a completed application shall be submitted to PennDOT's appropriate Engineering District Office. If the Engineering District Office agrees with the proposed usage, they will issue a temporary traffic control signal permit.

Non-Compliance Reference No. _____

pennsylvania
DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC CONTROL SIGNALS
Non-Compliance Documentation Form

The purpose of this form is to provide a means for the Districts to document non-compliant installations of temporary traffic control signals. Supply necessary and pertinent information and photos when submitting a non-compliance form. Please be advised that Central Office will review non-compliance documentation to determine possible future action regarding the individual temporary signal user. This will also provide a means of documenting District-wide and statewide issues with temporary traffic control signals.

Engineering District: _____ Non-Compliance Form Submittee:_____

Temporary Signal User: _____

Date of Non-Compliance:_____

County: _____ Municipality: _____

SR: _____Segment _____ Offset:_____

Please attach supporting documentation (e.g., application, permit, TCP, etc.). Provide a description of the nature of the non-compliance:

Please submit completed form to:

Pennsylvania Department of Transportation
Bureau of Highway Safety and Traffic Engineering
ATTN: TEMPORARY SIGNALS
400 North Street- 6th Floor
Harrisburg, PA 17120-0064

Comment Reference No. _____

pennsylvania
DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC CONTROL SIGNALS
User Comment Form

The purpose of this form is to provide the user of temporary traffic control signals the means to comment on both positive and negative feedback received from PennDOT's Engineering District Offices. Please supply all supporting documentation when submitting a comment form. PennDOT's Central Office will review all comments and will work with District Offices to resolve immediate issues, to improve future practices, and to seek uniformity among PennDOT's eleven Engineering District Offices.

User Name: _____Date Submitted: _____

Company: _____

Company Address: _____

Company Phone No.: _____Company Fax No.: _____

Cellular Phone No.: _____E-mail Address: _____

Please attach supporting documentation. Please use the space below to provide your comments:

Please submit completed form to:

Pennsylvania Department of Transportation
Bureau of Highway Safety and Traffic Engineering
ATTN: TEMPORARY SIGNALS
400 North Street- 6th Floor
Harrisburg, PA 17120-0064