TRAFFIC CONTROL PLAN

FOR

CORINTH BRO 1447(29)

(State of Vermont, Agency of Transportation

Chicken Farm Road, Corinth, VT)

FOR

Austin Construction

1149 Main St.
Concord, VT 05824

November, 2014

Prepared by:

STATE OF VERMONT
JOHN P. SICARD
No. 53831
Civil
LICENSED
PROFESSIONAL ENGINEER

REV. 12/4/14

RUGGLES ENGINEERING SERVICES INC.

Ruggles Engineering Services, 4580 Memorial Drive, St. Johnsbury, VT 05819

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SECTION 1 – GENERAL INFORMATION

1.1 Purpose:

The purpose of this Traffic Control Plan is to present site specific construction methods for work zone traffic control. This work consists of furnishing, installing, maintaining and removing traffic control devices necessary to provide reasonable protection & advanced warning for motorists, pedestrians and construction workers.

1.2 Description of Project:

The project includes the removal of an existing single lane bridge (Bridge 36) and replacement with a two lane bridge over the Tabor Branch of the Waits River on Chicken Farm Road (TH16) in Corinth, VT. The project includes a temporary bridge detour and other miscellaneous approach and shoulder work. This project will include the need for traffic control devices phased throughout the project.

Work within this traffic control plan will include the installation of permanent traffic control signs, barriers, etc and will include the phasing of traffic control for the installation of the temporary bridge, removal and replacement of the permanent structure and miscellaneous approach and shoulder work.

Work which requires temporary traffic control with flaggers will occur during daylight hours, Monday through Friday.

1.3 Work Zone Limitations

a. <u>Lane Width</u>

One- 10 foot wide lane will be open for passage by vehicle traffic at all times.

b. <u>Speed Reduction</u>

Detour

- Speed reduction is necessary for the temporary bridge.
- Existing speed on the highway is 25 miles per hour (MPH) and proposed signage will include a cautionary speed reduction to 15 MPH for the adjacent curve.

c. <u>Pedestrian Traffic</u>

Minimal Pedestrian Traffic is expected due to the rural highway with no sidewalks.

d. <u>Lane Closure</u>

Lane Closures will be used when building the temporary bridge, removing the temporary bridge and during the shoulder and intersection work. Lane closures will use daily lane closure signs (One Lane Road Ahead, Be Prepared to Stop, Flagger). These signs will be placed at 500 foot increments.

e. <u>Roadway Surface Conditions</u>

The road surface will be temporary asphalt through the temporary bridge detour.

f. Detours

The project will use a 96 foot temporary bridge with an 18' clear zone between side panels. The detour will use temporary traffic signals. The traffic signals will be installed by East Coast Signals.

g. Signage

- Portable signs will be placed on the edge of the roadway and a minimum of 1 foot above the travel way.
- Vegetation that interferes with the visibility of the signs will be removed
- When signs are placed behind Guardrails, the sign face will be above the top of the rail.

1.4 Flaggers and UTO's in the Work Zones

Flaggers:

- Whenever flaggers are used the FLAGGER AHEAD sign or symbol will be incorporated in the work zone sign package for proper advance notice of the presents of the flagger.
- Sufficient certified flaggers will be available onsite to provide for continuous flagging operations during break periods as needed.
- Flaggers will be informed in advance of the traffic plan and their responsibilities during the daily construction on the project. Any changes throughout the day during construction will be relayed to the flaggers to provide a safe working environment for the construction personnel and the traveling public.
- Flaggers will have two way radio communications.
- See the hand signal figure in the Appendix in case of radio failure or for emergencies.

Uniform Traffic Officers (UTO)

ii. UTO's may be utilized as directed by the Engineer;
- Approach construction which encroaches onto Village Road (Town Highway #1) which will require one lane traffic.

1.5 Key Personnel and Contact Info:

Austin Construction, Inc.

Office	(802) 695-2961
George Austin	(802) 535-5399

East Coast Signals

Office	(603) 463-5450

Plan Preparer:
RUGGLES ENGINEERING SERVICES, INC.
Nathan P. Sicard, P.E. (802) 748-5898, nate.res@myfairpoint.net

1.6 Emergency Contact Information

The following is a list of contact numbers for notifying the Resident & local emergency officials, and local government officials whenever significant traffic impacts are anticipated or an emergency occurs.

EMERGENCY PHONE NUMBERS:

FIRE – POLICE – AMBULANCE …… ….911

_____, Project Resident (VAOT Resident)	(802) ___-____
George Austin	(802) 535-5399
Town of Corinth	(802) 439-5850
VTrans District 7	(802) 748-6670
State Police Barracks (Bradford)	(802) 222-4680
Orange County Sheriff	(802) 685-4875

SECTION 2 – CONSTRUCTION PHASING AND SEQUENCING

2.1 GENERAL:

a. Traffic Impact:

i. Delay Time

Work will be conducted to maintain traffic and reduce delays. The road is not a through road.

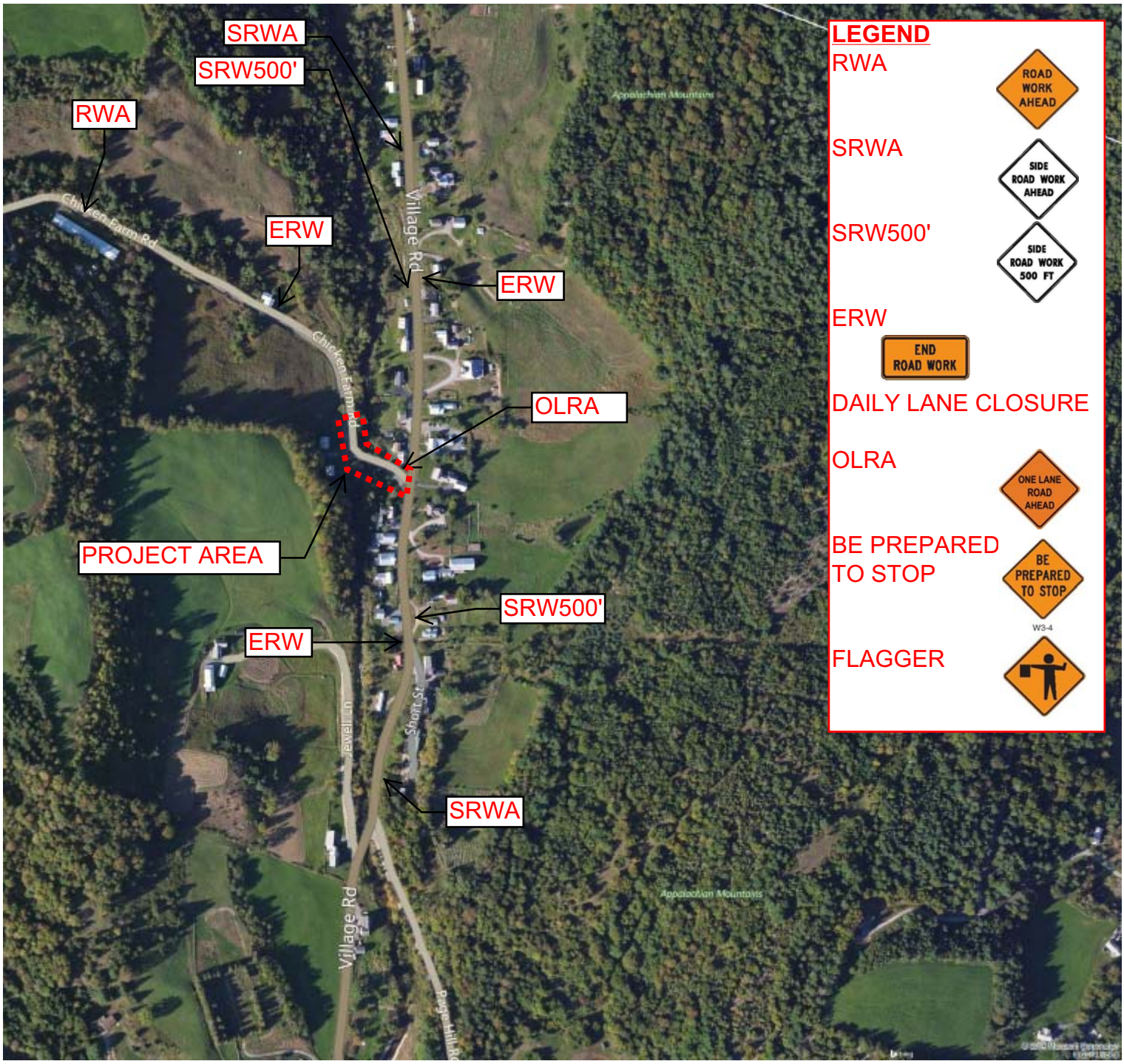
b. Updates:

The phasing of the traffic control plan will be coordinated with the Project Schedule. Although no issues or conflicts are expected, weekly meetings will be held as required to discuss any issues that may arise, to resolve any conflicts on this portion of the project and to ensure the least possible disruption to the traveling public as possible.

2.2 PHASE 1 – Installation of Permanent Signage 2014:

Phase 1 will include the installation of Permanent Project Approach Signing for the work during the 2014 construction season. Signs will be installed as described in the following Plan.

PERMANENT AND TEMPORARY SIGNAGE FOR TRAFFIC CONTROL - GENERAL
CORINTH BRO 1447(29)



NOTES:
1. All signs will conform to MUTCD requirements.
2. All signs will be located on the right side of the road approaching the construction.

1: 6,001

1,000.0 0 1,000.0 Feet

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1" = 500 Ft. 1cm = 60 Meters

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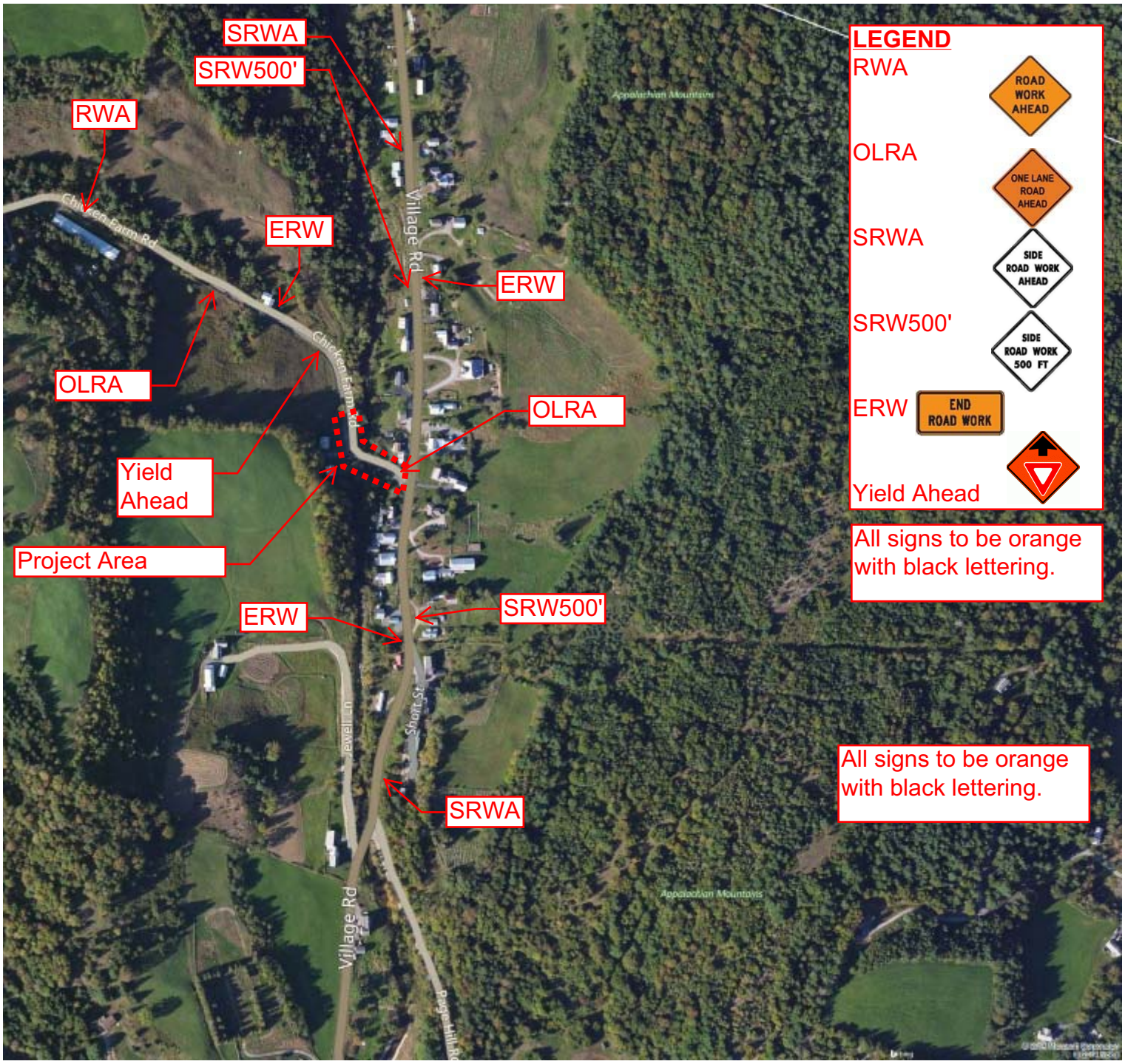
2.3 PHASE 1I – CONSTRUCTION OF TEMPORARY BRIDGE AND DETOUR:

Phase 2 will include the installation of the temporary bridge. The work will include constructing the approaches, bridge, signage and switching traffic. Signs and barriers will be installed as shown on the following Traffic Control Plan.

If weather permits, temporary asphalt will be installed and the full Phase III traffic control plan will be installed.

PERMANENT SIGNAGE FOR TRAFFIC CONTROL - CORINTH BRO 1447(29) PHASE II



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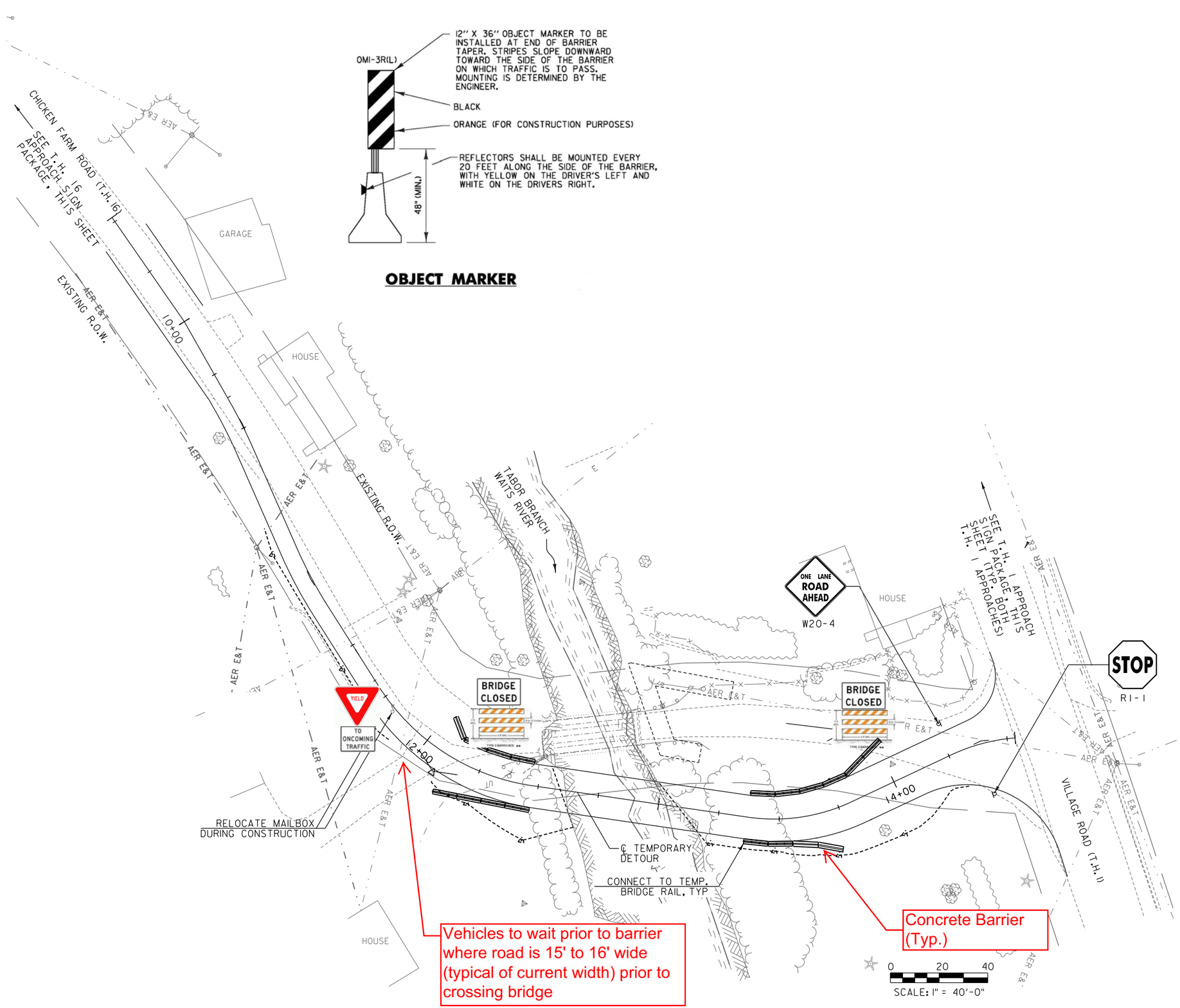


NOTE:
1. See Permanent Approach Plan for additional signs.
2. Bridge Closed and Type III Barricade will be used if old bridge, temporary bridge or new bridge approaches are intact.
3. Maintain 10' between travel lane and end of barrier when available. Speeds of less than 15 miles per hour are anticipated for this site.
4. This plan will be used until full lane closure plan with signals is operational.
5. There are approximately 11 single family houses on the dead end road and preliminary on-site work his indicated approximately 5 vehicles per hour which currently travel at low speeds since the existing road is less than a typical two lane width. Historical use of this highway is to proceed with caution.

PROJECT NAME: CORINTH
PROJECT NUMBER: BRO 1447(29)

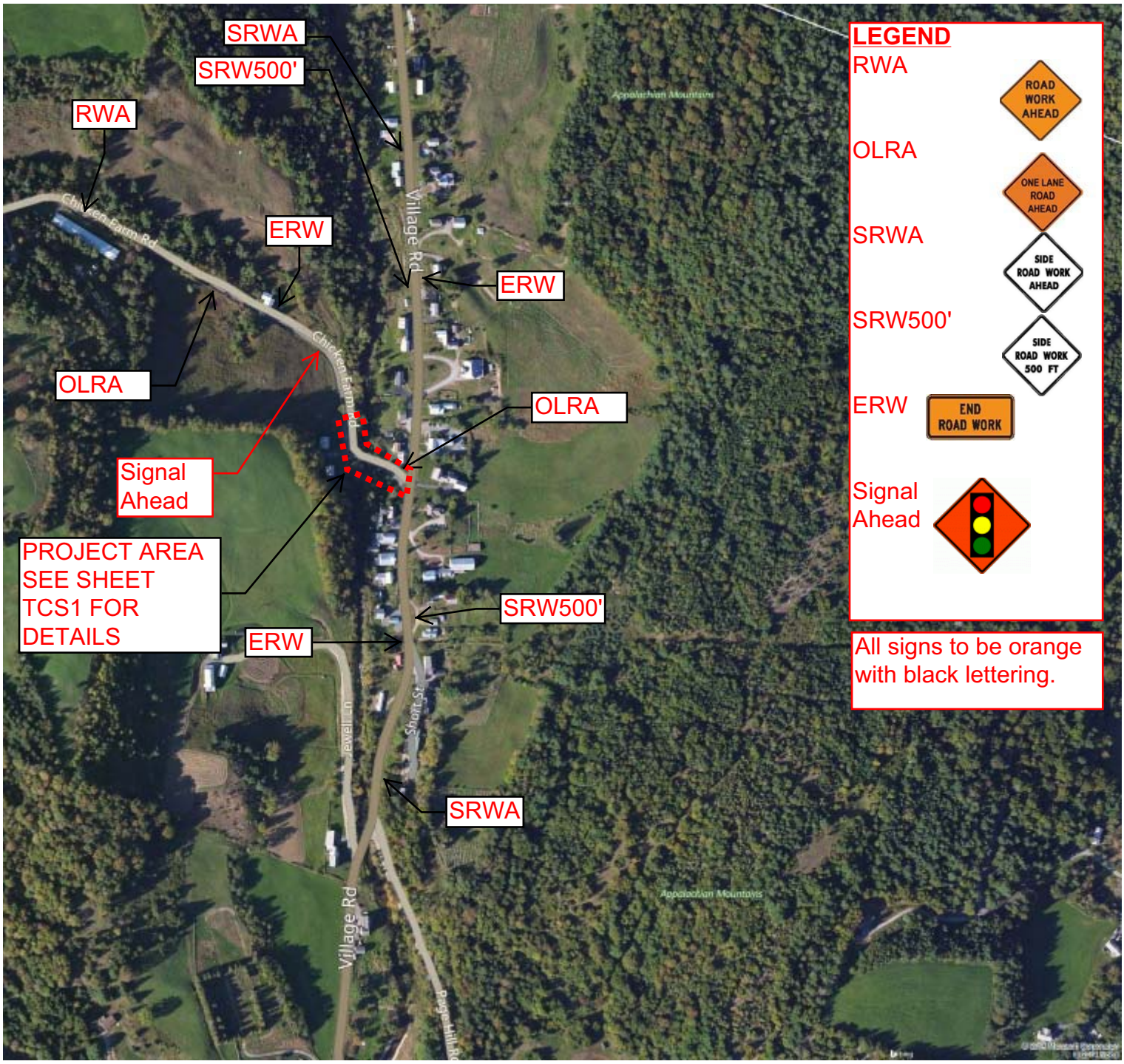
TRAFFIC CONTROL SHEET – 1

2.4 PHASE III – One Lane Road with Signals

Phase III traffic control will be necessary once barriers are installed for the wingwall construction. Due to the length of one lane traffic, temporary traffic signals will be necessary to maintain traffic. The traffic control signals will be installed and maintained by East Coast Signals. The traffic control will need to be maintained based on the following plan.

Currently the road is approximately 15 to 16 feet wide which is less than typical for a two-way highway. The road is a not open to through traffic and provides access for approximately 11 homes. Onsite observations of traffic volumes indicate that the road may see 5-6 cars during peak hours. The plan provides a two way 20 foot wide travel way at each signal and narrows to approximately 14 feet for the single lane which is similar to current road conditions. Traffic speed is expected to remain similar to historic conditions. If the signal system defaults to a caution status, it is anticipated that adequate sight distance is available for traffic to pull to one side and wait for the passing vehicle.

PERMANENT SIGNAGE FOR TRAFFIC CONTROL - SIGNALS INSTALLED
CORINTH BRO 1447(29)



NOTES:
1. All signs will conform to MUTCD requirements.
2. All signs will be located on the right side of the road approaching the construction.

1: 6,001

1,000.0 0 1,000.0 Feet

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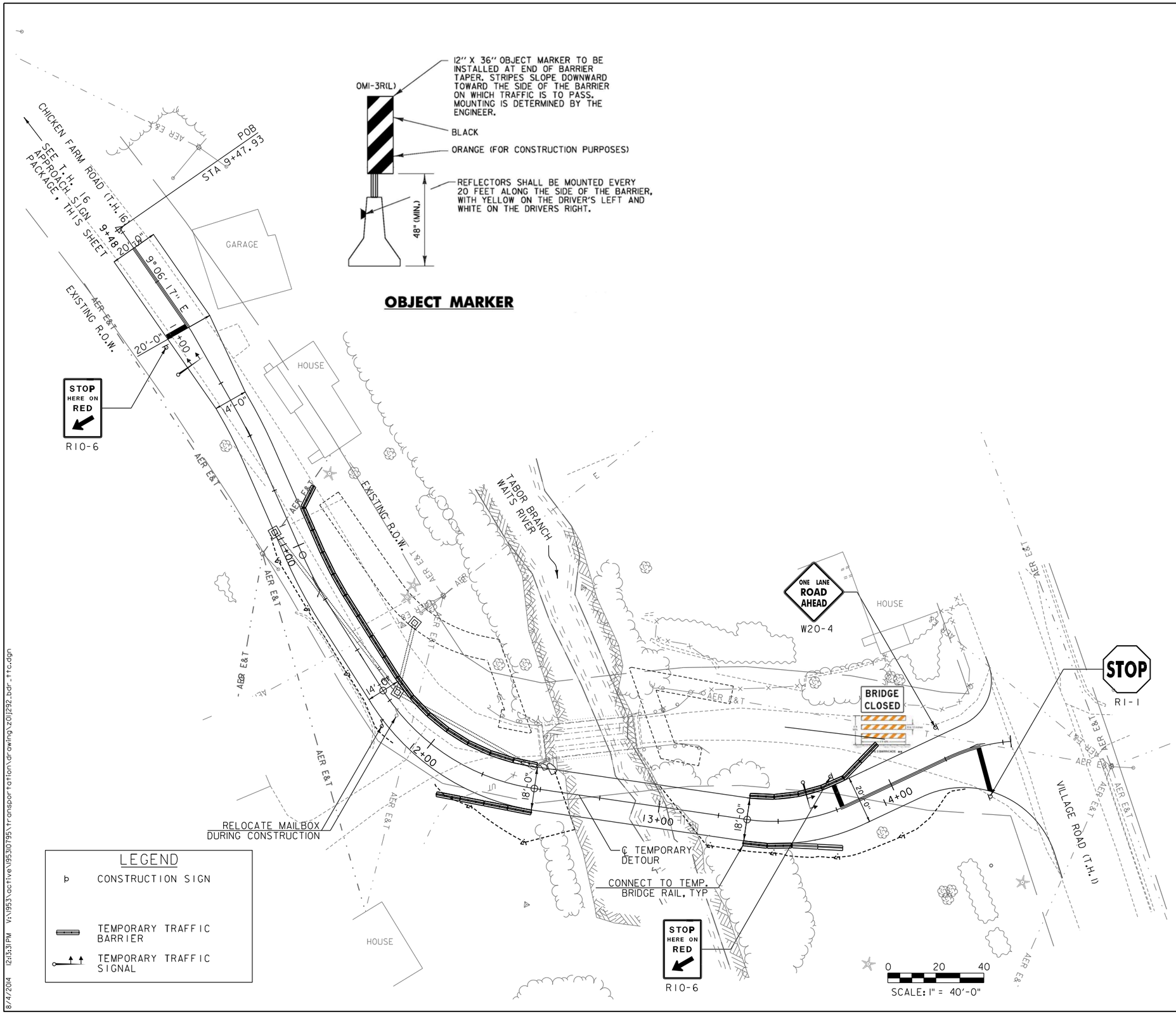

NOTE:
1. See Permanent Approach Plan for additional signs.
2. Maintain 10' between travel lane and end of barrier when available. Speeds of less than 15 miles per hour are anticipated for this site.
3. Signal Phasing to be coordinated with Field Engineer.
4. Use project notes for other requirements of temporary traffic signals.
5. Use Bridge Closed and Type III Barricade when barrier is not used to protect existing or proposed alignment.
6. Residents within the Project limits will be contacted and instructed to proceed with caution through the work area. The driveway at station 12+00 provides widths that exceed pre-construction widths for a vehicle to move over in the event of oncoming traffic. There are approximately 11 single family houses on the dead end road and preliminary on-site work his indicated approximately 5 vehicles per hour which currently travel at low speeds since the existing road is less than a typical two lane width. Historical use of this highway is to proceed with caution.

PROJECT NAME: CORINTH
PROJECT NUMBER: BRO 1447(29)

TRAFFIC CONTROL SHEET 2

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2.5 Phase IV – Detour Removal, Approach Construction:

Traffic control will use flaggers and a daily shift pattern to maintain 1-way traffic. Standard T-36 will also be required when there are uneven lanes. See the Phase II Plans for sign's necessary for this phase.

2.6 Phase V - Guardrail, Signs and Final Pavement Marking:

Traffic control will use flaggers and a daily shift pattern to maintain 1-way traffic. Standard T-36 will also be required when there are uneven lanes. See the Phase II Plans for sign's necessary for this phase.

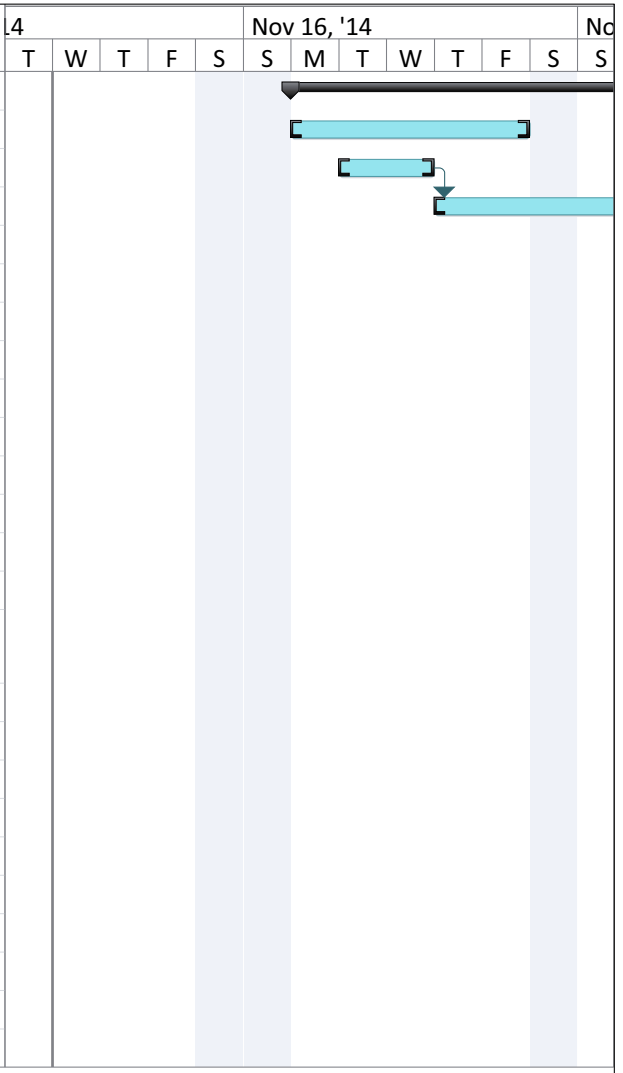
Appendix A – Schedules and Supporting Information

Contractor Schedule

Flagger Hand Signals

Sign Installation

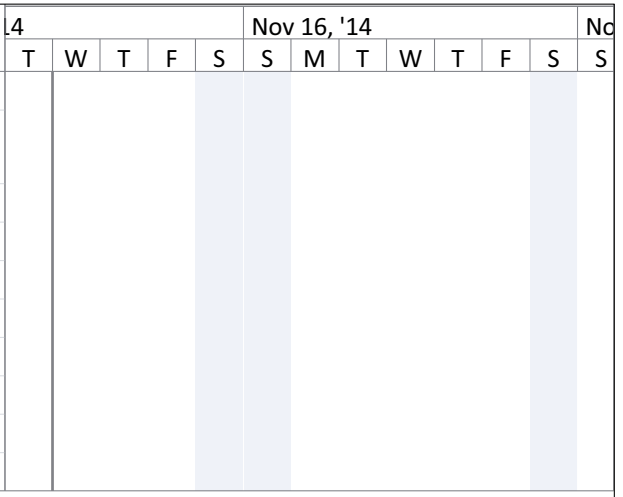
ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors
1			**Mobilize**	**6 days**	**Mon 11/17/14**	**Mon 11/24/14**	
2			Set up Officce Trailer	5 days	Mon 11/17/14	Fri 11/21/14	
3			Erect Signs	2 days	Tue 11/18/14	Wed 11/19/14	
4			Clearing	3 days	Thu 11/20/14	Mon 11/24/14	3
5			**Detour**	**12 days**	**Tue 11/25/14**	**Wed 12/10/14**	**4**
6			Construct Approaches	8 days	Tue 11/25/14	Thu 12/4/14	4
7			Construct Bridge	7 days	Tue 11/25/14	Wed 12/3/14	4
8			Erect Signals	3 days	Fri 12/5/14	Tue 12/9/14	6
9			Switch Traffic	1 day	Wed 12/10/14	Wed 12/10/14	8
10			Demolish Bridge	8 days	Thu 12/11/14	Mon 12/22/14	9
11			Winter Shutdown	75 days	Tue 12/23/14	Mon 4/6/15	10
12			**Abutment 1&2**	**23 days**	**Tue 4/7/15**	**Thu 5/7/15**	**11**
13			Excavate to Bedrock	10 days	Tue 4/7/15	Mon 4/20/15	11
14			Inspect	3 days	Tue 4/21/15	Thu 4/23/15	13
15			Ledge Excavation if required	10 days	Fri 4/24/15	Thu 5/7/15	14
16			**Abutment 1**	**33 days**	**Fri 5/8/15**	**Tue 6/23/15**	
17			Form & Pour Footing	10 days	Fri 5/8/15	Thu 5/21/15	15
18			Form & Pour Abutment	9 days	Fri 5/22/15	Wed 6/3/15	17
19			Form & Pour Wingwalls	15 days	Fri 5/29/15	Thu 6/18/15	
20			Backfill	3 days	Fri 6/19/15	Tue 6/23/15	19
21			**Abutment 2**	**22 days**	**Fri 6/19/15**	**Mon 7/20/15**	
22			Form & Pour Footing	5 days	Fri 6/19/15	Thu 6/25/15	
23			Form & Pour Abutment	9 days	Fri 6/26/15	Wed 7/8/15	22
24			Form & Pour Wingwall	5 days	Thu 7/9/15	Wed 7/15/15	23
25			Backfill	3 days	Thu 7/16/15	Mon 7/20/15	24



Project: Project2.mppCorinth BRO
Date: Wed 11/12/14

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors
26			Erect NEXT Beams	7 days	Tue 7/21/15	Wed 7/29/15	25
27			Construct Concrete Bridge Rail	15 days	Thu 7/30/15	Wed 8/19/15	26
28			**Construct Approaches**	**19 days**	**Mon 8/10/15**	**Thu 9/3/15**	
29			Install Drainage	5 days	Mon 8/10/15	Fri 8/14/15	
30			Place Subbase	4 days	Mon 8/17/15	Thu 8/20/15	29
31			Install Membrane & Pav	3 days	Fri 8/21/15	Tue 8/25/15	26,30
32			Install Rail & Curb	7 days	Wed 8/26/15	Thu 9/3/15	31
33			Remove Detour	10 days	Fri 9/4/15	Thu 9/17/15	32
34			Pave Topcoat	1 day	Fri 9/18/15	Fri 9/18/15	33
35			Demobilize	8 days	Mon 9/21/15	Wed 9/30/15	34



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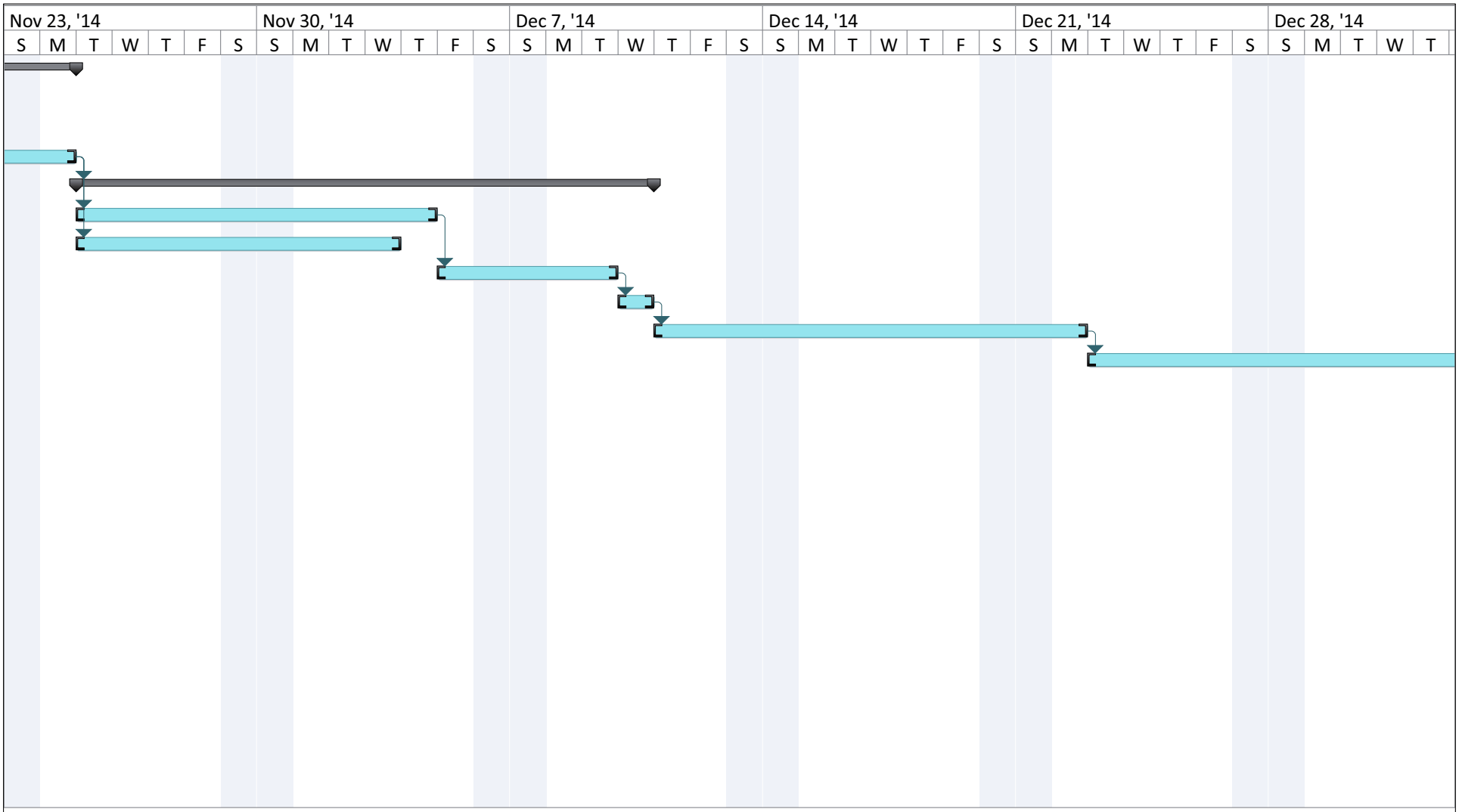

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External Tasks		Duration-only		Progress	

Nov 23, '14							Nov 30, '14							Dec 7, '14							Dec 14, '14							Dec 21, '14							Dec 28, '14				
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T

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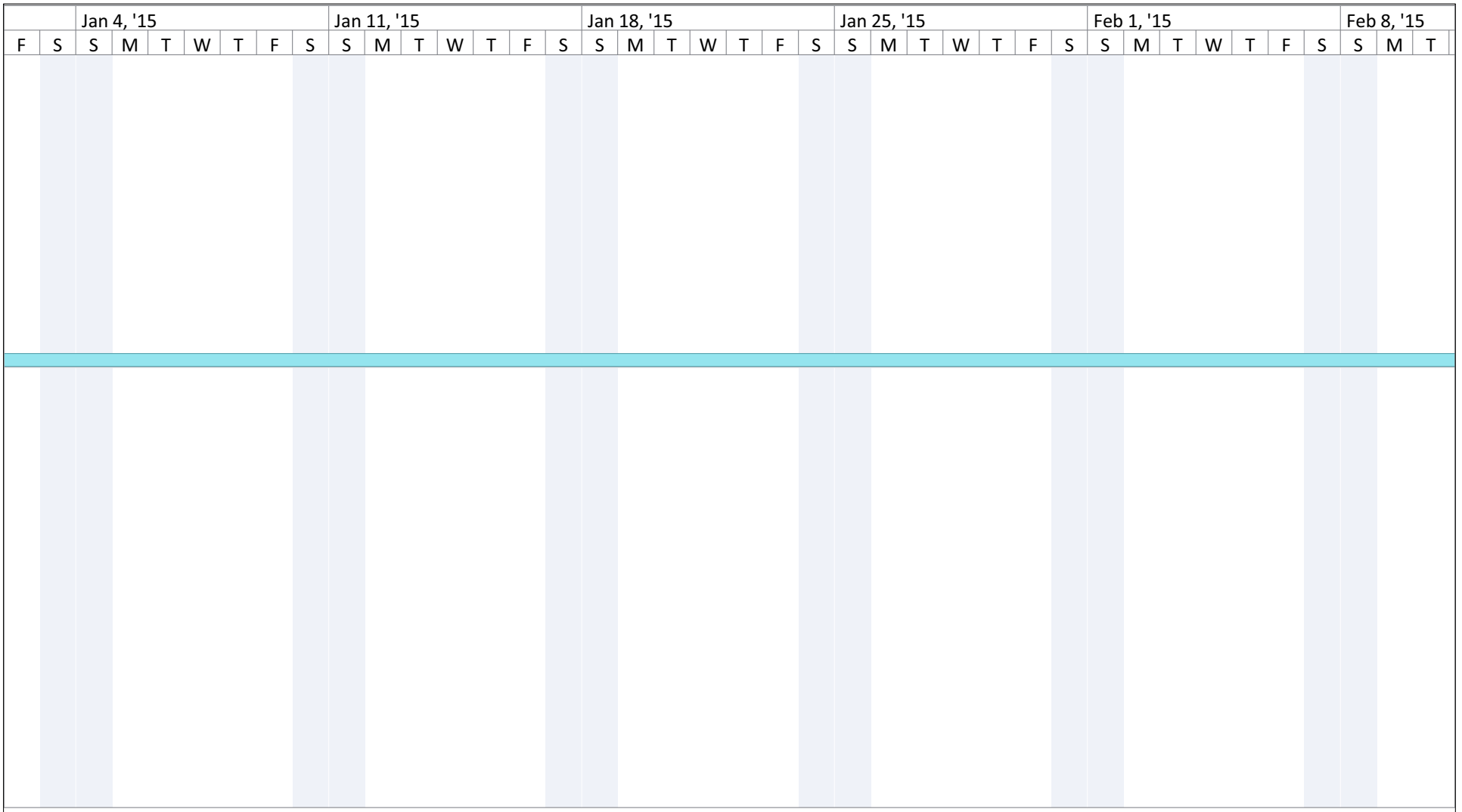

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	Jan 4, '15							Jan 11, '15							Jan 18, '15							Jan 25, '15							Feb 1, '15							Feb 8, '15		
F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T

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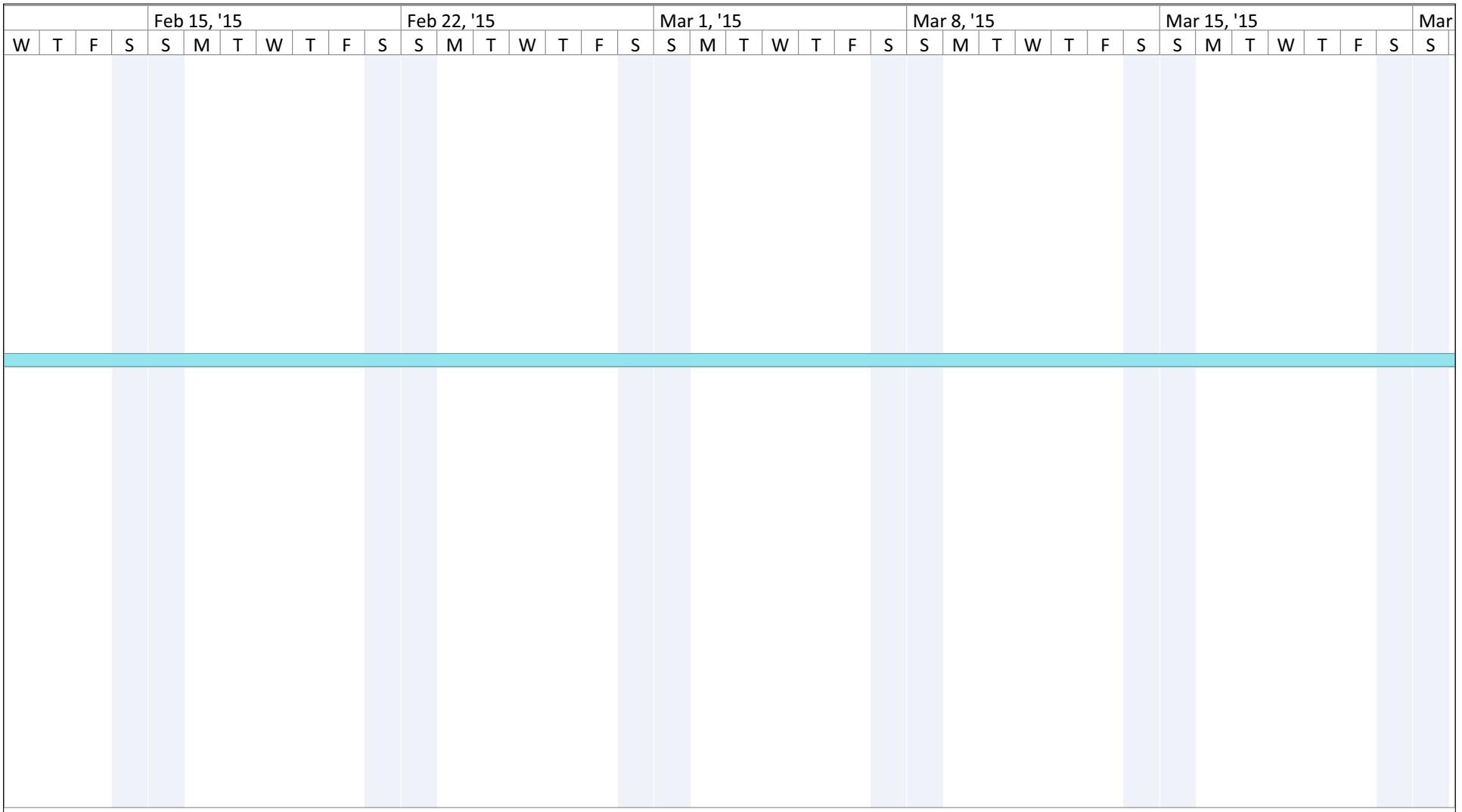

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				Feb 15, '15							Feb 22, '15							Mar 1, '15							Mar 8, '15							Mar 15, '15							Mar
W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S

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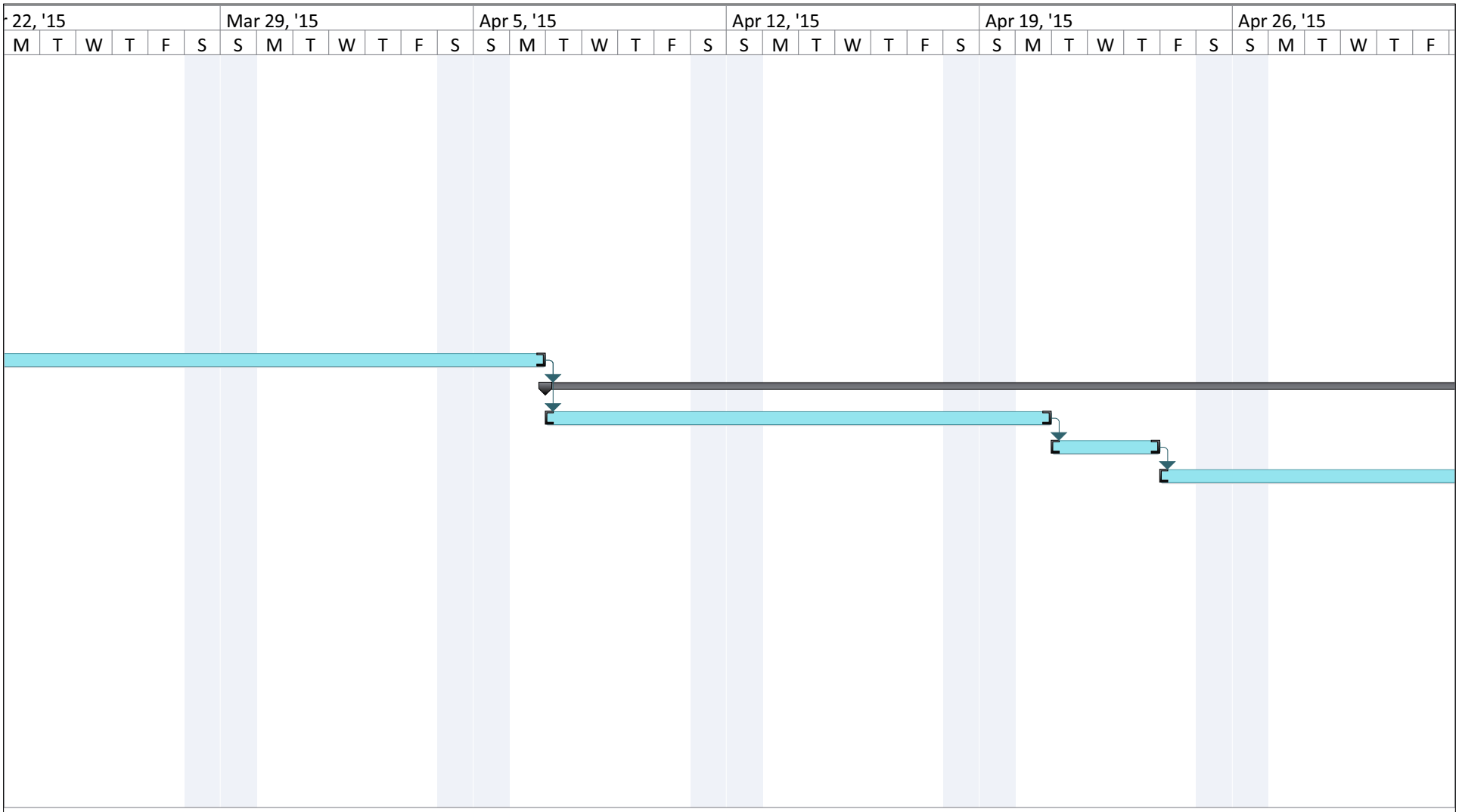

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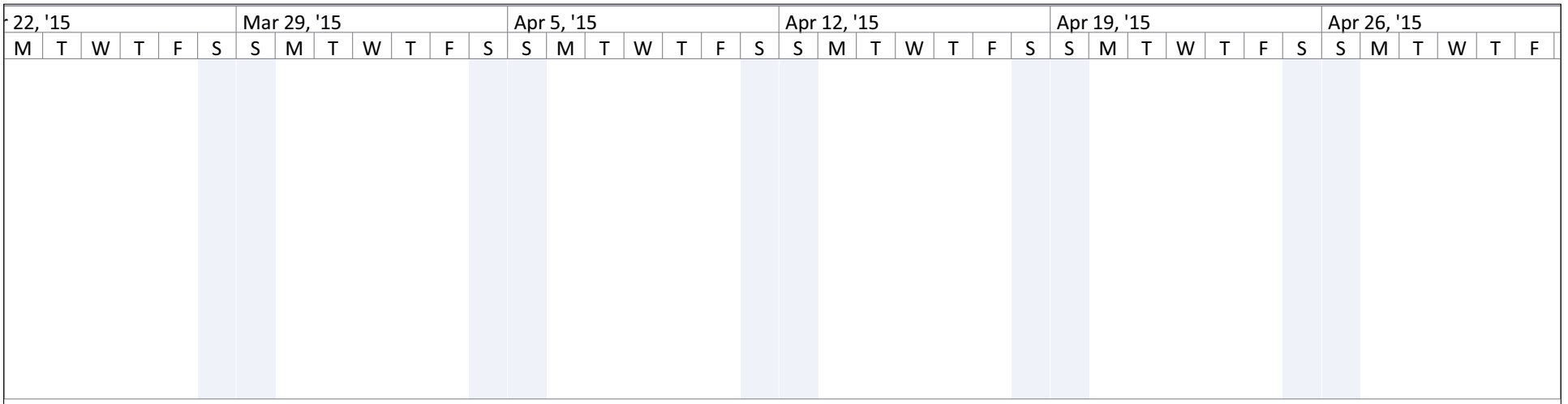

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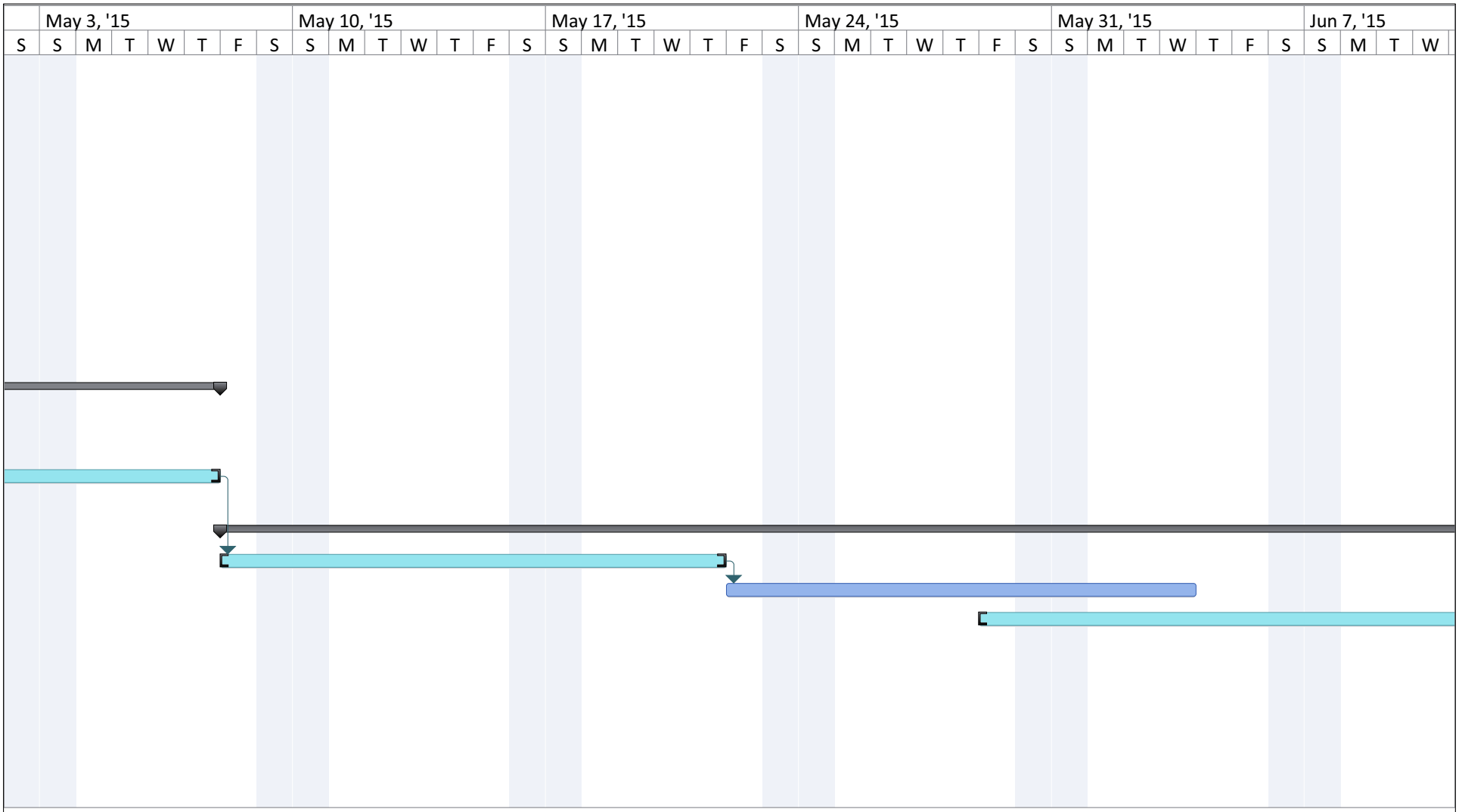

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	May 3, '15							May 10, '15							May 17, '15							May 24, '15							May 31, '15							Jun 7, '15			
S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W

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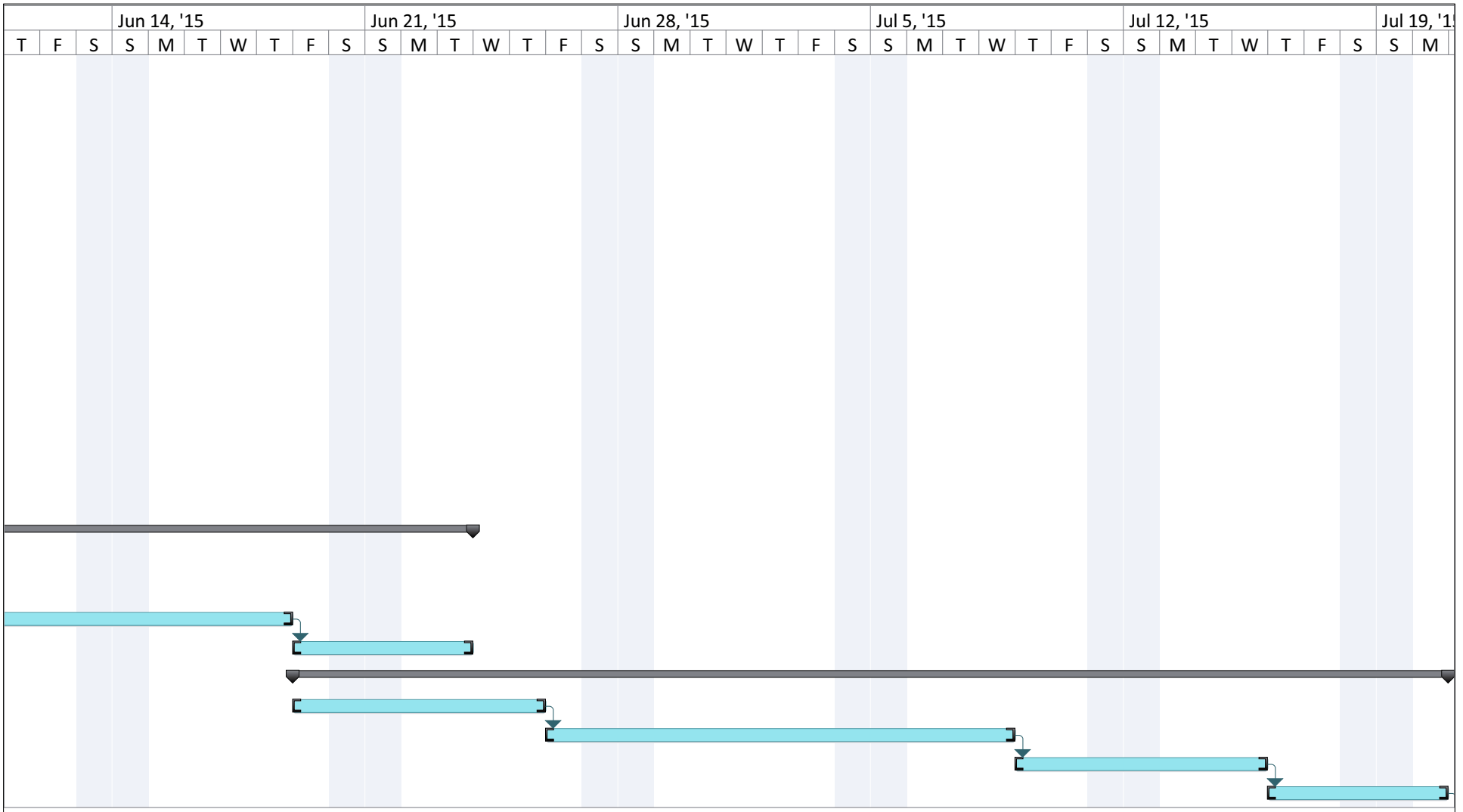

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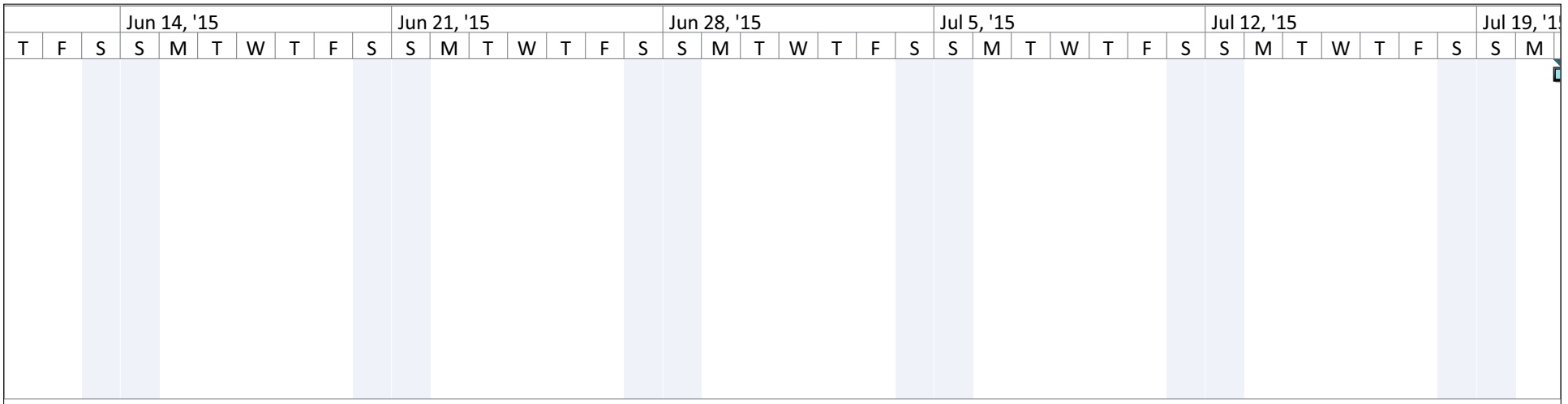
Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	



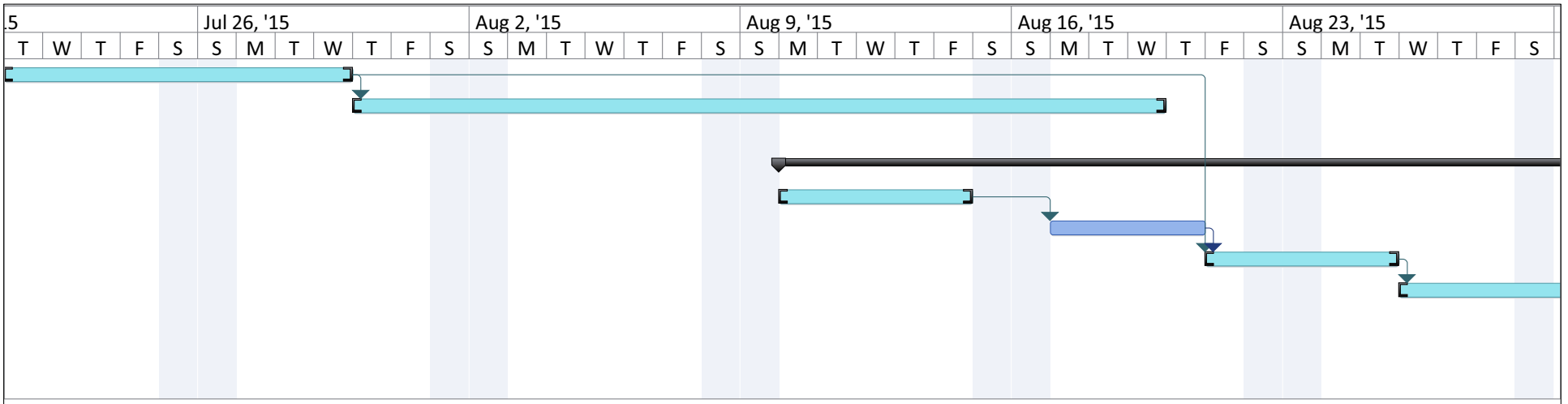
Project: Project2.mppCorinth BRO
Date: Wed 11/12/14

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

.5					Jul 26, '15							Aug 2, '15							Aug 9, '15							Aug 16, '15							Aug 23, '15						
T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S

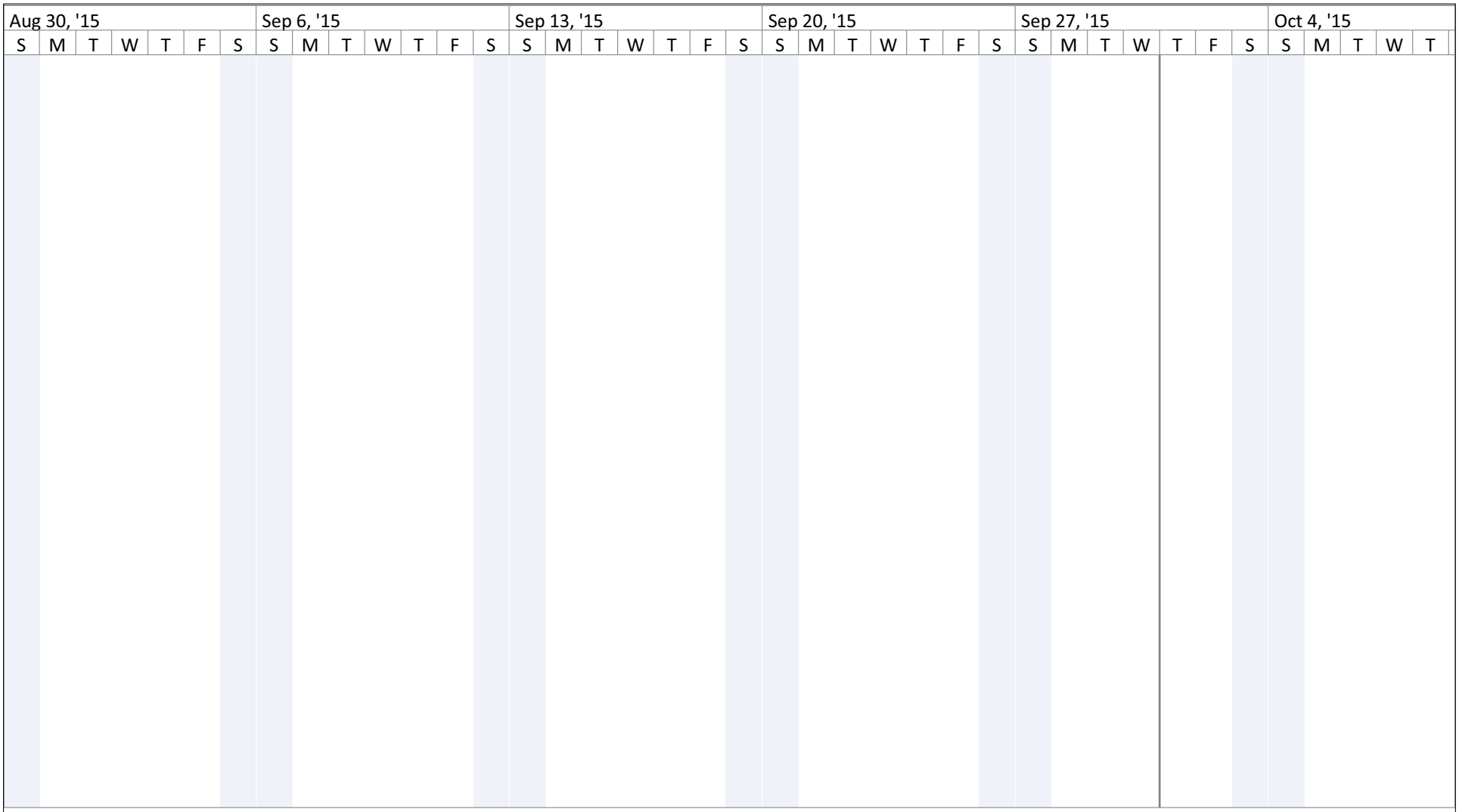
Project: Project2.mppCorinth BRO
Date: Wed 11/12/14

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	



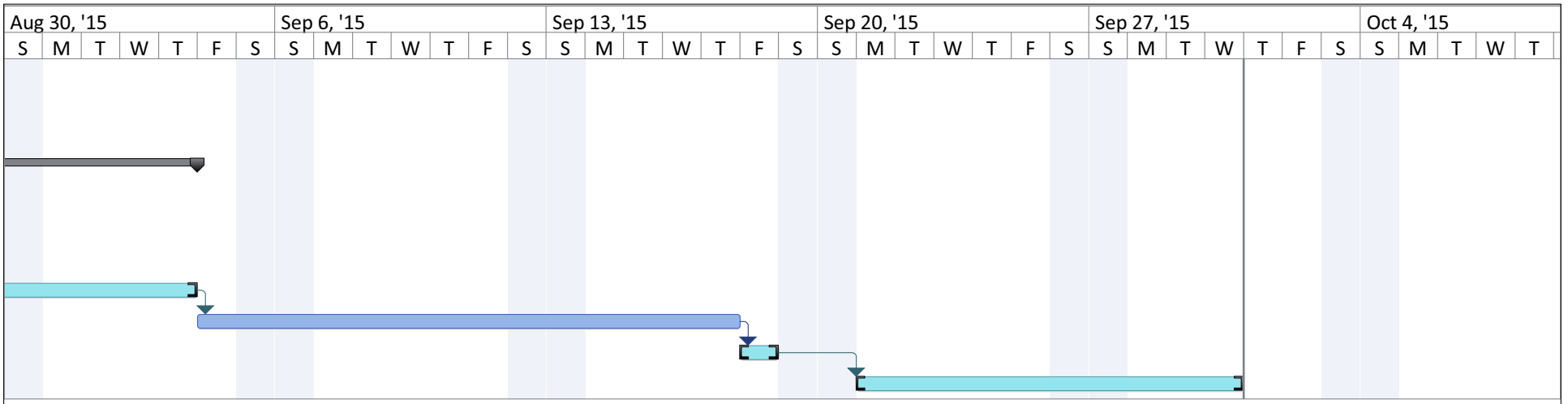
Project: Project2.mppCorinth BRO
Date: Wed 11/12/14

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	



Project: Project2.mppCorinth BRO
Date: Wed 11/12/14

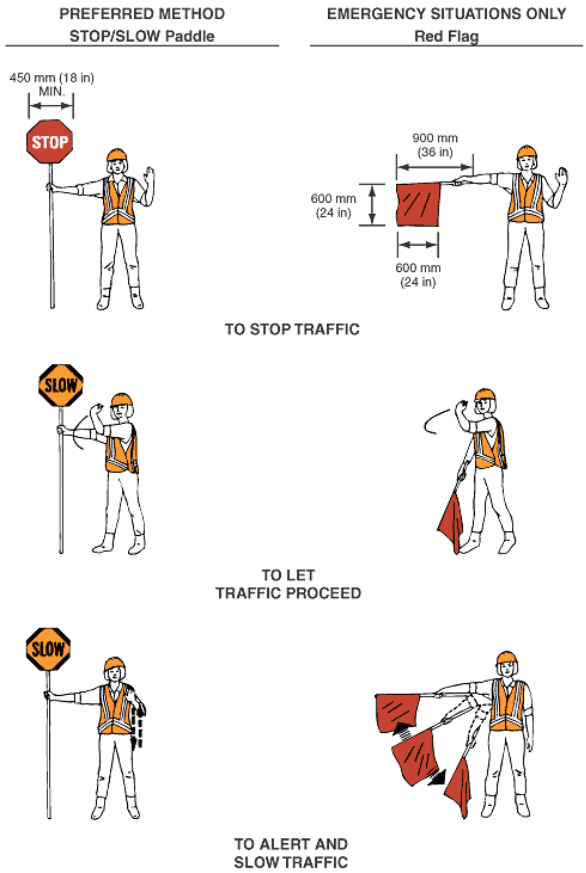
Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	



Project: Project2.mppCorinth BRO
Date: Wed 11/12/14

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

Figure 6E-1. Use of Hand-Signaling Devices by Flaggers



Standard: The following methods of signaling with paddles shall be used:

A. To stop road users, the flagger shall face road users and aim the STOP paddle face toward road users in a stationary position with the arm extended horizontally away from the body. The free arm shall be held with the palm of the hand above shoulder level toward approaching traffic.

B. To direct stopped road users to proceed, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body. The flagger shall motion with the free hand for road users to proceed.

C. To alert or slow traffic, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body.

Option: To further alert or slow traffic, the flagger holding the SLOW paddle face toward road users may motion up and down with the free hand, palm down.

Standard: The following methods of signaling with a flag shall be used:

A. To stop road users, the flagger shall face road users and extend the flag staff horizontally across the road users' lane in a stationary position so that the full area of the flag is visibly hanging below the staff. The free arm shall be held with the palm of the hand above the shoulder level toward approaching traffic.

B. To direct stopped road users to proceed, the flagger shall stand parallel to the road user movement and with flag and arm lowered from the view of the road users, and shall motion with the free hand for road users to proceed. Flags shall not be used to signal road users to proceed.

C. To alert or slow traffic, the flagger shall face road users and slowly wave the flag in a sweeping motion of the extended arm from shoulder level to straight down without raising the arm above a horizontal position. The flagger shall keep the free hand down.

General Sign Installations

Figure 6F-1. Height and Lateral Location of Signs—Typical Installations

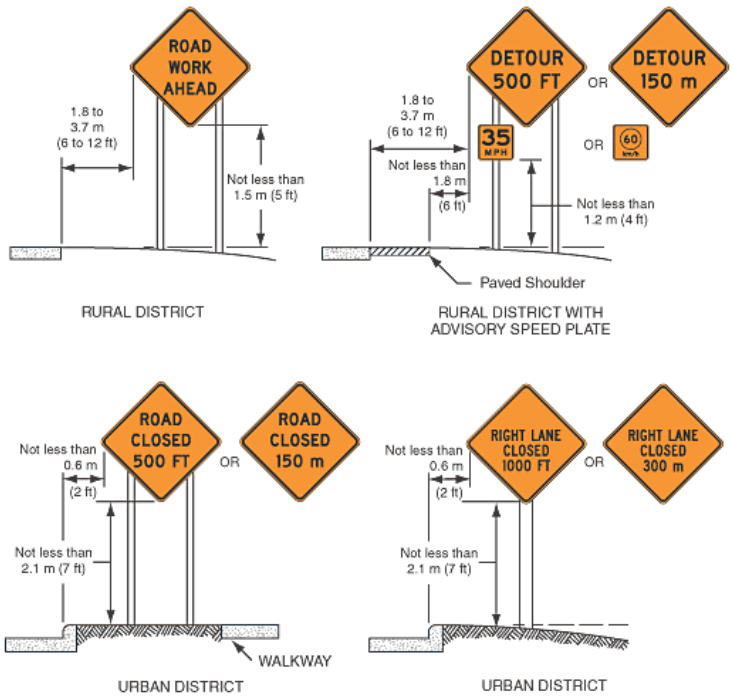


Figure 6F-1. Height and Lateral Location of Signs—Typical Installations

This figure shows four examples of the height and lateral location of signs for typical installations.

The first illustration is labeled "Rural District." The roadway is shown with no shoulder. The sign in this example is a diamond-shaped Road Work Ahead sign. The distance between the edge of the pavement and the near edge of the sign is shown as a dimension of 1.8 to 3.7 m (6 to 12 ft). The distance from the bottom edge of the sign to the level of the edge of the pavement is shown as a dimension not less than 1.5 m (5 ft).

The second illustration is labeled "Rural District with Advisory Speed Plate." The roadway is shown with a paved shoulder. The sign in this example is a diamond-shaped Detour sign with an advisory speed plaque mounted below it, with the metric alternate signs shown to the right. The distance between the outside edge of the roadway and the near edge of the sign is shown as a dimension of 1.8 to 3.7 m (6 to 12 ft). The distance between the outside edge of the paved shoulder and the near edge of the sign is shown as a dimension not less than 1.8 m (6 ft). The distance from the bottom edge of the advisory speed plaque to the level of the edge of the roadway at the inside edge of the shoulder is shown as a dimension not less than 1.2 m (4 ft).

The third illustration is labeled "Urban District." The roadway is shown with a curb along the outside edge of the pavement and a walkway to the right of the sign. The sign in this example is a diamond-shaped Road Closed sign with a metric alternate shown to the right. The distance from the edge of the roadway to the near edge of the sign is shown as a dimension no less than 0.6 m (2 ft). The distance from the bottom edge of the sign to the surface of the curbing is shown as a dimension no less than 2.1 m (7 ft).

The fourth illustration is labeled "Urban District." The roadway is shown with a curb along the outside edge of the pavement. The sign in this example is a diamond-shaped Right Lane Closed sign with a metric alternative shown to the right. The distance from the edge of the roadway to the near edge of the warning sign is shown as a dimension not less than 0.6 m (2 ft). The distance from the bottom edge of the sign to the level edge of the travel lane at the top of the curbing is shown as a dimension of not less than 2.1 m (7 ft).

Appendix B –Standard Sheets for Traffic Control

T-1 Traffic Control General Notes.

T-35 Construction Zone Longitudinal Drop Offs.

1. TRAFFIC CONTROL DEVICES NOT DETAILED IN THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ''STANDARD DRAWINGS'' OR THE PROJECT PLANS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON TRAFFIC CONTROL DEVICES" (MUTCD) AND THE ''STANDARD HIGHWAY SIGNS AND MARKINGS'' BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).

2. CONSTRUCTION SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER.

3. CONSTRUCTION SIGN COVERS SHALL CONSIST OF A PANEL, PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

4. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

5. NO CROSS-BRACING OR BACK-BRACING TO KEEP POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO POSTS.

6. CONSTRUCTION SIGNS INSTALLED ON POSTS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST FIVE FEET ABOVE THE EDGE OF PAVEMENT AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT, FOUR FEET OUTSIDE GUARDRAIL, OR TWO FEET OUTSIDE CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE SIDEWALK OR EDGE OF PAVEMENT, WHICHEVER IS HIGHER.

7. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A MINIMUM OF ONE FOOT ABOVE THE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.

8. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.

9. ROLL UP CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VI AND TYPE VII UNLESS OTHERWISE NOTED.

10. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VIII OR IX REQUIREMENTS UNLESS OTHERWISE NOTED.

11. WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POSTS. WHEN ANCHORS ARE INSTALLED, STUBS SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.

12. ROADWAY AND SHOULDER WIDTHS DEPICTED ON THE STANDARD DRAWINGS MAY VARY.

13. THESE STANDARD DRAWINGS ARE INTENDED TO SERVE AS VTRANS STANDARD OPERATING PROCEDURE. IT IS NOTED THAT COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY BE MODIFIED DUE TO FIELD CONDITIONS, AT THE DISCRETION OF THE ENGINEER.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS

AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

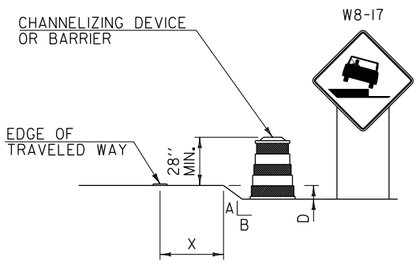
TRAFFIC CONTROL GENERAL NOTES

VERMONT AGENCY OF TRANSPORTATION

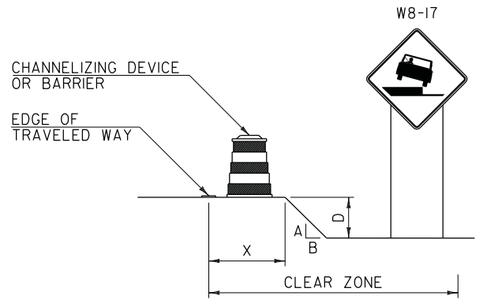
STANDARD

T-1

DROP-OFF ADJACENT TO TRAVELED WAY



TYPE 1

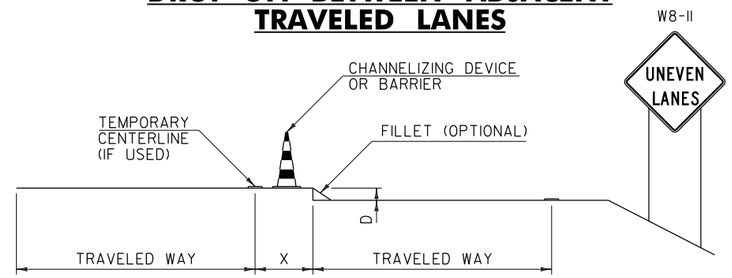


TYPE 2

NOTES:

1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED WAY.
2. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.
3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN IN PLACE OVERNIGHT, THEN "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS SHOULD BE INSTALLED.

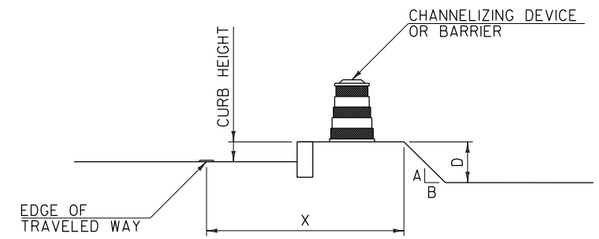
DROP-OFF BETWEEN ADJACENT TRAVELED LANES



NOTES:

1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELED LANES IS TO BE LEFT OVERNIGHT, THEN "UNEVEN LANES" (W8-11) SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHOULD BE THOSE WHICH MAXIMIZE THE WIDTH OF THE TRAVELED LANE (I.E. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
3. A BITUMINOUS CONCRETE FILLET WITH A 1.5:1 SLOPE MAY BE USED IN PLACE OF CHANNELIZING DEVICES, HOWEVER THE "UNEVEN LANES" (W8-11) SIGNS SHOULD STILL BE INSTALLED.
4. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.

DROP-OFF BEYOND SHOULDER OR CURB



NOTES:

1. USE CHART "A" FOR VERTICAL CURBS UNDER SIX INCHES, MOUNTABLE CURBS OR ROADWAYS WITH A POSTED SPEED ABOVE 40 MPH.
2. USE CHART "B" FOR VERTICAL CURBS SIX INCHES OR GREATER.

CHART "A"
ALL SPEEDS WITH NO CURB OR MOUNTABLE CURB

X (FEET)	DROP (D) (INCHES)	A:B SLOPE	RECOMMENDED DEVICE
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 6"	1:1.5 OR FLATTER	NONE
		STEEPER THAN 1:1.5	CHANNELIZING DEVICE
	GREATER THAN 6"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER
4' TO 10'	LESS THAN 6"	ANY	NONE
	6" TO 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER
	GREATER THAN 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER
10' TO CZ	LESS THAN OR EQUAL TO 12"	ANY	NONE
	GREATER THAN 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER

NOTES:

1. THE MINIMUM CLEAR ZONE FOR FREEWAYS IS TO BE DETERMINED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE. ALL OTHER HIGHWAYS WILL BE DETERMINED PER THE CURRENT "VERMONT STATE STANDARDS" BOOK.
2. CHANNELIZING DEVICES MAY BE USED INSTEAD OF BARRIER FOR SHORT TERM OPERATIONS.
3. ON BORDERLINE CONDITIONS, THE ENGINEER SHOULD DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

CHART "B"
40 MPH OR LESS WITH VERTICAL CURB

X (FEET)	DROP (D) (INCHES)	DEVICE REQUIRED
0-10'	LESS THAN OR EQUAL TO 12"	NONE
0-10'	GREATER THAN 12"	CHANNELIZING DEVICE
GREATER THAN 10'	ANY	NONE

GENERAL NOTES:

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHOULD BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) COMPLIANT CHANNELIZING DEVICES:

   A. VERTICAL PANEL
   B. TYPE I OR TYPE II BARRICADE
   C. PLASTIC DRUM
   D. CONE - WHERE APPLICABLE
   E. TUBULAR MARKERS

   IF CHANNELIZING DEVICES ARE REQUIRED TO STAY IN PLACE DURING NIGHTTIME HOURS, THEY SHALL BE STABILIZED WHILE UNATTENDED IN ACCORDANCE WITH THE MUTCD.
3. WHERE BARRIER IS NECESSARY, THE BARRIER SHALL BE TAPERED BEYOND THE CLEAR ZONE. WHEN THE BARRIER CANNOT BE TAPERED BEYOND THE CLEAR ZONE, A MUTCD COMPLIANT END TREATMENT SHALL BE USED. BARRIER AND END TREATMENT SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
4. CHANNELIZING DEVICE SPACING ALONG A LONGITUDINAL DROP-OFF (TANGENT) SHALL BE AS FOLLOWS:

   TANGENT - CHANNELIZING DEVICES SHALL BE SPACED "2S" ("S" IS EQUAL TO THE POSTED SPEED LIMIT IN FEET) APART.
5. "LOW SHOULDER" (W8-9) AND "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS, WHEN USED, SHOULD BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

OTHER STDS. REQUIRED: **T-1**

REVISIONS AND CORRECTIONS

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APPROVED

HIGHWAY SAFETY & DESIGN ENGINEER

DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Richter

FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-35